



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Telecommunications and**  
**Information Administration**  
 INTERDEPARTMENT RADIO ADVISORY COMMITTEE  
 Washington, D.C. 20230

September 10, 2018

**Federal Communications  
Commission**

OCT 9 2019

**Office of the Secretary**

Mr. Julius P. Knapp  
 Chief, Office of Engineering and Technology  
 Federal Communications Commission  
 445 12<sup>th</sup> Street, S.W.  
 Washington, DC 20554

DOCKET FILE COPY ORIGINAL

Dear Mr. Knapp:

With the advice of the Interdepartment Radio Advisory Committee, the National Telecommunications and Information Administration (NTIA) has examined the 2015 World Radiocommunication Conference (WRC-15) results published in the WRC-15 Final Acts. As a result of the examination, we propose, in the enclosed Attachment 1, revisions to the National Table of Frequency Allocations. We submit this document for your consideration toward revision of the National Table.

In addition, NTIA has included changes to U.S. footnote 128 that the federal agencies approved through the IRAC process and would ask the FCC to consider this footnote together with the WRC-15 implementation package. Attachment 2 contains the proposed changes.

We appreciate the excellent cooperation from the Commission during this process. Our continued joint efforts to ensure the U.S. industry and the federal agencies enjoy the benefits of our accomplishments at WRC-15 are of paramount importance to NTIA. The NTIA point-of-contact is Charles Glass (202 482-1896; [cglass@ntia.doc.gov](mailto:cglass@ntia.doc.gov))

Sincerely,

for Peter A. Tenhula  
 Acting Associate Administrator  
 Office of Spectrum Management

**Attachments (2):**

- 1) Draft Federal View of WRC-15 Implementation – 19 Annexes
- 2) US Footnote 128

No. of Copies rec'd \_\_\_\_\_  
 List ABCDE

## **Attachment 1**

### **Draft Federal View for WRC-15 Implementation**

In support of the development of an agreement for the implementation of the outcome of WRC-15 in U.S. regulations and procedures, the Annexes to this Attachment present proposed revisions to the National Table of Frequency Allocations. Each Annex contains the revisions for particular WRC-15 agenda items, as reflected in the titles.

## Proposed Changes

**Agenda item 1.1 and agenda item 1.2 (Mobile Broadband /IMT)**

3

470-694700 BROADCASTING	470-512 BROADCASTING Fixed Mobile MOD 5.292 MOD 5.293 ADD 5.295	470-585 FIXED MOBILE ADD 5.296A BROADCASTING	470-608	470-512 FIXED LAND MOBILE ADD 5.295 BROADCASTING NG5 NG14 NG66 NG115 NG149	Public Mobile (22) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H) Private Land Mobile (90)
	512-608 BROADCASTING	5.291 5.298 585-610 FIXED MOBILE ADD 5.296A BROADCASTING RADIONAVIGATION		512-608 FIXED MOBILE ADD 5.295 BROADCASTING NG5 NG14 NG115 NG149	Wireless Communications (27) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)
	ADD 5.295 MOD 5.297				
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)	5.149 5.305 5.306 5.307 610-890 FIXED MOBILE ADD 5.296A 5.313A MOD 5.317A BROADCASTING	608-614 LAND MOBILE (medical telemetry and medical telecommand) RADIO ASTRONOMY US74 US246		Personal Radio (95)

614-698 BROADCASTING Fixed Mobile MOD 5.293 ADD 5.308 ADD 5.308A MOD 5.309 5.311A 698-806 MOBILE 5.313B MOD 5.317A BROADCASTING Fixed 5.149 MOD 5.291A MOD 5.294 MOD 5.296 5.300 5.304 5.306 5.311A MOD 5.312 5.312A 694-790 MOBILE except aeronautical mobile MOD 5.312A MOD 5.317A BROADCASTING MOD 5.300 5.311A MOD 5.312 790-862 FIXED MOBILE except aeronautical mobile MOD 5.316B MOD 5.317A	614-698 BROADCASTING Fixed Mobile MOD 5.293 ADD 5.308 ADD 5.308A MOD 5.309 5.311A 698-806 MOBILE 5.313B MOD 5.317A BROADCASTING Fixed 5.149 MOD 5.291A MOD 5.294 MOD 5.296 5.300 5.304 5.306 5.311A MOD 5.312 5.312A 694-790 MOBILE except aeronautical mobile MOD 5.312A MOD 5.317A BROADCASTING MOD 5.300 5.311A MOD 5.312 790-862 FIXED MOBILE except aeronautical mobile MOD 5.316B MOD 5.317A	614-698 FIXED MOBILE ADD 5.308A BROADCASTING NG5 NG14 NG115 NG149 698-758 FIXED MOBILE BROADCASTING NG159 758-775 FIXED MOBILE NG34 NG159 775-788 FIXED MOBILE BROADCASTING NG159 788-805 FIXED MOBILE	614-698 FIXED MOBILE ADD 5.308A BROADCASTING NG5 NG14 NG115 NG149 698-758 FIXED MOBILE BROADCASTING NG159 758-775 FIXED MOBILE NG34 NG159 775-788 FIXED MOBILE BROADCASTING NG159 788-805 FIXED MOBILE	Wireless Communications (27) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H) Wireless Communications (27) LPTV and TV Translator (74G) Public Safety Land Mobile (90R) Wireless Communications (27) LPTV and TV Translator (74G) Public Safety Land Mobile (90R)
---	---	---	---	--



902-928 FIXED Amateur Mobile except aeronautical mobile 5.325A Radiolocation	902-928 RADIOLOCATION G59	902-928 ISM Equipment (18) Private Land Mobile (90) Amateur Radio (97)
5.150 MOD 5.325A 5.326	5.150 US218 US267 US275 G11	5.150 US218 US267 US275
928-942 FIXED MOBILE except aeronautical mobile 5.317A Radiolocation	928-932	928-929 FIXED US116 US268 NG35 929-930 FIXED LAND MOBILE US116 US268 930-931 FIXED MOBILE US116 US268 931-932 FIXED LAND MOBILE US116 US268 932-935 FIXED US268 G2 935-941 US116 US268 G2 941-944 FIXED US268 US301 G2 944-960 FIXED NG35
5.325 942-960 FIXED MOBILE 5.317A BROADCASTING	5.327 942-960 FIXED MOBILE 5.317A BROADCASTING	Public Mobile (22) Private Land Mobile (90) Fixed Microwave (101) Private Land Mobile (90) Personal Communications (24) Public Mobile (22) Public Mobile (22) Fixed Microwave (101) Private Land Mobile (90) Personal Communications (24) Public Mobile (22) Aural Broadcast Auxiliary (74E) Fixed Microwave (101) Public Mobile (22) Aural Broadcast Auxiliary (74E) Low Power Auxiliary (74H) Fixed Microwave (101)
5.323 942-960 FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322	5.320	Aviation (87)
960-1164 AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328	960-1164 AERONAUTICAL MOBILE (R) 5.327A AERONAUTICAL RADIONAVIGATION 5.328 US224	

1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.328A	1164-1215 AERONAUTICAL RADIONAVIGATION 5.328 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)	5.328A US224	
1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) 5.330 5.331 5.332	1215-1240 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G66 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) G132 SPACE RESEARCH (active) 5.332	1215-1240 Earth exploration-satellite (active) Space research (active)	
1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.329 5.329A SPACE RESEARCH (active) Amateur 5.282 5.330 5.331 5.332 5.335 5.335A	1240-1300 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 SPACE RESEARCH (active) AERONAUTICAL RADIONAVIGATION 5.332 5.335	1240-1300 AERONAUTICAL RADIONAVIGATION Amateur Earth exploration-satellite (active) Space research (active) 5.282	Amateur Radio (97)
1300-1350 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 5.337 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.149 5.337A	1300-1350 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation G2 US342	1300-1350 AERONAUTICAL RADIONAVIGATION 5.337	Aviation (87)
1350-1400 FIXED MOBILE RADIOLOCATION	1350-1390 FIXED MOBILE RADIOLOCATION G2 5.334 5.339 US342 US385 G27 G114 1390-1395	1350-1390 FIXED MOBILE except aeronautical mobile 5.334 5.339 US342 US385 1390-1395 FIXED MOBILE except aeronautical mobile 5.339 US79 US342 US385 NG338A	Wireless Communications (27)
5.149 5.338 5.338A 5.339	5.149 5.334 5.339	LAND MOBILE (medical telemetry and medical telecommand) 1395-1400 5.339 US79 US342 US385	Personal Radio (95)

Page 32

Table of Frequency Allocations				1400-1626.5 MHz (UHF)		United States Table		FCC Rule Part(s)		Page 33
				International Table		Federal Table		Non-Federal Table		
Region 1 Table	Region 2 Table	Region 3 Table								
1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)						1400-1427 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive)				

5.340 5.341		5.341 US246		
1427-1429 SPACE OPERATION (Earth-to-space) FIXED MOBILE except aeronautical mobile ADD 5.341A ADD 5.341B ADD 5.341C MOD 5.338A 5.341	1429-1452 FIXED MOBILE ADD 5.341B ADD 5.341C 5.343	1427-1429.5 LAND MOBILE (medical telemetry and medical telecommand) US350  5.341 ADD 5.338A-US79  1429.5-1432	1427-1429.5 LAND MOBILE (telemetry and telecommand) Fixed (telemetry)  5.341 ADD 5.338A US79 US350 NG338A	Private Land Mobile (90) Personal Radio (95)
1429-1452 FIXED MOBILE except aeronautical mobile ADD 5.341A		1429.5-1432 FIXED (telemetry and telecommand) LAND MOBILE (telemetry and telecommand)  5.341 ADD 5.338A US79 US350 NG338A		
MOD 5.338A 5.341 MOD 5.342 1452-1492 FIXED MOBILE except aeronautical mobile ADD 5.346 BROADCASTING BROADCASTING-SATELLITE 5.208B	MOD 5.338A 5.341 1452-1492 FIXED MOBILE ADD 5.341B 5.343 ADD 5.346A BROADCASTING BROADCASTING-SATELLITE 5.208B	1432-1435  5.341 ADD 5.338A US83	1432-1435 FIXED MOBILE except aeronautical mobile  5.341 ADD 5.338A US83 NG338A	Wireless Communications (27)
5.341 MOD 5.342 5.345 1492-1518 FIXED MOBILE except aeronautical mobile ADD 5.341A	5.341 5.344 5.345 1492-1518 FIXED MOBILE ADD 5.341B 5.343	1435-1525 MOBILE (aeronautical telemetry) US338A		Aviation (87)
5.341 MOD 5.342 1518-1525 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A	5.341 5.344 1518-1525 FIXED MOBILE 5.343 MOBILE-SATELLITE (space-to-Earth) 5.348 5.348A 5.348B 5.351A			
5.341 MOD 5.342	5.341 5.344	5.341 US84 US343		



Table of Frequency Allocations

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIO DETERMINATION- SATELLITE (space-to- Earth) 5.398 Radiolocation 5.398A	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIO DETERMINATION- SATELLITE (space-to-Earth) 5.398	2483.5-2500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIO DETERMINATION-SATELLITE (space-to-Earth) 5.398	2483.5-2500 MOBILE-SATELLITE (space-to- Earth) US319 US380 US391 RADIO DETERMINATION- SATELLITE (space-to-Earth) 5.398	2483.5-2495 MOBILE-SATELLITE (space-to- Earth) US380 RADIO DETERMINATION-SATEL- LITE (space-to-Earth) 5.398  5.150 5.402 US41 US319 NG147  2495-2500 FIXED MOBILE except aeronautical mobile MOBILE-SATELLITE (space-to- Earth) US380 RADIO DETERMINATION-SATEL- LITE (space-to-Earth) 5.398  5.150 5.402 US41 US319 US391 NG147	ISM Equipment (18) Satellite Communi- cations (25)          ISM Equipment (18) Satellite Communi- cations (25) Wireless Communi- cations (27)
5.150 5.399 5.401 5.402 2500-2520 FIXED 5.410 MOBILE except aeronautical mobile 5.384A	5.150 5.402 2500-2520 FIXED 5.410 FIXED-SATELLITE (space-to- Earth) 5.415 MOBILE except aeronautical mobile 5.384A	5.150 5.401 5.402 2500-2520 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A 5.404 5.415A	5.150 5.402 US41 2500-2655	2500-2655 FIXED US205 MOBILE except aeronautical mobile	Wireless Communi- cations (27)
5.412 2520-2655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING- SATELLITE 5.413 5.416	5.404 2520-2655 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416	2520-2535 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 5.403 5.414A 5.415A 2535-2655 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416			
5.339 5.412 5.417C 5.417D 5.418B 5.418C	5.339 5.417C 5.417D 5.418B 5.418C	5.339 5.417A 5.417B 5.417C 5.417D 5.418 5.418A 5.418B 5.418C	5.339 US205	5.339	

2655-2670 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.208B 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)	2655-2670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)	2655-2670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)	2655-2690 Earth exploration-satellite (passive) Radio astronomy US385 Space research (passive)	2655-2690 FIXED US205 MOBILE except aeronautical mobile Earth exploration-satellite (passive) Radio astronomy Space research (passive)
5.149 5.412 2670-2690 FIXED 5.410 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive)	5.149 5.208B 2670-2690 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.208B 5.415 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive)	5.149 5.208B 5.420 2670-2690 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419 Earth exploration-satellite (passive) Radio astronomy Space research (passive)	US205	US385
5.149 5.412 2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	5.149 2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive)	5.149 2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive)	US205	US385
5.340 5.422 2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation	5.340 5.422 2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation	5.340 5.422 2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation	US246 2700-2900 METEOROLOGICAL AIDS AERONAUTICAL RADIONAVIGATION 5.337 US18 Radiolocation G2	2700-2900 Aviation (87)
5.423 5.424 2900-3100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426	5.423 5.424 2900-3100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426	5.423 5.424 2900-3100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426	5.423 G15 2900-3100 RADIOLOCATION 5.424A G56 MARITIME RADIONAVIGATION	5.423 US18 2900-3100 MARITIME RADIONAVIGATION Radiolocation US44
5.425 5.427 3100-3300 RADIOLOCATION Earth exploration-satellite (active) Space research (active)	5.425 5.427 3100-3300 RADIOLOCATION Earth exploration-satellite (active) Space research (active)	5.425 5.427 3100-3300 RADIOLOCATION Earth exploration-satellite (active) Space research (active)	5.427 US44 US316 3100-3300 RADIOLOCATION G59 Earth exploration-satellite (active) Space research (active)	5.427 US316 3100-3300 Earth exploration-satellite (active) Space research (active) Radiolocation
5.149 MOD 5.428	5.149 MOD 5.428	5.149 MOD 5.428	US342	US342

3300-3400 RADIOLOCATION	3300-3400 RADIOLOCATION Amateur Fixed Mobile	3300-3400 RADIOLOCATION Amateur	3300-3500 RADIOLOCATION US108 G2	3300-3500 Amateur Radiolocation US108	Private Land Mobile (90) Amateur Radio (97)
5.149 MOD 5.429 ADD 5.429A ADD 5.429B MOD 5.430	5.149 ADD 5.429C ADD 5.429D	5.149 MOD 5.429 ADD 5.429E ADD 5.429F			
3400-3600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile <u>MOBILE except aeronautical aeronautical mobile MOD</u> 5.430A Radiolocation	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile <u>MOBILE except aeronautical mobile MOD 5.431A ADD 5.431B</u> Amateur Radiolocation 5.433	3400-3500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile <u>5.432 MOD 5.432B</u> Radiolocation 5.433	US342	5.282 US342	
MOD 5.431 5.431	5.282	5.282 5.432-5.432A			Page 40

Table of Frequency Allocations

3500-5460 MHz (SHF)

Page 41

International Table		United States Table		FCC Rule Part(s)	
Region 1 Table (See previous page)	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
3600-4200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	3600-3700 FIXED FIXED-SATELLITE (space-to-Earth) Mobile <u>except aeronautical mobile ADD 5.431B</u> Radiolocation 5.433	3600-3700 FIXED FIXED-SATELLITE (space-to-Earth) Mobile <u>except aeronautical mobile 5.433A</u> Radiolocation 5.433	3500-3550 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110  3550-3650 RADIOLOCATION G59 AERONAUTICAL RADIONAVIGATION (ground-based) G110	3500-3550 Radiolocation  3550-3600 FIXED MOBILE except aeronautical mobile <u>ADD</u> 5.431B US105 US433 3600-3650 FIXED FIXED-SATELLITE (space-to-Earth) US107 US245 MOBILE except aeronautical mobile <u>ADD 5.431B</u> US105 US433 3650-3700 FIXED FIXED-SATELLITE (space-to-Earth) NG169 NG185 MOBILE except aeronautical mobile <u>ADD</u> 5.434 US109 US349	Private Land Mobile (90)  Citizens Broadband (96)  Satellite Communications (25) Citizens Broadband (96)



5150-5250 FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B AERONAUTICAL RADIONAVIGATION 5.446 5.446C 5.447 5.447B 5.447C	5150-5250 AERONAUTICAL RADIONAVIGATION US260 US211 US307 US344	5150-5250 FIXED-SATELLITE (Earth-to-space) 5.447A US344 AERONAUTICAL RADIONAVIGATION US260 5.447C US211 US307	RF Devices (15) Satellite Communications (25) Aviation (87)
5250-5255 EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH 5.447D 5.447E 5.448 5.448A	5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.447D 5.448A	5250-5255 Earth exploration-satellite (active) Radiolocation Space research	RF Devices (15) Private Land Mobile (90)
5255-5350 EARTH EXPLORATION-SATELLITE (active) MOBILE except aeronautical mobile 5.446A 5.447F RADIOLOCATION SPACE RESEARCH (active) 5.447E 5.448 5.448A	5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.448A	5255-5350 Earth exploration-satellite (active) Radiolocation Space research (active) 5.448A	
5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION 5.448D AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) 5.448C	5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B RADIOLOCATION G56 AERONAUTICAL RADIONAVIGATION 5.449 SPACE RESEARCH (active) US390 G130	5350-5460 AERONAUTICAL RADIONAVIGATION 5.449 Earth exploration-satellite (active) 5.448B Radiolocation Space research (active) US390	Aviation (87) Private Land Mobile (90) Page 42

## International Radio Regulations

### MOD

**5.286AA** The frequency band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). See Resolution 224 (Rev.WRC-12)-15). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. -(WRC-15)

### MOD

**5.291A** *Additional allocation:* in Germany, Austria, Denmark, Estonia, ~~Finland~~, Liechtenstein, Norway, ~~Netherlands~~, the Czech Rep Serbia and Switzerland, the frequency band 470-494 MHz is also allocated to the radiolocation service on a secondary basis. This use is limited to the operation of wind profiler radars in accordance with Resolution 217. (WRC-9715)

### MOD

**5.292** *Different category of service:* ~~in Mexico in Argentina, Uruguay and Venezuela~~, the allocation of the frequency band 470-512 MHz to the ~~fixed and mobile services~~, and in ~~Argentina, Uruguay and Venezuela to the mobile service~~, is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (WRC-0715)

### MOD

**5.293** *Different category of service:* in Canada, Chile, Cuba, the United States, Guyana, ~~Honduras~~, Jamaica, ~~Mexico~~, and Panama and ~~Peru~~, the allocation of the frequency bands 470-512 MHz and 614-806 MHz to the fixed service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. In the Bahamas, Barbados, Canada, Chile, Cuba, the United States, Guyana, ~~Honduras~~, Jamaica, ~~Mexico~~, and Panama and ~~Peru~~, the allocation of the frequency bands 470-512 MHz and 614-698 MHz to the mobile service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. In Argentina and Ecuador, the allocation of the frequency band 470-512 MHz to the fixed and mobile services is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (WRC-1215)

### MOD

**5.294** *Additional allocation:* in Saudi Arabia, Cameroon, Côte d'Ivoire, Egypt, Ethiopia, Israel, ~~Kenya~~, Libya, the Syrian Arab Republic, ~~South Sudan~~, Chad and Yemen, the frequency band 470-582 MHz is also allocated to the fixed service on a secondary basis. (WRC-1215)

### ADD

**5.295** In the Bahamas, Barbados, Canada, the United States and Mexico, the frequency band 470-608 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT) – see Resolution 224 (Rev.WRC-15). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement obtained under No. 9.21 and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries.

Nos. 5.43 and 5.43A apply. In Mexico, the use of IMT in this frequency band will not start before 31 December 2018 and may be extended if agreed by the neighbouring countries. (WRC-15)

#### MOD

**5.296** *Additional allocation:* in Albania, Germany, Angola, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Vatican, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Gabon, Georgia, Ghana, Hungary, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kenya, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Lebanon, Libya, Liechtenstein, Lithuania, Luxembourg, Malawi, Mali, Malta, Morocco, Mauritius, Mauritania, Moldova, Monaco, Mozambique, Namibia, Niger, Nigeria, Norway, Oman, Uganda, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech Republic, the United Kingdom, Rwanda, San Marino, Serbia, Sudan, South Africa, Sweden, Switzerland, Swaziland, Tanzania, Chad, Togo, Tunisia and Turkey, ~~the band 470-790 MHz, and in Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, South Africa, Tanzania, Ukraine, Zambia and Zimbabwe, the frequency band 470-698-694 MHz are~~ also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting ~~and programme-making~~. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote. (WRC-15+2)

#### ADD

**5.296A** In Micronesia, the Solomon Islands, Tuvalu and Vanuatu, the frequency band 470-698 MHz, or portions thereof, and in Bangladesh, Maldives and New Zealand, the frequency band 610-698 MHz, or portions thereof, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolution 224 (Rev.WRC-15). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. The mobile allocation in this frequency band shall not be used for IMT systems unless subject to agreement obtained under No. 9.21 and shall not cause harmful interference to, or claim protection from, the broadcasting service of neighbouring countries. Nos. 5.43 and 5.43A apply. (WRC-15)

#### MOD

**5.297** *Additional allocation:* in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, ~~Honduras, and Jamaica and Mexico~~, the frequency band 512-608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. 9.21. ~~(WRC-07)~~ In the Bahamas, Barbados and Mexico, the frequency band 512-608 MHz is also allocated to the mobile service on a primary basis, subject to agreement obtained under No. 9.21. (WRC-15)

#### MOD

**5.300** *Additional allocation:* in Saudi Arabia, Cameroon, Egypt, United Arab Emirates, Israel, Jordan, Libya, Oman, Qatar, the Syrian Arab Republic, ~~Sudan and South Sudan~~, the frequency

band 582-790 MHz is also allocated to the fixed and mobile, except aeronautical mobile, services on a secondary basis. (WRC-12~~15~~)

#### **ADD**

**5.308** *Additional allocation:* in Belize and Colombia, the frequency band 614-698 MHz is also allocated to the mobile service on a primary basis. Stations of the mobile service within the frequency band are subject to agreement obtained under No. 9.21. (WRC-15)

#### **ADD**

**5.308A** In the Bahamas, Barbados, Belize, Canada, Colombia, the United States and Mexico, the frequency band 614-698 MHz, or portions thereof, is identified for International Mobile Telecommunications (IMT) – see Resolution 224 (Rev.WRC-15). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Mobile service stations of the IMT system within the frequency band are subject to agreement obtained under No. 9.21 and shall not cause harmful interference to or claim protection from the broadcasting service of neighbouring countries. Nos. 5.43 and 5.43A apply. In Belize and Mexico, the use of IMT in this frequency band will not start before 31 December 2018 and may be extended if agreed by the neighbouring countries. (WRC-15)

#### **MOD**

**5.309** *Different category of service:* in ~~Costa Rica, El Salvador and Honduras~~, the allocation of the frequency band 614-806 MHz to the fixed service is on a primary basis (see No. 5.33), subject to agreement obtained under No. 9.21. (WRC-15)

#### **MOD**

**5.312** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the frequency band 645-862 MHz, in Bulgaria the frequency bands 646-686 MHz, 726-758 MHz, 766-814 MHz and 822-862 MHz, in Romania the band 830-862 MHz, and in Poland, the band 830-860 MHz until 31 December 2012 and the frequency band 860-862 MHz until 31 December 2017, are also allocated to the aeronautical radionavigation service on a primary basis. (WRC-12~~15~~)

#### **MOD**

**5.312A** In Region 1, the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service is subject to the provisions of Resolution-232 760 (WRC-12~~15~~). See also Resolution 224 (Rev.WRC-12~~15~~). (WRC-12~~15~~)

#### **MOD**

**5.313A** The frequency band, or portions of the frequency band 698-790 MHz, in Australia, Bangladesh, Brunei Darussalam, Cambodia, China, Korea (Rep. of), Fiji, India, Indonesia, Japan, Kiribati, Lao P.D.R., Malaysia, Myanmar (Union of), New Zealand, Pakistan, Papua New Guinea, the Philippines and, Solomon Islands, Samoa, Singapore, Thailand, Tonga, Tuvalu, Vanuatu and Viet Nam, are identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not



establish priority in the Radio Regulations. In China, the use of IMT in this frequency band will not start until 2015. (WRC-~~12~~15)

**SUP**  
**5.313B**

**SUP**  
**5.314**

**SUP**  
**5.315**

**SUP**  
**5.316**

**SUP**  
**5.316A**

**MOD**

**5.316B** In Region 1, the allocation to the mobile, except aeronautical mobile, service on a primary basis in the frequency band 790-862 MHz ~~shall come into effect from 17 June 2015 and shall be~~ subject to agreement obtained under No. 9.21 with respect to the aeronautical radionavigation service in countries mentioned in No. 5.312. For countries party to the GE06 Agreement, the use of stations of the mobile service is also subject to the successful application of the procedures of that Agreement. Resolutions 224 (Rev.WRC-~~12~~15) and 749 (Rev.WRC-~~12~~15) shall apply, as appropriate. (WRC-~~12~~15)

**MOD**

**5.317** *Additional allocation:* in Region 2 (except Brazil ~~and~~ the United States and Mexico), the frequency band 806-890 MHz is also allocated to the mobile-satellite service on a primary basis, subject to agreement obtained under No. 9.21. The use of this service is intended for operation within national boundaries. (WRC-15)

**MOD**

**5.317A** ~~These~~ The parts of the frequency band 698-960 MHz in Region 2 and the ~~band~~frequency bands 694-790 MHz in Region 1 and 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions 224 (Rev.WRC-~~12~~15), 760 (WRC-15) and 749 (Rev.WRC-12), ~~as appropriate.~~ 15, where applicable. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-~~12~~15)

## MOD

**5.325A** *Different category of service:* in Argentina, Brazil, Costa Rica, Cuba, Dominican Republic, El Salvador, Ecuador, the allocation of French overseas departments and communities in Region 2, Guatemala, Mexico, Paraguay, Uruguay and Venezuela, the frequency band 902-945/928 MHz is allocated to the land mobile service is on a primary basis. In Colombia, the frequency band 902-905 MHz is allocated to the land mobile service on a primary basis. (WRC-2015)

## MOD

**5.338A** In the frequency bands ~~1350-1400~~ 1 350-1 400 MHz, ~~1427-1452~~ 1 427-1 452 MHz, 22.55-23.55 GHz, 30-31.3 GHz, 49.7-50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution 750 (Rev.WRC-~~12~~15) applies. (WRC-~~12~~15)

## ADD

**5.341A** In Region 1, the frequency bands 1 427-1 452 MHz and 1 492-1 518 MHz are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-15). This identification does not preclude the use of these frequency bands by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of IMT stations is subject to agreement obtained under No. 9.21 with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. 5.342. (WRC-15)

## ADD

**5.341B** In Region 2, the frequency band 1 427-1 518 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-15). This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)

## ADD

**5.341C** The frequency bands 1 427-1 452 MHz and 1 492-1 518 MHz are identified for use by administrations in Region 3 wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-15). The use of these frequency bands by the above administrations for the implementation of IMT in the frequency bands 1 429-1 452 MHz and 1 492-1 518 MHz is subject to agreement obtained under No. 9.21 from countries using stations of the aeronautical mobile service. This identification does not preclude the use of these frequency bands by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

## MOD

**5.342** *Additional allocation:* in Armenia, Azerbaijan, Belarus, the Russian Federation, Uzbekistan, Kyrgyzstan and Ukraine, the frequency band ~~1429-1535~~ 1 429-1 535 MHz, and in Bulgaria the band ~~1525-1535~~ MHz, are also allocated to the aeronautical mobile service on a primary basis, exclusively for the purposes of aeronautical telemetry within the national territory. As of 1 April 2007, the use of the frequency band ~~1452-1492~~ 1 452-1 492 MHz is subject to agreement between the administrations concerned. (WRC-~~12~~15)

#### **ADD**

**5.346** In Algeria, Angola, Saudi Arabia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo (Rep. of the), Côte d'Ivoire, Djibouti, Egypt, United Arab Emirates, Gabon, Gambia, Ghana, Guinea, Iraq, Jordan, Kenya, Kuwait, Lesotho, Lebanon, Liberia, Madagascar, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Palestine\*, Qatar, Dem. Rep. of the Congo, Rwanda, Senegal, Seychelles, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Tunisia, Zambia, and Zimbabwe, the frequency band 1 452-1 492 MHz is identified for use by administrations listed above wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-15). This identification does not preclude the use of this frequency band by any other application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. 9.21 with respect to the aeronautical mobile service used for aeronautical telemetry in accordance with No. 5.342. See also Resolution 761 (WRC-15). (WRC-15)

#### **ADD**

**5.346A** The frequency band 1 452-1 492 MHz is identified for use by administrations in Region 3 wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution 223 (Rev.WRC-15) and Resolution 761 (WRC-15). The use of this frequency band by the above administrations for the implementation of IMT is subject to agreement obtained under No. 9.21 from countries using stations of the aeronautical mobile service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

#### **MOD**

**5.384A** The frequency band ~~or portions of the bands~~, 1710-1885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, ~~and portions thereof~~, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev. WRC-0715)**. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulation. (WRC-0715)

#### **MOD**

**5.428** *Additional allocation:* in Azerbaijan, ~~Mongolia~~, Kyrgyzstan and Turkmenistan, the frequency band ~~3400-3300~~ 3 100-3 300 MHz is also allocated to the radionavigation service on a primary basis. (WRC-1215)

#### **MOD**

**5.429** *Additional allocation:* in Saudi Arabia, Bahrain, Bangladesh, Benin, Brunei Darussalam, Cambodia, Cameroon, China, Congo (Rep. of the), Korea (Rep. of), Côte d'Ivoire, Egypt, the United Arab Emirates, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Japan, Jordan, Kenya, Kuwait, Lebanon, Libya, Malaysia, Oman, Uganda, Pakistan, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, the Dem. People's Rep. of Korea, Sudan and Yemen, the frequency band ~~3300-3400~~ 300-3 400 MHz is also allocated to the fixed and mobile services on

a primary basis. The countries bordering the Mediterranean shall not claim protection for their fixed and mobile services from the radiolocation service. (WRC-12)15)

**ADD**

**5.429A** *Additional allocation:* in Angola, Benin, Botswana, Burkina Faso, Burundi, Ghana, Guinea, Guinea-Bissau, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. Stations in the mobile service operating in the frequency band 3 300-3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-15)

**ADD**

**5.429B** In the following countries of Region 1 south of 30° parallel north: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Egypt, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Malawi, Mauritania, Mozambique, Namibia, Niger, Nigeria, Uganda, the Dem. Rep. of the Congo, Rwanda, Sudan, South Sudan, South Africa, Swaziland, Tanzania, Chad, Togo, Zambia and Zimbabwe, the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). The use of this frequency band shall be in accordance with Resolution 223 (Rev.WRC-15). The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

**ADD**

**5.429C** *Different category of service:* in Argentina, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Paraguay and Uruguay, the frequency band 3 300-3 400 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis. In Argentina, Brazil, Guatemala, Mexico and Paraguay, the frequency band 3 300-3 400 MHz is also allocated to the fixed service on a primary basis. Stations in the fixed and mobile services operating in the frequency band 3 300-3 400 MHz shall not cause harmful interference to, or claim protection from, stations operating in the radiolocation service. (WRC-15)

**ADD**

**5.429D** In the following countries in Region 2: Argentina, Colombia, Costa Rica, Ecuador, Mexico and Uruguay, the use of the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution 223 (Rev.WRC-15). This use in Argentina and Uruguay is subject to the application of No. 9.21. The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This

identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

#### **ADD**

**5.429E** In the following countries in Region 2: Argentina, Colombia, Costa Rica, Ecuador, Mexico and Uruguay, the use of the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution 223 (Rev.WRC-15). This use in Argentina and Uruguay is subject to the application of No. 9.21. The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service, and administrations wishing to implement IMT shall obtain the agreement of neighbouring countries to protect operations within the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

#### **ADD**

**5.429F** In the following countries in Region 3: Cambodia, India, Lao P.D.R., Pakistan, the Philippines and Viet Nam, the use of the frequency band 3 300-3 400 MHz is identified for the implementation of International Mobile Telecommunications (IMT). Such use shall be in accordance with Resolution 223 (Rev.WRC-15). The use of the frequency band 3 300-3 400 MHz by IMT stations in the mobile service shall not cause harmful interference to, or claim protection from, systems in the radiolocation service. Before an administration brings into use a base or mobile station of an IMT system in this frequency band, it shall seek agreement under No. 9.21 with neighbouring countries to protect the radiolocation service. This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. (WRC-15)

#### **MOD**

**5.430** *Additional allocation:* in Azerbaijan, ~~Mongolia~~, Kyrgyzstan and Turkmenistan, the frequency band ~~3300-3400~~ 300-3 400 MHz is also allocated to the radionavigation service on a primary basis. (WRC-~~12~~15)

#### **MOD**

**5.430A** *Different category of service:* ~~in Albania, Algeria, Germany, Andorra, Saudi Arabia, Austria, Azerbaijan, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Botswana, Bulgaria, Burkina Faso, Cameroon, Cyprus, Vatican, Congo (Rep. The allocation of the), Côte d'Ivoire, Croatia, Denmark, Egypt, Spain, Estonia, Finland, France and French overseas departments and communities in Region 1, Gabon, Georgia, Greece, Guinea, Hungary, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Lesotho, Latvia, The Former Yugoslav Republic of Macedonia, Liechtenstein, Lithuania, Malawi, Mali, Malta, Morocco, Mauritania, Moldova, Monaco, Mongolia, Montenegro, Mozambique, Namibia, Niger, Norway, Oman, Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Slovakia, Czech Rep., Romania, United Kingdom, San Marino, Senegal, Serbia, Sierra Leone, Slovenia, South Africa, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey, Ukraine, Zambia and Zimbabwe, the frequency band 3400-3600~~ 300-3 600 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis subject to agreement obtained under No. 9.21 with other

administrations and. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. ~~At the stage of coordination~~ The provisions of Nos. 9.17 and 9.18 shall also apply ~~in the coordination phase~~. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed  $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$  for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), and with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band ~~3400-3600~~ 400-3 600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). ~~This allocation is effective from 17 November 2010. (WRC-1215)~~

#### MOD

**5.431** *Additional allocation:* in Germany, and Israel and, the United Kingdom, the frequency band ~~3400-3475~~ 400-3 475 MHz is also allocated to the amateur service on a secondary basis. (WRC-15)

#### MOD

**5.431A** — *Different category of service:* in Argentina, Brazil, Chile, Costa Rica, Cuba, French overseas departments and communities In Region 2, Dominican Republic, El Salvador, Guatemala, Mexico, Paraguay, Suriname, Uruguay and Venezuela, the allocation of the frequency band ~~3400-3500~~ 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, is subject to agreement obtained under No. 9.21. Stations of the mobile service in the band ~~3400-3500~~ MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-1215)

#### ADD

**5.431B** In Region 2, the frequency band 3 400-3 600 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a base or mobile station of an IMT system, it shall seek agreement under No. 9.21 with other administrations and ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed  $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$  for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made,

taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service, including IMT systems, in the frequency band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-15)

## MOD

**5.432B** *Different category of service:* in Australia, Bangladesh, China, French overseas communities of Region 3, India, Iran (Islamic Republic of), New Zealand, the Philippines and Singapore, the frequency band 3400-3500 400-3 500 MHz is allocated to the mobile, except aeronautical mobile, service on a primary basis, subject to agreement obtained under No. 9.21 with other administrations and is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed  $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$  for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band ~~3400-3500~~ 400-3 500 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). ~~This allocation is effective from 17 November 2010.~~ (WRC-12/15)

## MOD

**5.433A** In Australia, Bangladesh, China, French overseas communities of Region 3, Korea (Rep. of), India, Iran (Islamic Republic of), Japan, New Zealand ~~and~~, Pakistan, and the Philippines, the frequency band 3500-3600 500-3 600 MHz is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed  $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$  for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both

administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3500-3600 3 500-3 600 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-1215)

#### **ADD**

**5.434** In Canada, Colombia, Costa Rica and the United States, the frequency band 3 600-3 700 MHz, or portions thereof, is identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. At the stage of coordination the provisions of Nos. 9.17 and 9.18 also apply. Before an administration brings into use a base or mobile station of an IMT system, it shall seek agreement under No. 9.21 with other administrations and ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed  $-154.5 \text{ dB(W/(m}^2 \cdot 4 \text{ kHz))}$  for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station), with the assistance of the Bureau if so requested. In case of disagreement, the calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service, including IMT systems, in the frequency band 3 600-3 700 MHz shall not claim more protection from space stations than that provided in Table 21-4 of the Radio Regulations (Edition of 2004). (WRC-15)

#### **ADD**

**5.441A** In Uruguay, the frequency band 4 800-4 900 MHz, or portions thereof, is identified for the implementation of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained with neighbouring countries, and IMT stations shall not claim protection from stations of other applications of the mobile service. Such use shall be in accordance with Resolution 223 (Rev.WRC-15). (WRC-15)

#### **ADD**

**5.441B** In Cambodia, Lao P.D.R. and Viet Nam, the frequency band 4 800-4 990 MHz, or portions thereof, is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The use of this frequency band for the implementation of IMT is subject to agreement obtained under No. 9.21 with concerned administrations, and IMT stations shall not claim protection from stations of other applications of the mobile service. In



addition, before an administration brings into use an IMT station in the mobile service, it shall ensure that the power flux-density produced by this station does not exceed  $-155 \text{ dB(W/(m}^2 \cdot 1 \text{ MHz))}$  produced up to 19 km above sea level at 20 km from the coast, defined as the low-water mark, as officially recognized by the coastal State. This criterion is subject to review at WRC-19. See Resolution 223 (Rev.WRC-15). This identification shall be effective after WRC-19. (WRC-15)

#### **MOD**

**5.442** In the frequency bands ~~4825-4835~~ 4825-4835 MHz and ~~4950-4990~~ 4950-4990 MHz, the allocation to the mobile service is restricted to the mobile, except aeronautical mobile, service. In Region 2 (except Brazil, Cuba, Guatemala, Mexico, Paraguay, Uruguay and Venezuela), and in Australia, the frequency band ~~4825-4835~~ 4825-4835 MHz is also allocated to the aeronautical mobile service, limited to aeronautical mobile telemetry for flight testing by aircraft stations. Such use shall be in accordance with Resolution 416 (WRC-07) and shall not cause harmful interference to the fixed service. (WRC-0715)

## Attachment 1 – Annex 1.4

### Proposed Changes

The following proposed changes to the National Table of Allocations provide revisions to the National Table of Frequency Allocations and to United States Footnote 23 (US23) in order to align amateur service use of frequencies near 5 MHz to the use described in 5.133B in the Final Acts of WRC-15 to specify the frequency range and maximum radiated power for amateur service use in the United States to be 5 351.5-5 366.5 kHz and 15 W (e.i.r.p.) respectively.

### WRC-15 Agenda item 1.4 (Secondary Amateur HF Allocation)

Table of Frequency Allocations					3.025-5.68 MHz (HF)		FCC Rule Part(s)
International Table			United States Table				
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table			
3.025-3.155 AERONAUTICAL MOBILE (OR)			3.025-3.155 AERONAUTICAL MOBILE (OR)				
3.155-3.2 FIXED MOBILE except aeronautical mobile (R)			US340 3.155-3.23 FIXED MOBILE except aeronautical mobile (R)			Maritime (80) Private Land Mobile (90)	
5.116 5.117 3.2-3.23 FIXED MOBILE except aeronautical mobile (R) BROADCASTING 5.113			US22 US340 3.23-3.4 FIXED MOBILE except aeronautical mobile Radiolocation			Maritime (80) Aviation (87) Private Land Mobile (90)	
5.116 5.118 3.4-3.5 AERONAUTICAL MOBILE (R)			US340 3.4-3.5 AERONAUTICAL MOBILE (R)			Aviation (87)	
3.5-3.8 AMATEUR FIXED	3.5-3.75 AMATEUR	3.5-3.9 AMATEUR FIXED	US283 US340 3.5-4	3.5-4 AMATEUR		Amateur Radio (97)	

MOBILE except aeronautical mobile	5.119	MOBILE			
5.92	3.75-4 AMATEUR FIXED	MOBILE except aeronautical mobile (R)			
3.8-3.9 FIXED					
AERONAUTICAL MOBILE (OR) LAND MOBILE					
3.9-3.95					
AERONAUTICAL MOBILE (OR)		3.9-3.95 AERONAUTICAL MOBILE BROADCASTING			
5.123					
3.95-4 FIXED		3.95-4 FIXED BROADCASTING			
BROADCASTING		5.126			
	5.122 5.125			US340	
4-4.063 FIXED				4-4.063 FIXED	Maritime (80)
MARITIME MOBILE 5.127				MARITIME MOBILE	
5.126				US340	
4.063-4.438				4.063-4.438	
MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132				MARITIME MOBILE 5.79A 5.109 5.110 5.130 5.131 5.132 US82	Maritime (80) Aviation (87)
5.128				US296 US340	
4.438-4.65 FIXED		4.438-4.65 FIXED		4.438-4.65 FIXED	Maritime (80) Aviation (87) Private Land Mobile (90)
MOBILE except aeronautical mobile (R)		MOBILE except aeronautical mobile		MOBILE except aeronautical mobile (R) US22 US340	
4.65-4.7				4.65-4.7	
AERONAUTICAL MOBILE (R)				AERONAUTICAL MOBILE (R) US282 US283 US340	Aviation (87)
4.7-4.75				4.7-4.75	
AERONAUTICAL MOBILE (OR)				AERONAUTICAL MOBILE (OR) US340	
4.75-4.85 FIXED	4.75-4.85 FIXED	4.75-4.85 FIXED		4.75-4.85 FIXED	Maritime (80) Private Land Mobile (90)
AERONAUTICAL MOBILE (OR) LAND MOBILE	MOBILE except aeronautical mobile (R) BROADCASTING 5.113	BROADCASTING 5.113 Land mobile		MOBILE except aeronautical mobile (R) US340	
BROADCASTING 5.113				4.85-4.995 FIXED MOBILE	Maritime (80) Private Land Mobile (90)
4.85-4.995 FIXED				4.85-4.995 FIXED	Aviation (87) Private Land Mobile (90)
LAND MOBILE				US340	
BROADCASTING 5.113				US340	

4.995-5.003 STANDARD FREQUENCY AND TIME SIGNAL (5 MHz)	4.995-5.005 STANDARD FREQUENCY AND TIME SIGNAL (5 MHz)		
5.003-5.005 STANDARD FREQUENCY AND TIME SIGNAL Space research	US1 US340		
5.005-5.06 FIXED BROADCASTING 5.113	5.005-5.06 FIXED US22 US340		Aviation (87) Private Land Mobile (90)
5.06-5.25 FIXED Mobile except aeronautical mobile	5.06-5.45 FIXED US22 Mobile except aeronautical mobile		Maritime (80) Aviation (87) Private Land Mobile (90) Amateur Radio (97)
5.133			
5.25-5.45 FIXED MOBILE except aeronautical mobile			
ADD 5.133B			
5.45-5.48 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	5.45-5.48 AERONAUTICAL MOBILE (R)	5.45-5.48 FIXED AERONAUTICAL MOBILE (OR) LAND MOBILE	
5.48-5.68 AERONAUTICAL MOBILE (R)			
5.111 5.115	5.111 5.115 US283 US340		Aviation (87)

## United States (US) Footnotes

### MOD

**US23** In ~~the band 5 351.5-5 366.5 kHz~~~~5330.5-5406.4 kHz (60 m band), the assigned frequencies 5332, 5348, 5358.5, 5373, and 5405 kHz are~~ is allocated to the amateur service on a secondary basis. Amateur service use of the 60 m band frequencies is restricted to a maximum effective-radiated power of 15400 W (e.i.r.p.) PEP, and to the following emission types and designators: phone (2K80J3E), data (2K80J2D), RTTY (60H0J2B), and CW (150HA1A). Amateur operators using the data and RTTY emissions must exercise care to limit the length of transmissions so as to avoid causing harmful interference to Federal stations.

## Attachment 1 – Annex 1.5

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide an additional spectrum allocation for Unmanned Aircraft Systems (UAS), allowing Earth stations on board UAS to communicate through geostationary satellites within certain FSS allocations.

#### Agenda item 1.5 (UAS Satellite)

Table of Frequency Allocations					8.65-12.2 GHz (SHF)		United States Table		FCC Rule Part(s)		Page 47
					International Table		Federal Table		Non-Federal Table		
					Region 1 Table	Region 2 Table	Region 3 Table	...		...	
10.7-10.9544.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.7-10.9544.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	...	...	...	10.7-10.9544.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.7-10.9544.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.7-10.9544.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	Satellite Communications (25) Fixed Microwave (101)
10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	...	...	...	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	10.95-11.2 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	Satellite Communications (25) Fixed Microwave (101)
11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	...	...	...	11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.2-11.45 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	Satellite Communications (25) Fixed Microwave (101)
11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	...	...	...	11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	11.45-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile	Satellite Communications (25) Fixed Microwave (101)

11.7-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	11.7-12.1 FIXED 5.486 FIXED-SATELLITE (space-to- Earth) 5.484A 5.488 5.484B Mobile except aeronautical mobile 5.485	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	11.7-12.2	11.7-12.2 FIXED-SATELLITE (space-to- Earth) 5.485 5.488 5.484B USUAS NG55 NG143	Satellite Communications (25)
5.487 5.487A	12.1-12.2 FIXED-SATELLITE (space-to- Earth) 5.484A 5.488 5.484B 5.485 5.489	5.487 5.487A	USUAS		

## Table of Frequency Allocations

12.2-15.4 GHz (SHF)

Page 49

International Table			United States Table		FCC Rule Part(s)
Region 1 Table (See previous page)	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
	12.2-12.7 MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	12.2-12.5 FIXED FIXED-SATELLITE <u>5.484B</u> (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING 5.484A 5.487	12.2-12.75	12.2-12.7 FIXED BROADCASTING-SATELLITE	Satellite Communications (25) Fixed Microwave (101)
12.5-12.75 FIXED-SATELLITE <u>5.484B</u> (space-to-Earth) 5.484A (Earth-to-space)	5.487A 5.488 5.490 12.7-12.75 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	12.5-12.75 FIXED FIXED-SATELLITE <u>5.484B</u> (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493		5.487A 5.488 5.490 12.7-12.75 FIXED NG118 FIXED-SATELLITE (Earth-to-space) MOBILE	TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
5.494 5.495 5.496	...				
14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A <u>5.484B</u> 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research			14-14.2 Space research US133 US133	14-14.2 FIXED-SATELLITE (Earth-to-space) <u>5.484B</u> US133 NG55 Mobile-satellite (Earth-to-space) Space research US133	Satellite Communications (25)



5.504A 5.505			
14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A <u>5.484B</u> 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research	14.2-14.4	14.2-14.47 FIXED-SATELLITE (Earth-to-space) <u>5.484B</u> US(UAS) NG55 Mobile-satellite (Earth-to-space)	
5.504A 5.505 5.508			
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A <u>5.484B</u> 5.506 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A <u>5.484B</u> 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A <u>5.484B</u> 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A <u>5.484B</u> 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A	14.4-14.47 Fixed Mobile US(UAS)		
14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A	14.47-14.5 Fixed Mobile US113 US133 US342	14.47-14.5 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space) US113 US133 US342	
...	...	...	...

18.8-19.3 FIXED FIXED-SATELLITE (space-to-Earth) 5.516B 5.523A MOBILE	...	18.8-19.3 FIXED-SATELLITE (space-to-Earth) US334 G117	...	...
19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) (Earth-to-space) 5.523B 5.523C 5.523D 5.523E MOBILE	...	18.8-19.3 FIXED-SATELLITE (space-to-Earth) NG165 US139 US334 19.3-19.7 FIXED FIXED-SATELLITE (space-to-Earth) NG166 US334	...	Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B MOBILE-satellite (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B MOBILE-satellite (space-to-Earth) 5.524	19.7-20.2 FIXED-SATELLITE (space-to-Earth) 5.484B US1UAS1 MOBILE-SATELLITE (space-to-Earth) 5.525 5.526 5.527 5.528 5.529 US334	Satellite Communications (25)
20.1-20.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528	...	...	...	...

## Table of Frequency Allocations

27-34.7 GHz (SHF/EHF)

Page 55

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
...			...	...	...
27.5-28.5 FIXED 5.537A FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 MOBILE			27.5-29.530	27.5-29.5 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	RF Devices (15) Satellite Communications (25) Fixed Microwave (101)
5.538 5.540 28.5-29.1 FIXED FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.523A 5.539 MOBILE Earth exploration-satellite (Earth-to-space) 5.541					
5.540 29.1-29.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.516B 5.523C 5.523E 5.535A 5.539 5.541A MOBILE Earth exploration-satellite (Earth-to-space) 5.541					
5.540 29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space)	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541	29.5-29.9 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space)	29.5-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space)	29.5-30 FIXED-SATELLITE (Earth-to-space) 5.484B USUAS MOBILE-SATELLITE (Earth-to-space)	Satellite Communications (25)
5.540 5.542 29.9-30 FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542	5.542 5.525 5.526 5.527 5.529 5.540 5.542	5.540 5.542	USUAS	5.525 5.526 5.527 5.529 5.543	...
...	...	...	...	...	...

## **International Allocations**

### **ADD**

**5.484B** Resolution **155 (WRC-15)** shall apply. (WRC-15)

## **Domestic Allocations**

### **ADD**

**US[UAS]** Earth stations on unmanned aircraft operated by US Government entities may operate in this frequency band provided such operations are through a commercial FSS satellite that is licensed to operate within this band.

### **MOD**

**US133** In the bands 14-14.2 GHz and 14.47-14.5 GHz, the following provisions shall apply to the operations of Earth Stations Aboard Aircraft (ESAA), including unmanned aircraft systems:

(a) In the band 14-14.2 GHz, ESAA licensees proposing to operate within radio line-of-sight of the coordinates specified in 47 CFR 25.227(c) are subject to prior coordination with NTIA in order to minimize harmful interference to the ground terminals of NASA's Tracking and Data Relay Satellite System (TDRSS).

(b) In the band 14.47-14.5 GHz, operations within radio line-of-sight of the radio astronomy stations specified in 47 CFR 25.226(d)(2) are subject to coordination with the National Science Foundation in accordance with 47 CFR 25.227(d).

# Attachment 1 – Annex 1.6

## Proposed changes

The following proposed changes to the National Table of Frequency Allocations regarding agenda item 1.6 (Fixed Satellite Service Uplinks 10-17 GHz) reflect decisions of WRC-15:

### Agenda item 1.6 (FSS Allocations)

Table of Frequency Allocations				12.2-15.4 GHz (SHF)		United States Table		FCC Rule Part(s)		Page 49
International Table				Federal Table		Non-Federal Table				
Region 1 Table (See previous page)	Region 2 Table	Region 3 Table								
	12.2-12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	12.2-12.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile BROADCASTING 5.484A 5.487			12.2-12.75		12.2-12.7 FIXED BROADCASTING-SATELLITE		Satellite Communications (25) Fixed Microwave (101)	
12.5-12.75 FIXED-SATELLITE (space-to- Earth) 5.484A (Earth-to-space)	5.487A 5.488 5.490 12.7-12.75 FIXED FIXED-SATELLITE (Earth-to- space) MOBILE except aeronautical mobile	12.5-12.75 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A MOBILE except aeronautical mobile BROADCASTING-SATELLITE 5.493			5.487A 5.488 5.490 12.7-12.75 FIXED NG118 FIXED-SATELLITE (Earth-to- space) MOBILE		5.487A 5.488 5.490 12.7-12.75 FIXED NG118 FIXED-SATELLITE (Earth-to- space) MOBILE		TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)	
5.494 5.495 5.496 12.75-13.25 FIXED FIXED-SATELLITE (Earth-to-space) 5.441 MOBILE Space research (deep space) (space-to-Earth)					12.75-13.25		12.75-13.25 FIXED NG118 FIXED-SATELLITE (Earth-to-space) 5.441 NG52 MOBILE		Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)	
13.25-13.4 EARTH EXPLORATION-SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active)					US251 13.25-13.4 EARTH EXPLORATION- SATELLITE (active) AERONAUTICAL RADIONAVIGATION 5.497 SPACE RESEARCH (active)		US251 NG53 13.25-13.4 AERONAUTICAL RADIONAVIGATION 5.497 Earth exploration-satellite (active) Space research (active)		Aviation (87)	
5.498A 5.499					5.498A					

13.4-13.6575 EARTH EXPLORATION-SATELLITE (active) FIXED-SATELLITE (space-to-Earth) 5.499A 5.499B RADIOLOCATION SPACE RESEARCH 5.499C Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.499E 5.500 5.501 5.501B	13.4-13.65 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.499C 5.499D Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B	13.4-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.499C Standard frequency and time signal-satellite (Earth-to-space) 5.499D 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.501B	13.4-13.75 Earth exploration-satellite (active) Radiolocation Space research Standard frequency and time signal-satellite (Earth-to-space)	Private Land Mobile (90)
13.65-13.75 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.501A Standard frequency and time signal-satellite (Earth-to-space) 5.499 5.500 5.501 5.501B				

5.504A 5.505 14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508	14.2-14.4 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space)	14.2-14.47 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space)	14.2-14.47 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space)	
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A	14.4-14.47 Fixed Mobile	14.4-14.47 Fixed Mobile	14.4-14.47 Fixed Mobile	

14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy	14.47-14.5 Fixed Mobile	14.47-14.5 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space)
5.149 5.504A 14.5-14.758 FIXED FIXED-SATELLITE (Earth-to-space) 5.509B 5.509C 5.509D 5.509E 5.509F 5.510 MOBILE Space research 5.509G	US113 US133 US342 14.5-14.7145 FIXED Mobile Space research 5.509G	US113 US133 US342 14.5-14.8
14.75-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research 5.509G	14.7145-14.8 MOBILE Fixed Space research 5.509G	

## **International Radio Regulations**

### **ADD**

**5.499A** The use of the frequency band 13.4-13.65 GHz by the fixed-satellite service (space-to-Earth) is limited to geostationary-satellite systems and is subject to agreement obtained under No. **9.21** with respect to satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015. (WRC-15)

### **ADD**

**5.499B** Administrations shall not preclude the deployment and operation of transmitting earth stations in the standard frequency and time signal-satellite service (Earth-to-space) allocated on a secondary basis in the frequency band 13.4-13.65 GHz due to the primary allocation to FSS (space-to-Earth). (WRC-15)

### **ADD**

**5.499C** The allocation of the frequency band 13.4-13.65 GHz to the space research service on a primary basis is limited to:

- satellite systems operating in the space research service (space-to-space) to relay data from space stations in the geostationary-satellite orbit to associated space stations in non-geostationary satellite orbits for which advance publication information has been received by the Bureau by 27 November 2015,
- active spaceborne sensors,
- satellite systems operating in the space research service (space-to-Earth) to relay data from space stations in the geostationary-satellite orbit to associated earth stations.

Other uses of the frequency band by the space research service are on a secondary basis. (WRC-15)

### **ADD**

**5.499D** In the frequency band 13.4-13.65 GHz, satellite systems in the space research service (space-to-Earth) and/or the space research service (space-to-space) shall not cause harmful interference to, nor claim protection from, stations in the fixed, mobile, radiolocation and Earth exploration-satellite (active) services. (WRC-15)

### **ADD**

**5.499E** In the frequency band 13.4-13.65 GHz, geostationary-satellite networks in the fixed-satellite service (space-to-Earth) shall not claim protection from space stations in the Earth exploration-satellite service (active) operating in accordance with these Regulations, and No. **5.43A** does not apply. The provisions of No. **22.2** do not apply to the Earth exploration-satellite service (active) with respect to the fixed-satellite service (space-to-Earth) in this frequency band. (WRC-15)

### **MOD**



**5.501A** The allocation of the frequency band 13.465-13.75 GHz to the space research service on a primary basis is limited to active spaceborne sensors. Other uses of the frequency band by the space research service are on a secondary basis. (WRC-15)

**ADD**

**5.509B** The use of the frequency bands 14.5-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.5-14.8 GHz in countries listed in Resolution **164 (WRC-15)** by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service is limited to geostationary-satellites. (WRC-15)

**ADD**

**5.509C** For the use of the frequency bands 14.5-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.5-14.8 GHz in countries listed in Resolution **164 (WRC-15)** by the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service, the fixed-satellite service earth stations shall have a minimum antenna diameter of 6 m and a maximum power spectral density of  $-44.5$  dBW/Hz at the input of the antenna. The earth stations shall be notified at known locations on land. (WRC-15)

**ADD**

**5.509D** Before an administration brings into use an earth station in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service in the frequency bands 14.5-14.75 GHz (in countries listed in Resolution **163 (WRC-15)**) and 14.5-14.8 GHz (in countries listed in Resolution **164 (WRC-15)**), it shall ensure that the power flux-density produced by this earth station does not exceed  $-151.5$  dB(W/(m<sup>2</sup> · 4 kHz)) produced at all altitudes from 0 m to 19 000 m above sea level at 22 km seaward from all coasts, defined as the low-water mark, as officially recognized by each coastal State. (WRC-15)

**ADD**

**5.509E** In the frequency bands 14.50-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.50-14.8 GHz in countries listed in Resolution **164 (WRC-15)**, the location of earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall maintain a separation distance of at least 500 km from the border(s) of other countries unless shorter distances are explicitly agreed by those administrations. No. **9.17** does not apply. When applying this provision, administrations should consider the relevant parts of these Regulations and the latest relevant ITU-R Recommendations. (WRC-15)

**ADD**

**5.509F** In the frequency bands 14.50-14.75 GHz in countries listed in Resolution **163 (WRC-15)** and 14.50-14.8 GHz in countries listed in Resolution **164 (WRC-15)**, earth stations in the fixed-satellite service (Earth-to-space) not for feeder links for the broadcasting-satellite service shall not constrain the future deployment of the fixed and mobile services. (WRC-15)

**ADD**

**5.509G** The frequency band 14.5-14.8 GHz is also allocated to the space research service on a primary basis. However, such use is limited to the satellite systems operating in the space research service (Earth-to-space) to relay data to space stations in the geostationary-satellite orbit

from associated earth stations. Stations in the space research service shall not cause harmful interference to, or claim protection from, stations in the fixed and mobile services and in the fixed satellite service limited to feeder links for the broadcasting-satellite service and associated space operations functions using the guardbands under Appendix 30A and feeder links for the broadcasting-satellite service in Region 2. Other uses of this frequency band by the space research service are on a secondary basis. (WRC-15)

**MOD**

**5.510** ~~The use of the~~ Except for use in accordance with Resolution 163 (WRC-15) and Resolution 164 (WRC-15), the use of the frequency band 14.5-14.8 GHz by the fixed-satellite service (Earth-to-space) is limited to feeder links for the broadcasting-satellite service. This use is reserved for countries outside Europe. Uses other than feeder links for the broadcasting-satellite service are not authorized in Regions 1 and 2 in the frequency band 14.75-14.8 GHz. (WRC-15)

## Proposed Changes

**Agenda item 1.7 (MSS Feeder Links in the band 5091-5150 MHz)**

Table of Frequency Allocations						4990-5925 MHz (SHF)		FCC Rule Part(s)
International Table			United States Table					
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table				
4990-5000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149			4990-5000 RADIO ASTRONOMY US74 Space research (passive)  US246					
5000-5010 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367			5000-5010 AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (Earth-to-space) 5.367 US211			Aviation (87)		
5010-5030 AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.328B 5.443B 5.367			5010-5030 AERONAUTICAL RADIONAVIGATION US260 RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) 5.443B 5.367 US211					
5030-5091 AERONAUTICAL RADIONAVIGATION 5.367 5.444			5030-5091 AERONAUTICAL RADIONAVIGATION US260 5.367 US211 US444					
5091-5150 FIXED-SATELLITE (Earth-to-space) MOD 5.444A AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE 5.444B 5.367 MOD 5.444 5.444A			5091-5150 AERONAUTICAL RADIONAVIGATION US260 FIXED-SATELLITE (Earth-to-space) MOD 5.444A 5.367 US211 US344 US444 US444A			Satellite Communications (25) Aviation (87)		

5150-5250 AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space) 5.447A MOBILE except aeronautical mobile 5.446A 5.446B 5.446 5.446C 5.447 5.447B 5.447C	5150-5250 AERONAUTICAL RADIONAVIGATION US260 US211 US307 US344 5.447C US211 US307 5.447A US344 FIXED-SATELLITE (Earth-to-space) 5.447A US344	5150-5250 AERONAUTICAL RADIONAVIGATION US260 US211 US307 US344 5.447C US211 US307 5.447A US344 FIXED-SATELLITE (Earth-to-space) 5.447A US344	RF Devices (15) Satellite Communications (25) Aviation (87)
5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A	5250-5255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.447D 5.448A	5250-5255 Earth exploration-satellite (active) Radiolocation Space research	RF Devices (15) Private Land Mobile (90)
5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) MOBILE except aeronautical mobile 5.446A 5.447F 5.447E 5.448 5.448A	5255-5350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G59 SPACE RESEARCH (active) 5.448A	5255-5350 Earth exploration-satellite (active) Radiolocation Space research (active) 5.448A	
5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) 5.448C AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION 5.448D	5350-5460 EARTH EXPLORATION-SATELLITE (active) 5.448B SPACE RESEARCH (active) AERONAUTICAL RADIONAVIGATION 5.449 RADIOLOCATION G56 US390 G130	5350-5460 AERONAUTICAL RADIONAVIGATION 5.449 Earth exploration-satellite (active) 5.448B Space research (active) Radiolocation US390	Aviation (87) Private Land Mobile (90)
5460-5470 RADIONAVIGATION 5.449 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.448D	5460-5470 RADIONAVIGATION 5.449 US65 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION G56 5.448B US49 G130	5460-5470 RADIONAVIGATION 5.449 US65 Earth exploration-satellite (active) Space research (active) Radiolocation 5.448B US49	Maritime (80) Aviation (87) Private Land Mobile (90)
5470-5570 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION 5.450B 5.448B 5.450 5.451 5570-5600 MARITIME RADIONAVIGATION MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION 5.450B	5470-5570 MARITIME RADIONAVIGATION US65 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION G56 5.448B US50 G131 5570-5600 MARITIME RADIONAVIGATION US65 RADIOLOCATION G56	5470-5570 MARITIME RADIONAVIGATION US65 RADIOLOCATION Earth exploration-satellite (active) Space research (active) US50 5570-5600 MARITIME RADIONAVIGATION US65 RADIOLOCATION	RF Devices (15) Maritime (80) Private Land Mobile (90)

US50 G131		US50	
5.450 5.451 5.452		5600-5650 MARITIME RADIONAVIGATION US65 METEOROLOGICAL AIDS RADIOLOCATION 5.452 US50 G131	5600-5650 MARITIME RADIONAVIGATION US65 METEOROLOGICAL AIDS RADIOLOCATION 5.452 US50
5650-5725 MOBILE except aeronautical mobile 5.46A 5.450A RADIOLOCATION Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455		5650-5830 RADIOLOCATION G2	5650-5830 Amateur
5725-5830 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur 5.150 5.451 5.453 5.455 5.456	5725-5830 RADIOLOCATION Amateur 5.150 5.453 5.455		
5830-5850 FIXED-SATELLITE (Earth-to-space) RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.451 5.453 5.455 5.456	5830-5850 RADIOLOCATION Amateur Amateur-satellite (space-to-Earth) 5.150 5.453 5.455		5.150 5.282 5830-5850 Amateur Amateur-satellite (space-to-Earth) 5.150
5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE 5.150	5850-5925 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE Amateur Radiolocation 5.150	5850-5925 FIXED-SATELLITE (Earth-to-space) US245 MOBILE NG160 Amateur 5.150	5850-5925 FIXED-SATELLITE (Earth-to-space) US245 MOBILE NG160 Amateur 5.150
			ISM Equipment (18) Private Land Mobile (90) Personal Radio (95) Amateur Radio (97)

## International Radio Regulations

### MOD

**5.444** The band 5030-5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. In the band 5030-5091 MHz, the requirements of this system shall take precedence over other uses of this band. For the use of the band 5091-5150 MHz, No. 5.444A and Resolution 114 (Rev.WRC-1503) apply. (WRC-1507)

### MOD

**5.444A** ~~Additional allocation: the band 5091-5150 MHz is also allocated~~ The use of the allocation to the fixed-satellite service (Earth-to-space) in the band 5091-5150 MHz on a primary basis. This allocation is limited to feeder links of non-geostationary satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A. The use of the band 5091-5150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be subject to application of Resolution 114 (Rev.WRC-15). Moreover, to ensure that the aeronautical radionavigation service is protected from harmful interference, coordination is required for feeder-link earth stations of the non-geostationary satellite systems in the mobile-satellite service which are separated by less than 450 km from the territory of an administration operating ground stations in the aeronautical radionavigation service.

~~In the band 5091-5150 MHz, the following conditions also apply:~~

~~— prior to 1 January 2018, the use of the band 5091-5150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be made in accordance with Resolution 114 (Rev.WRC-03);~~

~~— after 1 January 2016, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;~~

~~— after 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service. (WRC-07)~~

### MOD

**5.444B** The use of the band 5091-5150 MHz by the aeronautical mobile service is limited to:

- systems operating in the aeronautical mobile (R) service and in accordance with international aeronautical standards, limited to surface applications at airports. Such use shall be in accordance with Resolution 748 (WRC-1507);
- aeronautical telemetry transmissions from aircraft stations (see No. 1.83) in accordance with Resolution 418 (WRC-1507);
- aeronautical security transmissions. Such use shall be in accordance with Resolution 419 (WRC-1507). (WRC-1507)

## United States (US) Footnotes

*(These footnotes, each consisting of the letters "US" followed by one or more digits, denote stipulations applicable to both federal and non-federal operations and thus appear in both the federal table and the non-federal table.)*

### MOD

**US444** The band 5030-5150 MHz is to be used for the operation of the international standard system (microwave landing system) for precision approach and landing. The requirements of this system shall

take precedence over other uses of this band. For the use of this band, US444A and Resolution 114 (Rev.WRC-1503) of the ITU *Radio Regulations* apply.

#### MOD

**US444A** ~~The band 5091-5150 MHz is also allocated to~~The use of the allocation to the fixed-satellite service (Earth-to-space) in the band 5091-5150 MHz ~~on a primary basis for non-Federal use.~~  
~~This allocation is limited to feeder links of non-geostationary mobile-satellite systems in the mobile-satellite service and is subject to coordination under No. 9.11A of the ITU *Radio Regulations*. The use of the band 5091-5150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be subject to application of Resolution 114 (Rev.WRC-15). Moreover, to ensure that the aeronautical radionavigation service is protected from harmful interference, coordination is required for feeder-link earth stations of the non-geostationary satellite systems in the mobile-satellite service which are separated by less than 450 km from the territory of an administration operating ground stations in the aeronautical radionavigation service.~~

In the band 5091-5150 MHz, the following conditions also apply:

~~———— prior to 1 January 2018, the use of the band 5091-5150 MHz by feeder links of non-geostationary satellite systems in the mobile-satellite service shall be made in accordance with Resolution 114 (Rev.WRC-03) of the ITU *Radio Regulations*;~~

~~———— prior to 1 January 2018, the requirements of existing and planned international standard systems for the aeronautical radionavigation service which cannot be met in the 5000-5091 MHz band, shall take precedence over other uses of this band;~~

~~———— after 1 January 2012, no new assignments shall be made to earth stations providing feeder links of non-geostationary mobile-satellite systems;~~

~~———— after 1 January 2018, the fixed-satellite service will become secondary to the aeronautical radionavigation service.~~

# Attachment 1 - Annex 1.8

## Proposed Changes

The following proposes to modify Article 5 and footnote 5.457A of the Radio Regulations as specified in the Final Acts of WRC-15 in the National Table of Frequency Allocations.

### Agenda item 1.8 (ESV)

Table of Frequency Allocations				5925-8025 MHz (SHF)		FCC Rule Part(s)	
International Table		United States Table					
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table			
5925-6700 FIXED FIXED-SATELLITE (Earth-to-space) MOD 5.457A 5.457B MOBILE 5.457C			5925-6425 FIXED FIXED-SATELLITE (Earth-to-space) NG181 6425-6525 FIXED-SATELLITE (Earth-to-space) MOBILE 5.440 5.458 6525-6700 FIXED FIXED-SATELLITE (Earth-to-space) 5.458 US342 6700-7125	5925-6425 FIXED FIXED-SATELLITE (Earth-to-space) NG181 6425-6525 FIXED-SATELLITE (Earth-to-space) MOBILE 5.440 5.458 6525-6700 FIXED FIXED-SATELLITE (Earth-to-space) 5.458 US342 6700-7125		Satellite Communications (25) Fixed Microwave (101)	
5.149 5.440 5.458 6700-7075 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE				6700-6875 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 5.458 5.458A 5.458B 6875-7025 FIXED NG118 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE NG171 5.458 5.458A 5.458B 7025-7075 FIXED NG118 FIXED-SATELLITE (Earth-to-space) NG172 MOBILE NG171 5.458 5.458A 5.458B 7075-7125 FIXED NG118 MOBILE NG171 5.458 7125-7235		TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101) Fixed Microwave (101) Satellite Communications (25) Fixed Microwave (101) Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78) TV Broadcast Auxiliary (74F) Cable TV Relay (78)	
5.458 5.458A 5.458B 5.458C 7075-7145 FIXED MOBILE							
5.458 5.459							



7145-7235 FIXED MOBILE SPACE RESEARCH (Earth-to-space) 5.460	5.458 G116 7145-7190 FIXED SPACE RESEARCH (deep space) (Earth-to-space) US262 5.458 G116 7190-7235 FIXED SPACE RESEARCH (Earth-to-space) G133 5.458 G134 5.458 US262	
Table of Frequency Allocations		
14-17.7 GHz (SHF)		

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
14-14.25 FIXED-SATELLITE (Earth-to-space) MOD 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research			14-14.2 Space research US133	14-14.2 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space) Space research US133	Satellite Communications (25)
5.504A 5.505 14.25-14.3 FIXED-SATELLITE (Earth-to-space) MOD 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research			14.2-14.4	14.2-14.47 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space)	
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) MOD 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED-SATELLITE (Earth-to-space) MOD 5.457A 5.484A 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) MOD 5.457A 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A			
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) MOD 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A			14.4-14.47 Fixed Mobile		
14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) MOD 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A			14.47-14.5 Fixed Mobile	14.47-14.5 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space)	

Radio astronomy	US133 US203 US342	US133 US203 US342
5.149 5.504A	14.5-14.7145	14.5-14.8
14.5-14.8	FIXED	
FIXED	Mobile	
FIXED-SATELLITE (Earth-to-space) 5.510	Space research	
MOBILE	14.7145-14.8	
Space research	MOBILE	
	Fixed	
	Space research	
14.8-15.35	14.8-15.1365	14.8-15.1365
FIXED	MOBILE	
MOBILE	SPACE RESEARCH	
Space research	Fixed	
	US310	US310

## International Radio Regulations

### MOD

**5.457A** In the bands 5925-6425 MHz and 14-14.5 GHz, earth stations located on board vessels may communicate with space stations of the fixed-satellite service. Such use shall be in accordance with Resolution 902 (WRC-03). In the band 5 925-6 425 MHz, earth stations located on board vessels and communicating with space stations of the fixed-satellite service may employ transmit antennas with minimum diameter of 1.2 m and operate without prior agreement of any administration if located at least 330 km away from the low-water mark as officially recognized by the coastal State. All other provisions of Resolution 902 (WRC-03) shall apply.

# Attachment 1 – Annex 1.9.2

## Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide an additional spectrum allocation to the maritime mobile-satellite service (space-to-Earth) in the 7 375 – 7 750 MHz band (AI 1.9.2) to the International Table:

### Agenda item 1.9.2 (MMSS (s-E) in 7375-7750 MHz)

Table of Frequency Allocations				5925-8025 MHz (SHF)		FCC Rule Part(s)	
Region 1 Table		International Table		United States Table		FCC Rule Part(s)	
		Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table		
5925-6700				5925-6425	5925-6425	Satellite Communications (25) Fixed Microwave (101)	
FIXED					FIXED		
FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B				6425-6525	FIXED-SATELLITE (Earth-to-space)	TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)	
MOBILE 5.457C					MOBILE		
				5.440 5.458	5.440 5.458		
				6525-6700	6525-6700	Fixed Microwave (101)	
					FIXED		
					FIXED-SATELLITE (Earth-to-space)		
				5.458 US342	5.458 US342		
5.149 5.440 5.458				6700-7125	6700-6875	Satellite Communications (25) Fixed Microwave (101)	
6700-7075					FIXED		
FIXED					FIXED-SATELLITE (Earth-to-space)		
FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441					(space-to-Earth) 5.441		
MOBILE					5.458 5.458A 5.458B		
					6875-7025	Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78)	
					FIXED NG118		
					FIXED-SATELLITE (Earth-to-space)		
					(space-to-Earth) 5.441		
					MOBILE NG171		
					5.458 5.458A 5.458B		
					7025-7075	TV Broadcast Auxiliary (74F) Cable TV Relay (78)	
					FIXED NG118		
					FIXED-SATELLITE (Earth-to-space) NG172		
					MOBILE NG171		
					5.458 5.458A 5.458B		
					7075-7125		
					FIXED NG118		
					MOBILE NG171		
					5.458		

5.458 5.459	7125-7145 FIXED	7125-7235		
7145-7235	5.458 G116			
FIXED	7145-7190			
MOBILE	FIXED			
SPACE RESEARCH (Earth-to-space) 5.460	SPACE RESEARCH (deep space) (Earth-to-space) US262			
	5.458 G116			
	7190-7235			
	FIXED			
	SPACE RESEARCH (Earth-to-space) G133			
5.458 5.459	5.458 G134	5.458 US262		
7235-7250	7235-7250	7235-7250		
FIXED	FIXED			
MOBILE				
5.458	5.458	5.458		
7250-7300	7250-7300	7250-8025		
FIXED	FIXED-SATELLITE (space-to-Earth)			
FIXED-SATELLITE (space-to-Earth)	MOBILE-SATELLITE (space-to-Earth)			
MOBILE	Fixed			
5.461	G117			
7300-74607375	7300-74607375			
FIXED	FIXED			
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)			
MOBILE except aeronautical mobile	Mobile-satellite (space-to-Earth)			
5.461	G117			
7375-7450	7375-7450			
FIXED	FIXED			
FIXED-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)			
MARITIME MOBILE-SATELLITE (space-to-Earth) ADD 5.461AA ADD 5.461AB	MARITIME MOBILE-SATELLITE (space-to-Earth) ADD 5.461AA ADD 5.461AB			
MOBILE except aeronautical mobile	MOBILE except aeronautical mobile			
7450-7550	G117			
FIXED	7450-7550			
FIXED-SATELLITE (space-to-Earth)	FIXED			
METEOROLOGICAL-SATELLITE (space-to-Earth)	FIXED-SATELLITE (space-to-Earth)			
MARITIME MOBILE-SATELLITE (space-to-Earth) ADD 5.461AA ADD 5.461AB	METEOROLOGICAL-SATELLITE (space-to-Earth)			
MOBILE except aeronautical mobile	MARITIME MOBILE-SATELLITE (space-to-Earth) ADD 5.461AA ADD 5.461AB			
5.461A	Mobile-satellite (space-to-Earth)			
	G104 G117			

7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) ADD 5.461AA ADD 5.461AB MOBILE except aeronautical mobile	7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) MARITIME MOBILE-SATELLITE (space-to-Earth) ADD 5.461AA ADD 5.461AB MOBILE-satellite (space-to-Earth)
7750-7850 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile	G117 7750-7850 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B
7850-7900 FIXED MOBILE except aeronautical mobile	7850-7900 FIXED
7900-8025 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	7900-8025 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Fixed
5.461	G117

## INTERNATIONAL FOOTNOTES

### **ADD**

**5.461AA** The use of the frequency band 7 375-7 750 MHz by the maritime mobile-satellite service is limited to geostationary-satellite networks. (WRC-15)

### **ADD**

**5.461AB** In the frequency band 7 375-7 750 MHz, earth stations in the maritime mobile-satellite service shall not claim protection from, nor constrain the use and development of, stations in the fixed and mobile, except aeronautical mobile, services. No. **5.43A** does not apply. (WRC-15)

## Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide an additional spectrum allocation to the Earth exploration-satellite service (Earth-to-space) in the 7 190 – 7 250 MHz band (AI 1.11):

**Agenda item 1.11 (7/8 GHz EESS E-s)**

Table of Frequency Allocations					5925-8025 MHz (SHF)		FCC Rule Part(s)
International Table			United States Table				
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table			
5925-6700 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B MOBILE 5.457C			5925-6425	5925-6425 FIXED FIXED-SATELLITE (Earth-to-space) NG181		Satellite Communications (25) Fixed Microwave (101)	
			6425-6525	6425-6525 FIXED-SATELLITE (Earth-to-space) MOBILE		TV Broadcast Auxiliary (74F) Cable TV Relay (78) Fixed Microwave (101)	
			5.440 5.458	5.440 5.458		Fixed Microwave (101)	
			6525-6700	6525-6700 FIXED FIXED-SATELLITE (Earth-to-space)		Fixed Microwave (101)	
5.149 5.440 5.458 6700-7075 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE			5.458 US342 6700-7125	5.458 US342 6700-6875 FIXED FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 5.458 5.458A 5.458B		Satellite Communications (25) Fixed Microwave (101)	
				6875-7025 FIXED NG118 FIXED-SATELLITE (Earth-to-space) (space-to-Earth) 5.441 MOBILE NG171 5.458 5.458A 5.458B		Satellite Communications (25) TV Broadcast Auxiliary (74F) Cable TV Relay (78)	



7075-7145 FIXED MOBILE	7075-7145 FIXED NG118 FIXED-SATELLITE (Earth-to-space) NG172 MOBILE NG171 5.458 5.458A 5.458B 7075-7125 FIXED NG118 MOBILE NG171 5.458	7025-7075 FIXED NG118 FIXED-SATELLITE (Earth-to-space) NG172 MOBILE NG171 5.458 5.458A 5.458B 7075-7125 FIXED NG118 MOBILE NG171 5.458	TV Broadcast Auxiliary (74F) Cable TV Relay (78)
5.458 5.459 7145-7235 FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) 5.460 5.458 MOD 5.459	5.458 7125-7145 FIXED 5.458 G116 7145-7190 FIXED SPACE RESEARCH (deep space) (Earth-to-space) US262 5.458 G116 7190-7235 EARTH EXPLORATION-SATELLITE (Earth-to-space) ADD 5.460A ADD 5.460B FIXED SPACE RESEARCH (Earth-to- space) MOD G133 5.458 G134 7235-7250 EARTH EXPLORATION-SATELLITE (Earth-to-space) ADD 5.460A FIXED	7125-7235 5.458 US262 ADD NGxxx ADD NGWV 7235-7250	
7235-7250 EARTH EXPLORATION-SATELLITE (Earth-to-space) ADD 5.460A FIXED MOBILE	7235-7250 EARTH EXPLORATION-SATELLITE (Earth-to-space) ADD 5.460A FIXED	5.458 ADD NGxxx 7250-8025	
5.458 7250-7300 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	5.458 7250-7300 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to- Earth) Fixed G117	5.458 ADD NGxxx 7250-8025	

7300-7450 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	7300-7450 FIXED FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) G117
5.461 7450-7550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	7450-7550 FIXED FIXED-SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) G104 G117
5.461A 7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	7550-7750 FIXED FIXED-SATELLITE (space-to-Earth) Mobile-satellite (space-to-Earth) G117
7750-7850 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B MOBILE except aeronautical mobile	7750-7850 FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) 5.461B 7850-7900 FIXED
7850-7900 FIXED MOBILE except aeronautical mobile	7850-7900 FIXED
7900-8025 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE	7900-8025 FIXED-SATELLITE (Earth-to-space) MOBILE-SATELLITE (Earth-to-space) Fixed G117
5.461	

## INTERNATIONAL FOOTNOTES

### ADD

**5.A111** The use of the frequency band 7 190-7 250 MHz (Earth-to-space) by the Earth exploration-satellite service shall be limited to tracking, telemetry and command for the operation of spacecraft. Space stations operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7 190-7 250 MHz shall not claim protection from existing and future stations in the fixed and mobile services, and No. 5.43A does not apply. No. 9.17 applies. Additionally, to ensure protection of the existing and future deployment of fixed and mobile services, the location of earth stations supporting spacecraft in the Earth exploration-satellite service in non-geostationary orbits or geostationary orbit shall maintain a separation distance of at least 10 km and 50 km, respectively, from the respective border(s) of neighbouring countries, unless a shorter distance is otherwise agreed between the corresponding administrations. (WRC-15)

### ADD

**5.B111** Space stations on the geostationary orbit operating in the Earth exploration-satellite service (Earth-to-space) in the frequency band 7 190-7 235 MHz shall not claim protection from existing and future stations of the space research service, and No. 5.43A does not apply. (WRC-15)

### MOD

**5.459** *Additional allocation:* in the Russian Federation, the frequency bands 7100-7155 MHz and 7190-7235 MHz are also allocated to the space operation service (Earth-to-space) on a primary basis, subject to agreement obtained under No. 9.21. In the frequency band 7 190-7 235 MHz, with respect to the Earth exploration-satellite service (Earth-to-space), No. 9.21 does not apply. (WRC-15)

### MOD

**5.460** ~~The use of the band 7145-7190 MHz by the space research service (Earth-to-space) is restricted to deep space; n~~No emissions from space research service (Earth-to-space) systems intended for to deep space shall be effected in the frequency band 7190-7235 MHz. Geostationary satellites in the space research service operating in the band 7190-7235 MHz shall not claim protection from existing and future stations of the fixed and mobile services and No. 5.43A does not apply.

## FEDERAL GOVERNMENT (G) FOOTNOTES

### MOD

**G133** No emissions from space research service (Earth-to-space) systems intended for deep space shall be effected in the frequency band 7190-7235 MHz. ~~emissions to deep space are prohibited.~~ Geostationary satellites in the space research service operating in the band 7190-7235 MHz shall not claim protection from existing and future stations in the fixed service and ITU Radio Regulation No. 5.43A does not apply.

## NON-FEDERAL GOVERNMENT (NG) FOOTNOTES

### ADD

**NGxxx** The band 7190-7250 MHz is also allocated to the Earth exploration-satellite service (Earth-to-space) on a secondary basis for non-Federal use. Such use shall be limited to tracking, telemetry and command for the operation of spacecraft. Authorizations are subject to a case-by-case electromagnetic compatibility analysis and approval.

### ADD

**NGyyy** The band 7190-7235 MHz is also allocated to the space research service (Earth-to-space) on a secondary basis for non-Federal use. No emissions from space research service (Earth-to-space) systems intended for deep space shall be effected in this frequency band. Authorizations are subject to a case-by-case electromagnetic compatibility analysis and approval.

## CHAPTER 8 PROCEDURES AND PRINCIPLES FOR THE ASSIGNMENT AND COORDINATION OF FREQUENCIES

### 8.3.13 Coordination of Assignments for Transmission or Reception by Earth Stations

...

#### 2. Frequency Bands

a. (Earth Station/Terrestrial Station Coordination) The coordination procedure specified in sub-paragraph 1a of this section applies in the following frequency bands:  
1215-1260 MHz, 1559-1610 MHz, 1610-1626.5 MHz, 1675-1710 MHz, 1761-1842 MHz, 2025-2120 MHz, 2200-2300 MHz, ~~7125-7235 MHz, 7250-7750~~ MHz\*, 7900-8500 MHz\*, 31.8-32.3 GHz, 34.2-34.7 GHz, 37-38 GHz, 39.5-40.0 GHz, 42.5-43.5 GHz, 45.5-47 GHz, 44.2-50.2 GHz, 50.4-51.4 GHz, 66-71 GHz, 71-76 GHz, 81-86 GHz, 95-100 GHz, 123-130 GHz, 158.5-164 GHz, 167-174.5 GHz, 191.8-200 GHz, 209-226 GHz, 232-235 GHz, 238-240 GHz, 252-275 GHz

\* Nationally, coordination contours are not required in the bands 7250-7300 MHz and 7900-8025 MHz.

## Attachment 1 - Annex 1.12

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide an additional spectrum allocation to the Earth exploration-satellite service (active) in the 9 200 – 9 300 MHz and 9 900 – 10 400 MHz frequency ranges:

#### Agenda item 1.12 (EESS (active) extension)

Table of Frequency Allocations					8025-10000 MHz (SHF)		United States Table		FCC Rule Part(s)
International Table		Region 3 Table		Federal Table	Non-Federal Table				
Region 1 Table	Region 2 Table	...			...	...	...	...	
9200-9300 EARTH EXPLORATION-SATELLITE (active) ADD 5.474A ADD 5.474B ADD 5.474C RADIOLOCATION MARITIME RADIONAVIGATION 5.472					9200-9300 EARTH EXPLORATION-SATELLITE (active) ADD 5.474A ADD 5.474B ADD 5.474C MARITIME RADIONAVIGATION 5.472 Radiolocation US110 G59 5.474 ADD 5.474D	9200-9300 MARITIME RADIONAVIGATION 5.472 Earth exploration-satellite (active) ADD 5.474A ADD 5.474B ADD 5.474C Radiolocation US110 5.474 ADD 5.474D	Maritime (80) Private Land Mobile (90)		
9300-9500 EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active) RADIOLOCATION RADIONAVIGATION 5.427 5.474 5.475 5.475A 5.475B 5.476A					9300-9500 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION G56 RADIONAVIGATION US475 SPACE RESEARCH (active) Meteorological aids 5.427 5.474 5.475A 5.475B US67 US71 US476A	9300-9500 RADIONAVIGATION US475 Meteorological aids Earth exploration-satellite (active) Radiolocation Space research (active) 5.427 5.474 US67 US71 US476A	Maritime (80) Aviation (87) Private Land Mobile (90)		

9500-9800 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION SPACE RESEARCH (active) 5.476A	9500-9800 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active)	9500-9900 Earth exploration-satellite (active) Radiolocation Space research (active)	Private Land Mobile (90)
9800-9900 RADIOLOCATION Earth exploration-satellite (active) Fixed Space research (active) 5.477 5.478 5.478A 5.478B	9800-9900 RADIOLOCATION Earth exploration-satellite (active) Space research (active)		
9900-10000 EARTH EXPLORATION-SATELLITE (active) ADD 5.474A ADD 5.474B ADD 5.474C RADIOLOCATION Fixed 5.477 5.478 5.479 ADD 5.474D	9900-10000 EARTH EXPLORATION-SATELLITE (active) ADD 5.474A ADD 5.474B ADD 5.474C RADIOLOCATION 5.479 ADD 5.474D	9900-10000 Earth exploration-satellite (active) ADD 5.474A ADD 5.474B ADD 5.474C Radiolocation 5.479 ADD 5.474D	

Table of Frequency Allocations					10-14 GHz (SHF)		FCC Rule Part(s)	
International Table					United States Table			
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table		Non-Federal Table			
10-10.45 EARTH EXPLORATION- SATELLITE (active) ADD 5.474A ADD 5.474B ADD 5.474C FIXED MOBILE RADIOLOCATION Amateur	10-10.45 EARTH EXPLORATION- SATELLITE (active) ADD 5.474A ADD 5.474B ADD 5.474C RADIOLOCATION Amateur	10-10.45 EARTH EXPLORATION- SATELLITE (active) ADD 5.474A ADD 5.474B ADD 5.474C FIXED MOBILE RADIOLOCATION Amateur	10-10.54 EARTH EXPLORATION- SATELLITE (active) ADD 5.474A ADD 5.474B ADD 5.474C RADIOLOCATION US108 G32	10-10.45 Amateur Earth exploration-satellite (active) ADD 5.474A ADD 5.474B ADD 5.474C Radiolocation US108				
5.479 ADD 5.474D 10.4-10.45 FIXED MOBILE RADIOLOCATION Amateur	5.479 5.480 ADD 5.474D 10.4-10.45 RADIOLOCATION Amateur	5.479 ADD 5.474D 10.4-10.45 FIXED MOBILE RADIOLOCATION Amateur	5.479 ADD 5.474D US128 10.4-10.5 RADIOLOCATION US108 G32	5.479 ADD 5.474D US128 NG50 10.4-10.45 Amateur Radiolocation US108				
10.45-10.5 RADIOLOCATION Amateur Amateur-satellite 5.481	10.45-10.5 RADIOLOCATION Amateur Amateur-satellite 5.481	10.45-10.5 RADIOLOCATION Amateur Amateur-satellite 5.481	5.479 US128 NG50 10.45-10.5 Amateur Amateur-satellite Radiolocation US108 US128 NG50	5.479 US128 NG50 10.45-10.5 Amateur Amateur-satellite Radiolocation US108 US128 NG50				
...					...		...	
							Private Land Mobile (90) Amateur Radio (97)	

## INTERNATIONAL FOOTNOTES

### ADD

**5.474A** The use of the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz by the Earth exploration-satellite service (active) is limited to systems requiring necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the frequency band 9 300-9 900 MHz. Such use is subject to agreement to be obtained under No. **9.21** from Algeria, Saudi Arabia, Bahrain, Egypt, Indonesia, Iran (Islamic Republic of), Lebanon and Tunisia. An administration that has not replied under No. **9.52** is considered as not having agreed to the coordination request. In this case, the notifying administration of the satellite system operating in the Earth exploration-satellite service (active) may request the assistance of the Bureau under Sub-Section IID of Article 9. (WRC-15)

### ADD

**5.474B** Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2066-0. (WRC-15)

### ADD

**5.474C** Stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU-R RS.2065-0. (WRC-15)

### ADD

**5.474D** Stations in the Earth exploration-satellite service (active) shall not cause harmful interference to, or claim protection from, stations of the maritime radionavigation and radiolocation services in the frequency band 9 200-9 300 MHz, the radionavigation and radiolocation services in the frequency band 9 900-10 000 MHz and the radiolocation service in the frequency band 10.0-10.4 GHz. (WRC-15)



# CHAPTER 8 PROCEDURES AND PRINCIPLES FOR THE ASSIGNMENT AND COORDINATION OF FREQUENCIES

MOD

8.2.36

## Power Flux-Density Limits

Table: 8.2.36 (Section 2)

Frequency band	Service	Limit in dB(W/m <sup>2</sup> ) for angle of arrival (δ) above the horizontal plane			Reference bandwidth
		0°- 5°	5°- 25°	25°- 90°	
...	...	...	...	...	...
8 025-8500 MHz	Earth Exploration-Satellite (S-E) Space Research (S-E)	-150	-150 + 0.5 (δ - 5)	-140	4 kHz
9 900-10 400 MHz	Earth exploration-satellite (active)	0°-5.7° -113 <sup>xxx</sup>	5.7°-53° -109 + 25 log(δ - 5) <sup>xxx</sup>	53°-90° -66.6 <sup>xxx</sup>	1 MHz
13.4-14.05 GHz <sup>5)</sup>	Space Research (secondary allocation)	0°- 5°	5°- 25°	25°- 90° -152	4 kHz
...	...	...	...	...	...
174.8-182 GHz	Inter-Satellite (geostationary-satellite orbit)	The single-entry power flux-density produced by a space station, for all conditions and for all methods of modulation, at all altitudes from 0 to 1000 km above the Earth's surface and in the vicinity of all geostationary orbital positions occupied by passive sensors, shall not exceed -144 dB(W/(m <sup>2</sup> · MHz)) for all angles of arrival. (value based on sharing with GSO and NGSO space research (passive) and Earth exploration-satellite (passive) services)			1 MHz

...  
<sup>xxx</sup> The pfd values given for EESS (active) are mean pfd values defined as follows:

$$pfd(\delta) = P + 10\log(\tau) + 10\log(PRF) - 30 - 10\log(Bc) + G_t(\delta) - 10\log(4\pi d^2(\delta))$$

where:

- P: RF peak power at the input of the antenna of the SAR satellite (dBW)
- τ: SAR pulse length (μs)
- PRF: SAR pulse repetition frequency (kHz)
- δ: elevation angle of the EESS SAR satellite above ground, in the vertical plane (perpendicular to the satellite orbit) (°)
- Bc: SAR emission bandwidth (MHz)
- G<sub>t</sub>(δ): transmit antenna gain of the SAR satellite in the vertical plane (perpendicular to the satellite orbit) for the elevation angle δ considered (dBi)
- d(δ): distance between the SAR satellite and the ground for the elevation angle δ considered (m).

# Attachment 1 - Annex 1.13

## Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide a revision to footnote 5.268 in the 410 – 420 MHz band:

### Agenda item 1.13 (SRS 410-420 MHz)

Table of Frequency Allocations				410-698 MHz (UHF)		FCC Rule Part(s)	
International Table				United States Table			
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table		Non-Federal Table		
410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) MOD 5.268			410-420 FIXED MOBILE SPACE RESEARCH (space-to-space) MOD 5.268 US13 US64 G5	410-420 Space Research (space-to-space) MOD 5.268	410-420 Space Research (space-to-space) MOD 5.268	Private Land Mobile (90) MedRadio (95l)	
420-430 FIXED MOBILE except aeronautical mobile Radiolocation			420-450 RADIOLOCATION G2 G129	US13 US64 420-450 Amateur US270	US13 US64 420-450 Amateur US270	Private Land Mobile (90) MedRadio (95l) Amateur Radio (97)	
5.269 5.270 5.271							
430-432 AMATEUR RADIOLOCATION	430-432 RADIOLOCATION Amateur		5.271 5.276 5.277 5.278 5.279				
5.271 5.272 5.273 5.274 5.275 5.276 5.277							
432-438 AMATEUR RADIOLOCATION Earth exploration-satellite (active) 5.279A	432-438 RADIOLOCATION Amateur Earth exploration-satellite (active) 5.279A						
5.138 5.271 5.272 5.276 5.277 5.280 5.281 5.282	5.271 5.276 5.277 5.278 5.279 5.281 5.282						

438-440 AMATEUR RADIOLOCATION	438-440 RADIOLOCATION Amateur	5.271 5.273 5.274 5.275 5.276 5.277 5.283	5.271 5.276 5.277 5.278 5.279				
440-450 FIXED MOBILE except aeronautical mobile Radiolocation							
5.269 5.270 5.271 5.284 5.285 5.286						5.282 5.286 US64 US87 US230 US269 US397	
450-455 FIXED MOBILE 5.286AA				450-454	450-454 LAND MOBILE		Remote Pickup (74D) Low Power Auxiliary (74H) Private Land Mobile (90) MedRadio (95i)
				5.286 US64 US87 454-456	5.286 US64 US87 NG112 NG124		
5.209 5.271 5.286 5.286A 5.286B 5.286C 5.286E					454-455 FIXED LAND MOBILE		Public Mobile (22) Maritime (80) MedRadio (95i)
455-456 FIXED MOBILE 5.286AA					US64 NG32 NG112 NG148		
5.209 5.271 5.286A 5.286B 5.286C 5.286E					455-456 LAND MOBILE		Remote Pickup (74D) Low Power Auxiliary (74H) MedRadio (95i)
456-459 FIXED MOBILE 5.286AA				US64	US64		
5.271 5.287 5.288				456-459 FIXED LAND MOBILE	456-460 FIXED LAND MOBILE		Public Mobile (22) Maritime (80) Private Land Mobile (90) MedRadio (95i)
459-460 FIXED MOBILE 5.286AA				5.287 US64 US288 459-460			
5.209 5.271 5.286A 5.286B 5.286C 5.286E					5.287 US64 US288 NG32 NG112 NG124 NG148		
460-470 FIXED MOBILE 5.286AA				460-470 Meteorological-satellite (space-to-Earth)	460-462.5375 FIXED LAND MOBILE		Private Land Mobile (90)
5.209 5.271 5.286A 5.286B 5.286C 5.286E					US209 US289 NG124 462.5375-462.7375 LAND MOBILE		Personal Radio (95)
					US289		

5.287 5.288 5.289 5.290 470-790 BROADCASTING	470-512 BROADCASTING Fixed Mobile 5.292 5.293  512-608 BROADCASTING 5.297 608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space) 614-698 BROADCASTING Fixed Mobile 5.293 5.309 5.311A  5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311A 5.312	470-585 FIXED MOBILE BROADCASTING  5.291 5.298 585-610 FIXED MOBILE BROADCASTING RADIONAVIGATION 5.149 5.305 5.306 5.307 610-890 FIXED MOBILE 5.313A 5.317A BROADCASTING  5.149 5.305 5.306 5.307 5.311A 5.320	5.287 US73 US209 US288 US289 470-608       608-614 LAND MOBILE (medical telemetry and medical telecommand) RADIO ASTRONOMY US74 US246 614-698	462.7375-467.5375 FIXED LAND MOBILE 5.287 US73 US209 US288 US289 NG124 467.5375-467.7375 LAND MOBILE 5.287 US288 US289 467.7375-470 FIXED LAND MOBILE US73 US288 US289 NG124 470-512 FIXED LAND MOBILE BROADCASTING NG5 NG14 NG66 NG115 NG149 512-608 BROADCASTING NG5 NG14 NG115 NG149   614-698 BROADCASTING NG5 NG14 NG115 NG149	Maritime (80) Private Land Mobile (90)  Maritime (80) Personal Radio (95)  Maritime (80) Private Land Mobile (90)  Public Mobile (22) Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H) Private Land Mobile (90)  Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74H) Low Power Auxiliary (74H)  Personal Radio (95)  Broadcast Radio (TV)(73) LPTV, TV Translator/Booster (74G) Low Power Auxiliary (74H)

## INTERNATIONAL FOOTNOTES

### MOD

**5.268** Use of the frequency band 410-420 MHz by the space research service is limited to space-to-space communications links within 5 km of an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from transmitting stations of the space research service (space-to-space) in the frequency band 410-420 MHz ~~extra-vehicular activities~~ shall not exceed  $-153 \text{ dB(W/m}^2\text{)}$  for  $0^\circ \leq \delta \leq 5^\circ$ ,  $-153 + 0.077 (\delta - 5) \text{ dB(W/m}^2\text{)}$  for  $5^\circ \leq \delta \leq 70^\circ$  and  $-148 \text{ dB(W/m}^2\text{)}$  for  $70^\circ \leq \delta \leq 90^\circ$ , where  $\delta$  is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. ~~No. 4.10 does not apply to extra-vehicular activities.~~ In this frequency band, stations of the space research service (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. No. 4.10 does not apply. (WRC-9715)

## **Attachment 1 - Annex 1.14**

### **Proposed Changes**

The following proposed change aligns the definition of Coordinated Universal Time (UTC) to that in Article 1, No. 1.14 as modified in the Final Acts of WRC-15.

### **Agenda item 1.14 (UTC)**

## **Chapter 6**

### **Definitions and Particulars of Assignments**

#### **6.1 DEFINITIONS**

##### **6.1.1 Special Terms (General)**

#### **MOD**

***Coordinated Universal Time (UTC):*** *Time scale, based on the second (SI), as described in Resolution 655 (WRC-15), ~~defined in ITU-R recommendation ITU-R TF.460-6. (RR)~~*

## Attachment 1 - Annex 1.17

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations, provide an additional spectrum allocation to the Aeronautical Mobile (Route) Service in the 4 200 – 4 400 MHz band under WRC-15 AI 1.17:

### Agenda item 1.17 (WAIC)

Table of Frequency Allocations						2655-4990 MHz (UHF/SHF)		FCC Rule Part(s)	
International Table			United States Table						
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table					
2655-2670 FIXED 5.410 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.208B 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)  5.149 5.412	2655-2670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)  5.149 5.208B	2655-2670 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A BROADCASTING-SATELLITE 5.413 5.416 Earth exploration-satellite (passive) Radio astronomy Space research (passive)  5.149 5.208B 5.420	2655-2690 Earth exploration-satellite (passive) Radio astronomy US385 Space research (passive)	2655-2690 FIXED US205 MOBILE except aeronautical mobile Earth exploration-satellite (passive) Radio astronomy Space research (passive)	Wireless Communications (27)				
2670-2690 FIXED 5.410 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive)	2670-2690 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile (space-to-Earth) 5.208B 5.415 MOBILE except aeronautical mobile 5.384A Earth exploration-satellite (passive) Radio astronomy Space research (passive)	2670-2690 FIXED 5.410 FIXED-SATELLITE (Earth-to-space) 5.415 MOBILE except aeronautical mobile 5.384A MOBILE-SATELLITE (Earth-to-space) 5.351A 5.419 Earth exploration-satellite (passive) Radio astronomy Space research (passive)  5.149	US205	US385	US385				

5.149 5.412	5.149				
2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.422			2690-2700 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US246		
2700-2900 AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation			2700-2900 METEOROLOGICAL AIDS AERONAUTICAL RADIONAVIGATION 5.337 US18 Radiolocation G2 5.423 G15	2700-2900	Aviation (87)
5.423 5.424				5.423 US18	
2900-3100 RADIOLOCATION 5.424A RADIONAVIGATION 5.426			2900-3100 RADIOLOCATION 5.424A G56 MARITIME RADIONAVIGATION 5.427 US44 US316	2900-3100 MARITIME RADIONAVIGATION Radiolocation US44 5.427 US316	Maritime (80) Private Land Mobile (90)
5.425 5.427					
3100-3300 RADIOLOCATION Earth exploration-satellite (active) Space research (active)			3100-3300 RADIOLOCATION G59 Earth exploration-satellite (active) Space research (active) US342	3100-3300 Earth exploration-satellite (active) Space research (active) Radiolocation US342	Private Land Mobile (90)
5.149 5.428					
3300-3400 RADIOLOCATION	3300-3400 RADIOLOCATION Amateur Fixed Mobile	3300-3400 RADIOLOCATION Amateur	3300-3500 RADIOLOCATION US108 G2	3300-3500 Amateur Radiolocation US108	Private Land Mobile (90) Amateur Radio (97)
5.149 5.429 5.430	5.149	5.149 5.429			
3400-3600 FIXED	3400-3500 FIXED	3400-3500 FIXED			
FIXED-SATELLITE (space-to-Earth) Mobile 5.430A Radiolocation	FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.431A	FIXED-SATELLITE (space-to-Earth) Amateur		5.282 US342	





<div data-bbox="365 1730 391 1902" data-label="Text"> 5.149 5.339 5.443 </div>	<div data-bbox="253 993 399 1050" data-label="Text"> 4940-4990 </div> <div data-bbox="253 1050 399 1106" data-label="Text"> 5.339 US342 US385 G122 </div>	<div data-bbox="253 1106 399 1163" data-label="Text"> 4940-4990 FIXED MOBILE except aeronautical mobile </div> <div data-bbox="253 1163 399 1220" data-label="Text"> 5.339 US342 US385 </div>	<div data-bbox="285 161 342 380" data-label="Text"> Public Safety Land Mobile (90Y) </div>
--	---	---	--

## INTERNATIONAL FOOTNOTES

### ADD

**5.A117** Use of the frequency band 4 200-4 400 MHz by stations in the aeronautical mobile (R) service is reserved exclusively for wireless avionics intra-communication systems that operate in accordance with recognized international aeronautical standards. Such use shall be in accordance with Resolution **COM4/1 (WRC-15)**. (WRC-15)

### ADD

**5.B117** Passive sensing in the Earth exploration-satellite and space research services may be authorized in the frequency band 4 200-4 400 MHz on a secondary basis. (WRC-15)

### MOD

**5.438** Use of the frequency band 4 200-4 400 MHz by the aeronautical radionavigation service is reserved exclusively for radio altimeters installed on board aircraft and for the associated transponders on the ground. ~~However, passive sensing in the Earth exploration-satellite and space research services may be authorized in this band on a secondary basis (no protection is provided by the radio altimeters).~~ (WRC-15)

## U.S. FOOTNOTES

### MOD

**US261** The use of the band 4200-4400 MHz by the aeronautical radionavigation service is reserved exclusively for airborne radio altimeters and for the associated transponders on the ground. ~~The use of the band 4200-4400 MHz by the aeronautical radionavigation service is reserved exclusively for airborne radio altimeters.~~ Experimental stations will not be authorized to develop equipment for operational use in this band other than equipment related to altimeter stations. However, passive sensing in the Earth-exploration satellite and space research services may be authorized in this band on a secondary basis (no protection is provided from the radio altimeters).

## Attachment 1 - Annex 1.18

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide an allocation to the radiolocation service on a primary basis for the purposes of vehicular radars in the band 77.5-78 GHz.:

### Agenda item 1.18 (Radiolocation 77.5-78 GHz)

Table of Frequency Allocations				FCC Rule Part(s)
International Table			71-100 GHz (EHF)	
Region 1 Table	Region 2 Table	Region 3 Table	United States Table	
			Federal Table	Non-Federal Table
71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth)			71-74 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE MOBILE-SATELLITE (space-to-Earth) US389	Fixed Microwave (101)
74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE BROADCASTING BROADCASTING-SATELLITE Space research (space-to-Earth) 5.561			74-76 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE Space research (space-to-Earth) US389	
76-77.5 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)			76-77.5 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth) US342	RF Devices (15)
5.149			77-77.5 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth) US342	Amateur Radio (97)

77-5-78 AMATEUR AMATEUR-SATELLITE RADIOLOCATION ADD 5.A118 Radio astronomy Space research (space-to-Earth)	77-5-78 RADIOLOCATION ADD 5.A118 Radio astronomy Space research (space-to-Earth)	77-5-78 AMATEUR AMATEUR-SATELLITE RADIOLOCATION ADD 5.A118 Radio astronomy Space research (space-to-Earth)
5.149 78-79 RADIOLOCATION Amateur Amateur-satellite Radio astronomy Space research (space-to-Earth)	US342 78-79 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth)	US342 78-79 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)
5.149 5.560 79-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)	5.560 US342 79-81 RADIO ASTRONOMY RADIOLOCATION Space research (space-to-Earth)	5.560 US342 79-81 RADIO ASTRONOMY RADIOLOCATION Amateur Amateur-satellite Space research (space-to-Earth)
5.149	US342	US342

## INTERNATIONAL FOOTNOTES

### ADD

**5.A118** The use of the frequency band 77.5-78 GHz by the radiolocation service shall be limited to short-range radar for ground-based applications, including automotive radars. The technical characteristics of these radars are provided in the most recent version of Recommendation ITU-R M.2057. The provisions of No. **4.10** do not apply.  
(WRC-15)

## **Attachment 1 – Annex 2a**

### **Proposed Changes**

The following proposed changes to the National Table of Frequency Allocations provide revisions to United States Footnote 288 (US288) in order to align the U.S. footnote with the international footnote for M.1174 incorporated by reference.

### **Agenda item 2 (Incorporation by reference)**

#### **United States (US) Footnotes**

##### **MOD**

**US288** In the territorial waters of the United States, the preferred frequencies for use by on-board communication stations shall be 457.525 MHz, 457.550 MHz, 457.575 MHz and 457.600 MHz paired, respectively, with 467.750 MHz, 467.775 MHz, 467.800 MHz and 467.825 MHz. Where needed, equipment designed for 12.5 kHz channel spacing using also the additional frequencies 457.5375 MHz, 457.5625 MHz, 467.5375 MHz and 467.5625 MHz may be introduced for on-board communications. The characteristics of the equipment used shall conform to those specified in Recommendation ITU-R M.1174-23.

## **Attachment 1 – Annex 2b**

### **Proposed Changes**

The following proposed changes to the definition of maritime service identities (MSI) provides a revision to the version of Recommendation ITU-R M.585 referenced in order to align with the most recent version of Recommendation ITU-R M.585 containing MSI information.

#### **Agenda item 2 (Incorporation by reference)**

#### **NTIA Manual – Chapter 6: Definitions**

### **MOD**

#### **6.6 MARITIME SERVICE IDENTITIES**

1. Under the ITU Radio Regulations (RR 19.30), ship stations and ship earth stations to which the provisions of Chapter IX apply, and coast stations or coast earth stations, or other non-shipborne stations capable of communicating with such ship stations, shall have assigned to them maritime mobile service identities, as the need arises. Maritime mobile service identities are formed of a series of nine digits as described in Annexes 1 to 5 of Recommendation ITU-R M.585-47. The maritime identification digits (MID) are an integral part of the maritime mobile service identity and denote the administration responsible for the station so identified. Administrations shall follow Annexes 1 to 5 of Recommendation ITU-R M.585-47 concerning the assignment and use of maritime mobile service identities. In the United States the Federal Communications Commission is the responsible agency for the assignment of maritime mobile service identities. Maritime mobile service identities are used as unique addresses for maritime automatic identification systems (AIS) and digital selective calling and, in some cases, maritime mobile satellite services.

2. Agencies using maritime mobile service identities shall maintain an up-to-date registration of identities used and periodically provide that information electronically to the U.S. Coast Guard Operations Systems Center, 408 Coast Guard Drive, Kearneyville, WV 25430. Agencies may arrange with the Coast Guard which data elements will be provided.



## **Attachment 1 - Annex 2c**

### **Proposed Changes**

The following proposed changes to the Procedures and Principles for the Assignment and Coordination of Frequencies provides a revision to the version of Recommendation ITU-R M.1173 referenced in order to align with the most recent version of Recommendation ITU-R M.1173.

### **Agenda item 2 (Incorporation by reference)**

#### **NTIA Manual – Chapter 8: Procedures and Principles for the Assignment and Coordination of Frequencies**

#### **MOD**

#### **8.2.29 Use of Frequencies by Stations in the Maritime Mobile Service**

...

#### **Maritime Mobile Radiotelephony**

6. Bands available to the maritime mobile service for radiotelephony are divided generally into exclusive maritime bands and bands shared with other services. The class of emission authorized in each band is described below. Where single sideband is specified, the authorized bandwidth is 2.8 kHz, upper sideband mode only is permitted, the assigned frequency must be 1.4 kHz above the carrier, and technical standards of ITU-R M.1173-1 shall be followed.

....

## **Attachment 1 – Annex 4**

### **Proposed Changes**

The following proposed changes to the National Table of Frequency Allocations provide revisions to Government Footnote 132 (**G132**) in order to align the government footnote with the updating of Resolution 608 at WRC-15.

### **Agenda item 4 (Resolutions and recommendations)**

#### **United States (US) Footnotes**

#### **MOD**

**G132** Use of the radionavigation-satellite service in the band 1215-1240 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under ITU Radio Regulation No. 5.331. Furthermore, the use of the radionavigation-satellite service in the band 1215-1240 MHz shall be subject to the condition that no harmful interference is caused to the radiolocation service. ITU Radio Regulation No. 5.43 shall not apply in respect of the radiolocation service. ITU Resolution 608 (WRC-0315) shall apply.

## Attachment 1 – Annex 9.1.1

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations adds new footnote 5.265 in the Radio Regulations, as specified in the Final Acts of WRC-15, to the combined federal and non-federal portion of the National Table of Frequency Allocations. This alignment will harmonize the U.S. domestic protections of this service with those used internationally.

### Agenda item 9.1.1 (Protection of the mobile-satellite service in the band 406-406.1 MHz)

Table of Frequency Allocations				267-410 MHz (VHF/UHF)		FCC Rule Part(s)	
Region 1 Table		International Table		United States Table			
		Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table		
267-272				267-322	267-322		
FIXED				FIXED			
MOBILE				MOBILE			
Space operation (space-to-Earth)							
5.254 5.257							
272-273							
SPACE OPERATION (space-to-Earth)							
FIXED							
MOBILE							
5.254							
273-312							
FIXED							
MOBILE							
5.254							
312-315							
FIXED							
MOBILE							
Mobile-satellite (Earth-to-space) 5.254 5.255							
315-322							
FIXED							
MOBILE							
5.254				G27 G100			
322-328.6				322-328.6	322-328.6		
FIXED				FIXED			

MOBILE RADIO ASTRONOMY	MOBILE			
5.149	US342 G27	US342		
328.6-335.4	328.6-335.4			
AERONAUTICAL RADIONAVIGATION 5.258	AERONAUTICAL RADIONAVIGATION 5.258			Aviation (87)
5.259				
335.4-387	335.4-399.9	335.4-399.9		
FIXED	FIXED			
MOBILE	MOBILE			
5.254				
387-390				
FIXED				
MOBILE				
Mobile-satellite (space-to-Earth) 5.208A 5.208B 5.254 5.255				
390-399.9				
FIXED				
MOBILE				
5.254	G27 G100			
399.9-400.05	399.9-400.05			
MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A	MOBILE-SATELLITE (Earth-to-space) US319 US320			Satellite Communications (25)
RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260	RADIONAVIGATION-SATELLITE 5.260			
5.220				
400.05-400.15	400.05-400.15			
STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz)	STANDARD FREQUENCY AND TIME SIGNAL-SATELLITE (400.1 MHz)			
5.261 5.262	5.261			
400.15-401	400.15-401			
METEOROLOGICAL AIDS	METEOROLOGICAL AIDS (radiosonde) US70	400.15-401 METEOROLOGICAL AIDS (radiosonde) US70		Satellite Communications (25)
METEOROLOGICAL-SATELLITE (space-to-Earth)	METEOROLOGICAL-SATELLITE (space-to-Earth)	MOBILE-SATELLITE (space-to-Earth) US320 US324		
MOBILE-SATELLITE (space-to-Earth) 5.208A 5.208B 5.209	MOBILE-SATELLITE (space-to-Earth) US319 US320 US324	SPACE RESEARCH (space-to-Earth) 5.263		
SPACE RESEARCH (space-to-Earth) 5.263	SPACE RESEARCH (space-to-Earth) 5.263	Space operation (space-to-Earth)		
Space operation (space-to-Earth)	Space operation (space-to-Earth)	5.264 US319		
5.262 5.264	5.264			

401-402 METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) EARTH EXPLORATION- SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) US64 US384	401-402 METEOROLOGICAL AIDS (radiosonde) US70 SPACE OPERATION (space-to-Earth) Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US64 US384	MedRadio (951)
402-403 METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) Fixed Mobile except aeronautical mobile	402-403 METEOROLOGICAL AIDS (radiosonde) US70 EARTH EXPLORATION- SATELLITE (Earth-to-space) METEOROLOGICAL-SATELLITE (Earth-to-space) US64 US384	402-403 METEOROLOGICAL AIDS (radiosonde) US70 Earth exploration-satellite (Earth-to-space) Meteorological-satellite (Earth-to-space) US64 US384	
403-406 METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US64 G6	403-406 METEOROLOGICAL AIDS (radiosonde) US70 US64	
406-406.1 MOBILE-SATELLITE (Earth-to-space) ADD 5.265 5.266 5.267 406.1-410 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	406-406.1 MOBILE-SATELLITE (Earth-to-space) ADD 5.265 5.266 5.267 406.1-410 FIXED MOBILE RADIO ASTRONOMY US74 US13 US117 G5 G6	406-406.1 MOBILE-SATELLITE (Earth-to-space) ADD 5.265 5.266 5.267 406.1-410 RADIO ASTRONOMY US74 US13 US117	Maritime (EPIRBs) (80V) Aviation (ELTs) (87F) Personal Radio (95)  Private Land Mobile (90)

## **International Radio Regulations**

### **ADD**

**5.265** In the frequency band 403-410 MHz, Resolution **205 (Rev.WRC-15)**  
applies. (WRC-15)

## **Attachment 1 - Annex 9.2a**

### **Proposed Changes**

The following proposed changes to the National Table of Frequency Allocations provide revisions to align with actions taken by WRC-15 under agenda item 9.2.

#### **Agenda item 9.2 (Difficulties encountered in implementing the Radio Regulations)**

##### **International Footnotes:**

##### **ADD**

**5.484B** Resolution 155 (WRC-15) shall apply. (WRC-15)

## Attachment 1 - Annex 9.2b

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide revisions to the 149.9-150.05 MHz band to suppress the radionavigation satellite allocation in order to align the U.S. allocation table with the international allocation table and to suppress the appropriate footnote in the domestic table of allocations.

### Agenda item 9.2 (Difficulties encountered in implementing the Radio Regulations)

#### MOD

Table of Frequency Allocations				117.975-150.8 MHz (VHF)		FCC Rule Part(s)	
International Table			United States Table			Non-Federal Table	
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table				
...			...				...
149.9-150.05			149.9-150.05				
MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A			MOBILE-SATELLITE (Earth-to-space) US319 US320				
RADIONAVIGATION SATELLITE 5.224B			RADIONAVIGATION SATELLITE				Satellite Communications (25)
5.220 2.222 5.223			5.223				
...			...				...

#### SUP

#### 5.223



## Attachment 1 – Annex 9.2c

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide revisions to the 399.9-400.05 MHz band to suppress the radionavigation satellite allocation in order to align the U.S. allocation table with the international allocation table and to suppress and modify the appropriate footnotes.

### Agenda item 9.2 (Difficulties encountered in implementing the Radio Regulations)

#### MOD

Table of Frequency Allocations					174-400.15 MHz (VHF/UHF)		FCC Rule Part(s)	
International Table			United States Table					
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table				
...			...		...			
399.9-400.05			399.9-400.05					
MOBILE-SATELLITE (Earth-to-space) 5.209 5.224A			MOBILE-SATELLITE (Earth-to-space) US319 US320					
RADIONAVIGATION-SATELLITE 5.222 5.224B 5.260			RADIONAVIGATION-SATELLITE 5.260		Satellite Communications (25)			
5.220								
...			...		...			

#### SUP

5.260

## Attachment 1 – Attachment 9.2d

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide revisions to reflect the implementation of Earth Stations in Motion (ESIM).

### Agenda item 9.2 (Difficulties encountered in implementing the Radio Regulations)

#### MOD

#### 18.4-22 GHz

Allocation to services			
Region 1	Region 2	Region 3	
...			
19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B <u>5.527A</u> Mobile-satellite (space-to-Earth)  5.524	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B <u>5.527A</u> MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	19.7-20.1 FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B <u>5.527A</u> Mobile-satellite (space-to-Earth)  5.524	
20.1-20.2	FIXED-SATELLITE (space-to-Earth) 5.484A 5.484B 5.516B <u>5.527A</u> MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528		
...			

<b>21.4-22</b> FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530D	<b>21.4-22</b> FIXED MOBILE 5.530A	<b>21.4-22</b> FIXED MOBILE BROADCASTING-SATELLITE 5.208B 5.530A 5.530B 5.530D 5.531
---	---	---

### 24.75-29.9 GHz

Allocation to services		
Region 1	Region 2	Region 3
...		
<b>29.5-29.9</b> FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B <u>5.527A</u> 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	<b>29.5-29.9</b> FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B <u>5.527A</u> 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540	<b>29.5-29.9</b> FIXED-SATELLITE (Earth-to-space) 5.484A 5.484B 5.516B <u>5.527A</u> 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542

## 29.9-34.2 GHz

Allocation to services			
Region 1	Region 2	Region 3	
29.9-30	FIXED-SATELLITE (Earth-to-space)	5.484A	5.484B 5.516B <u>5.527A</u>
	5.539		
	MOBILE-SATELLITE (Earth-to-space)		
	Earth exploration-satellite (Earth-to-space)	5.541	5.543
	5.525 5.526 5.527 5.538 5.540 5.542		
...			

**International Footnotes:**

**ADD**

**5.527A** The operation of earth stations in motion communicating with the FSS is subject to Resolution **156 (WRC-15)**. (WRC-15)

## Attachment 1 – Annex 9.2e

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide revisions to reflect the implementation of Earth Stations on-board unmanned aircraft.

#### Agenda item 9.2 (Difficulties encountered in implementing the Radio Regulations)

### MOD

#### 10-11.7 GHz

Allocation to services			
Region 1	Region 2	Region 3	
<b>10-10.4</b> EARTH EXPLORATION- SATELLITE (active) 5.474A 5.474B 5.474C FIXED MOBILE RADIOLOCATION Amateur	<b>10-10.4</b> EARTH EXPLORATION- SATELLITE (active) 5.474A 5.474B 5.474C RADIOLOCATION Amateur	<b>10-10.4</b> EARTH EXPLORATION- SATELLITE (active) 5.474A 5.474B 5.474C FIXED MOBILE RADIOLOCATION Amateur	
5.474D 5.479	5.474D 5.479 5.480	5.474D 5.479	
<b>10.4-10.45</b> FIXED MOBILE RADIOLOCATION Amateur	<b>10.4-10.45</b> RADIOLOCATION Amateur	<b>10.4-10.45</b> FIXED MOBILE RADIOLOCATION Amateur	
	5.480		
...			

<b>10.7-10.95</b> <b>FIXED</b> <b>FIXED-SATELLITE</b> (space-to-Earth) 5.441 (Earth-to-space) 5.484 <b>MOBILE except aeronautical mobile</b>	<b>10.7-10.95</b> <b>FIXED</b> <b>FIXED-SATELLITE (space-to-Earth) 5.441</b> <b>MOBILE except aeronautical mobile</b>
<b>10.95-11.2</b> <b>FIXED</b> <b>FIXED-SATELLITE</b> (space-to-Earth) 5.484A <u>5.484B</u> (Earth-to-space) 5.484 <b>MOBILE except aeronautical mobile</b>	<b>10.95-11.2</b> <b>FIXED</b> <b>FIXED-SATELLITE (space-to-Earth) 5.484A</b> <u>5.484B</u> <b>MOBILE except aeronautical mobile</b>
<b>11.2-11.45</b> <b>FIXED</b> <b>FIXED-SATELLITE</b> (space-to-Earth) 5.441 (Earth-to-space) 5.484 <b>MOBILE except aeronautical mobile</b>	<b>11.2-11.45</b> <b>FIXED</b> <b>FIXED-SATELLITE (space-to-Earth) 5.441</b> <b>MOBILE except aeronautical mobile</b>
<b>11.45-11.7</b> <b>FIXED</b> <b>FIXED-SATELLITE</b> (space-to-Earth) 5.484A <u>5.484B</u> (Earth-to-space) 5.484 <b>MOBILE except aeronautical mobile</b>	<b>11.45-11.7</b> <b>FIXED</b> <b>FIXED-SATELLITE (space-to-Earth) 5.484A</b> <u>5.484B</u> <b>MOBILE except aeronautical mobile</b>

# 11.7-14 GHz

Allocation to services			
Region 1	Region 2	Region 3	
11.7-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	11.7-12.1 FIXED 5.486 FIXED-SATELLITE (space-to-Earth) 5.484A <u>5.484B</u> 5.488 Mobile except aeronautical mobile 5.485	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	
	12.1-12.2 FIXED-SATELLITE (space-to-Earth) 5.484A <u>5.484B</u> 5.488 5.485 5.489		5.487 5.487A
	12.2-12.7 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	12.2-12.5 FIXED FIXED-SATELLITE (space-to-Earth) <u>5.484B</u> MOBILE except aeronautical mobile BROADCASTING 5.487 5.484A	
5.487 5.487A	5.487A 5.488 5.490		
12.5-12.75 FIXED-SATELLITE (space-to-Earth) 5.484A <u>5.484B</u> (Earth-to-space)	12.7-12.75 FIXED FIXED-SATELLITE (Earth-to-space) MOBILE except aeronautical mobile	12.5-12.75 FIXED FIXED-SATELLITE (space-to-Earth) 5.484A <u>5.484B</u> MOBILE except aeronautical mobile BROADCASTING- SATELLITE 5.493	
5.494 5.495 5.496			
...			



# 14-15.4 GHz

Allocation to services		
Region 1	Region 2	Region 3
<b>14-14.25</b> FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A <del>5.484B</del> 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research 5.504A 5.505	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A <del>5.484B</del> 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508	FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A <del>5.484B</del> 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508
<b>14.3-14.4</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A <del>5.484B</del> 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	<b>14.3-14.4</b> FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A <del>5.484B</del> 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A	<b>14.3-14.4</b> FIXED FIXED-SATELLITE (Earth-to-space) 5.457A <del>5.484A</del> 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A

<b>14.4-14.47</b>	FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B <u>5.484A</u> 5.484B 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A
...	

### 18.4-22 GHz

Allocation to services			
Region 1	Region 2	Region 3	
...			
<b>19.7-20.1</b> FIXED-SATELLITE (space-to-Earth) 5.484A <u>5.484B</u> 5.516B 5.527A Mobile-satellite (space-to-Earth) 5.524	<b>19.7-20.1</b> FIXED-SATELLITE (space-to-Earth) 5.484A <u>5.484B</u> 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528 5.529	<b>19.7-20.1</b> FIXED-SATELLITE (space-to-Earth) 5.484A <u>5.484B</u> 5.516B 5.527A Mobile-satellite (space-to-Earth) 5.524	
<b>20.1-20.2</b> FIXED-SATELLITE (space-to-Earth) 5.484A <u>5.484B</u> 5.516B 5.527A MOBILE-SATELLITE (space-to-Earth) 5.524 5.525 5.526 5.527 5.528			
...			

### 24.75-29.9 GHz

Allocation to services		
Region 1	Region 2	Region 3
...		

<b>29.5-29.9</b> FIXED-SATELLITE (Earth-to-space) 5.484A <u>5.484B</u> 5.516B 5.527A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542	<b>29.5-29.9</b> FIXED-SATELLITE (Earth-to-space) 5.484A <u>5.484B</u> 5.516B 5.527A 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.525 5.526 5.527 5.529 5.540	<b>29.5-29.9</b> FIXED-SATELLITE (Earth-to-space) 5.484A <u>5.484B</u> 5.516B 5.527A 5.539 Earth exploration-satellite (Earth-to-space) 5.541 Mobile-satellite (Earth-to-space) 5.540 5.542
--	---	--

### 29.9-34.2 GHz

Allocation to services		
Region 1	Region 2	Region 3
<b>29.9-30</b>	FIXED-SATELLITE (Earth-to-space) 5.484A <u>5.484B</u> 5.527A 5.539 MOBILE-SATELLITE (Earth-to-space) Earth exploration-satellite (Earth-to-space) 5.541 5.543 5.525 5.526 5.527 5.538 5.540 5.542	
...		

**International Footnotes:**

**ADD**

**5.484B** Resolution **155 (WRC-15)** shall apply. (WRC-15)

## Attachment 1 - Annex 9.2.1

### Proposed Changes

The following proposed changes align the definitions of meteorological aids stations, which appear in new definitions in Article 1 No. **1.108A** (for *meteorological aids land station*) and **1.108B** (for *meteorological aids mobile station*) in the Radio Regulations as specified in the Final Acts of WRC-15.

It is noted that, while the Radio Regulations now contain a definition for *meteorological aids land station*, NTIA refers to a *meteorological aids base station*, using the same definition. Therefore it is further proposed that in order to avoid confusion, that NTIA will use the term *meteorological aids base/land station* for its definition and subsequent reference.

### Agenda item 9.2.1 (Defining radio stations operating in the meteorological aids service)

## Chapter 6

### Definitions and Particulars of Assignments

#### 6.1 DEFINITIONS

##### 6.1.1 Special Terms (General)

###### ADD

***Meteorological Aids Base/Land Station:*** A station in the meteorological aids service not intended to be used while in motion.

###### ADD

***Meteorological Aids Mobile Station:*** A station in the meteorological aids service intended to be used while in motion or during halts at unspecified points. (RR)

##### 6.1.2 Stations (alphabetical by classes)

###### MOD

***SM--Meteorological Aids Base/Land Station:*** A land station in the meteorological aids service not intended for use while in motion.

##### 6.1.3 Stations (alphabetical by symbols)

###### MOD

*SM--Meteorological Aids Base/Land Station: A land station in the meteorological aids service not intended for use while in motion.*

#### 6.1.4 Table of Services, Station Classes, and Stations

##### MOD

TABLE A. Table of Services, Station Classes, and Stations		
Service	Station Class	Station
1. Amateur	None	Amateur
2. Broadcasting	BC BT	Broadcasting (sound) Broadcasting (television)
3. Broadcasting-Satellite	EB EV	Space (sound) Space (television)
4. Earth Exploration-Satellite	EW E3 E4 TW	Space Space (active sensor) Space (passive sensor) Earth
<i>Meteorological-Satellite</i>	EM TM	Space Earth
5. Fixed	FX FXD FXE FXH	Fixed Telecommand Fixed Telemetry Fixed Hydrologic and Meteorological Fixed
6. Fixed-Satellite	EC TC VA TB TI TY	Space Earth Land Earth Earth Coast Earth Base Earth
7. Inter-Satellite	ES	Space
8. Meteorological Aids	SA SAR SM SMB SMD SMRG	Meteorological Aids Mobile Station Radiosonde Meteorological Aids Base/Land Station Radar Beacon Precipitation Gauge Meteorological Radar Radiosonde Ground
9. Mobile	FL FLD FLE FLEA FLEB FLEC FLH FLU MO MOB MOD MOE MOEA MOEB MOEC MOH	Land Telecommand Land Telemetry Land Aeronautical Telemetry Land Flight Telemetry Land Surface Telemetry Land Hydrologic and Meteorological Land Aeronautical Utility Land Mobile Radio Beacon Mobile Telecommand Mobile Telemetry Mobile Aeronautical Telemetry Mobile Flight Telemetry Mobile Surface Telemetry Mobile Hydrologic and Meteorological Mobile

TABLE A. Table of Services, Station Classes, and Stations		
Service	Station Class	Station
	MOP MOU	Portable Mobile Aeronautical Utility Mobile
<i>Aeronautical Mobile</i>	FA FAB FAC FAD FAT MA MAD MAP	Aeronautical Aeronautical Broadcast Airdrome Control Telecommand Aeronautical Flight Test Aircraft Telecommand Aircraft Portable Aircraft
Aeronautical Mobile (OR)	FG	Aeronautical
Aeronautical Mobile (R)	FD	Aeronautical
Land Mobile	FB FBD ML MLD MLP	Base Telecommand Base Land Mobile Telecommand Land Mobile Portable Land Mobile
Maritime Mobile	FC FCB FCD MS MSD MSP OD OE	Coast Marine Broadcast Telecommand Coast Ship/Telecommand Ship Telecommand Ship Portable Ship Oceanographic Data Oceanographic Data Interrogating
10. MobileSatellite	UA TE EI VA	Mobile Earth Satellite EPIRB Space Land Earth
<i>Aeronautical Mobile-Satellite</i>	EJ TB TJ	Space Earth Aircraft Earth
<i>Land MobileSatellite</i>	EU TU TY	Space Land Mobile Earth Base Earth
<i>Maritime MobileSatellite</i>	EG TG TI	Space Ship Earth Coast Earth
11. Radio Astronomy	RA	Radio Astronomy
12. Radiodetermination	None RG	Radiodetermination Radio Direction-Finding
<i>Radiolocation</i>	LR MR MRP	Land Mobile Portable

## Attachment 1 – Annex GFT/IFF

### Proposed Changes

The following proposed changes to the National Table of Frequency Allocations provide an additional spectrum allocation to the aeronautical mobile-satellite (R) service (Earth-to-space) in the 1 087.7 – 1 092.3 MHz band (AI GFT) and a U.S. footnote for military IFF use in the 960-1164 MHz band:

#### Agenda item GFT (1090 MHz AMS(R)S (E-s))

Table of Frequency Allocations					941-1525 MHz (UHF)		FCC Rule Part(s)
International Table			United States Table				
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table			
...							
960-1164			960-1164				
AERONAUTICAL MOBILE (R) 5.327A			AERONAUTICAL MOBILE (R) 5.327A				
AERONAUTICAL RADIONAVIGATION 5.328			AERONAUTICAL RADIONAVIGATION 5.328				
5.A25			ADD 5.A25	US224			
...							



## **Attachment 2 - US128**

### **Proposed Changes**

The following proposed change to U.S. footnote 128 in the National Table of Frequency Allocations would support the Department of Defense (DOD) development of systems that use the 10 - 10.5 GHz band. Footnote US128 currently prohibits pulsed emissions in that band (except for certain weather radars) and DOD requires flexibility for development of pulsed systems in the band to meet future system needs:

### **MOD**

**US128** In the band 10-10.5 GHz, pulsed emissions are prohibited, except by U.S. military radars throughout the band and for weather radars on board meteorological satellites in the sub-band 10-10.025 GHz. The amateur service, the amateur-satellite service, and the non-Federal radiolocation service, which shall not cause harmful interference to the Federal radiolocation service, are the only non-Federal services permitted in this band. The non-Federal radiolocation service is limited to survey operations as specified in footnote US108.

## **International Footnotes**

### **ADD**

**5.A25** The frequency band 1 087.7-1 092.3 MHz is also allocated to the aeronautical mobile-satellite (R) service (Earth-to-space) on a primary basis, limited to the space station reception of Automatic Dependent Surveillance-Broadcast (ADS-B) emissions from aircraft transmitters that operate in accordance with recognized international aeronautical standards. Stations operating in the aeronautical mobile-satellite (R) service shall not claim protection from stations operating in the aeronautical radionavigation service. Resolution **425 (WRC-15)** shall apply. (WRC-15)

## **Domestic Footnotes (IFF)**

**US XXX:** Military systems used for Identification, Friend or Foe (IFF) operations are authorized to operate in the band 960 – 1 164 MHz on center frequencies 1030 MHz for interrogators and 1090 MHz for transponders on the condition that harmful interference will not be caused to the aeronautical radionavigation service (ARNS) or the aeronautical mobile (R) service (AM(R)S). These IFF systems will be evaluated on a case-by-case basis using DoD and FAA mutually agreed upon methodologies, technical criteria, and characteristics for calculating potential interference between ARNS/AM(R)S systems and systems used for military or other National defense IFF operations. This will include using DoD and FAA mutually agreed upon methodologies and criteria for considering the aggregation of civil and military systems in the 1030 and 1090 MHz bands in the evaluation.