

77.

MHz		
Region 1	Region 2	Region 3
2450-2500 FIXED MOBILE Radiolocation Land Mobile-Satellite	2450-2500 FIXED MOBILE Land Mobile-Satellite RADIOLOCATION	
357 361 357A	357 357A	

Reason: Expanding needs for land mobile satellite services requires spectrum space. In addition there is continuing demand for fixed and mobile services and radiolocation requirements.

MHz		
Region 1	Region 2	Region 3
2500 - 2550 FIXED 364C MOBILE except aeronautical mobile BROADCASTING-SATELLITE	2500 - 2535 FIXED 364C FIXED-SATELLITE (Space-to-Earth) MOBILE except aeronautical mobile BROADCASTING-SATELLITE	361B 361B 361B
361A 362 364P	2535 - 2550 FIXED 364C MOBILE except aeronautical mobile BROADCASTING-SATELLITE	361B 361A 364P

2550 - 2655

FIXED 364C
MOBILE except aeronautical mobile
BROADCASTING-SATELLITE 361B
362 363 364 364P

REASON: Continued and expanding use of fixed service systems, radio-location facilities, mobile operations and satellite systems, with heavy demands on available spectrum.

MHz		
Region 1	Region 2	Region 3
2655 - 2699 2670 FIXED 364C 364D MOBILE except aeronautical mobile BROADCASTING-SATELLITE 361B	2655 - 2699 2670 FIXED 364C 364D FIXED-SATELLITE (Earth-to-Space) MOBILE except aeronautical mobile BROADCASTING-SATELLITE 361B	
363 364 364F 364G	364E 364F 364G	

MOD 364E: In the design of systems in the broadcasting satellite service, administrations are urged to take all necessary steps to protect the radio astronomy service in the band 2670 2699 - 2700 MHz.

REASONS: To allow radio astronomy to share the 2670 - 2700 MHz band with other services without harmful interference. Bands are otherwise required for the continued use and expansion of the fixed and satellite services (Earth-to-Space).

2670 - 2699	2670 - 2699
MOBILE except aeronautical mobile FIXED 364C 364D BROADCASTING SATELLITE 361B 364E Earth Expl. Sat. (Passive) RADIO ASTRONOMY Space Res. (Passive) 363, 364, 364F, 364G MOD 233R	RADIO ASTRONOMY MOBILE except aeronautical mobile FIXED 364C 364D BROADCASTING SATELLITE 361B 364E FIXED SATELLITE (Earth-to-Space) Earth Exploration Satellite (Passive) Space Research (Passive) 364E 364F 364G MOD 233E

MHz		
Region 1	Region 2	Region 3
2690-2700	SPACE RESEARCH (Passive) RADIO ASTRONOMY EARTH EXPLORATION SATELLITE (Passive)	
	MOD 233E 363 364A 364B	
2700-2900	AERONAUTICAL RADIONAVIGATION Radiolocation 366	MOD 346
2900-3200 2920	RADIONAVIGATION (Radar Beacons, Ship Transponders) Radiolocation 367C	MOD 346 367 367A 367B
2980-3100	RADIONAVIGATION (Shipboard radars) Radiolocation 367C	367 367A 367B

REASONS: Changes are necessary to permit radio astronomers the use of a wider band for continuous measurements for galactic studies of ionized hydrogen and non-thermal radio sources and afford protection from adjacent band interference. Bands are also required for the continued use and expansion of fixed and mobile services and satellite systems.

AND 367C The bands 2900-3100 MHz and 3460-3600 MHz are also allocated to the fixed-satellite service for connection between one or more earth stations at specified fixed points on the earth and satellites which are used in the Maritime Mobile-Satellite Service. Such use and development shall be subject to agreement and coordination between administrations.

REASON: To provide for frequencies between ship and satellite for the use of the Maritime satellite service.

MHz		Region 1	Region 2	Region 3
3100-3300				
RADIOLOCATION				
346A 354 368 369 369A				

REASON: Continued and expanding use of aeronautical radionavigation and radiolocation facilities.

AID 369A Radio astronomy observations on molecular lines of carbon hydride (CH) rest frequencies 326.788, 335.472, and 349.215 MHz are carried out in a number of countries under national arrangements. In making assignments in the bands 329-329.5, 331-331.5, and 334-334.5 MHz, administrations are urged to take all practicable steps to prevent harmful interference, particularly from airborne and spaceborne transmitters, to radio astronomy observations.

MHz		Region 1	Region 2	Region 3
3300 - 3400				
RADIOLOCATION				
370 371 369A		3300 - 3400		3300-3400
		RADIOLOCATION		RADIOLOCATION
		Amateur		Amateur
		Mobile		376 369A
		376 369A		376 369A

REASON: Continued use of band by amateur and radiolocation operations. Mobile service spectrum space is urgently needed for mobile TV pickup.

3400 - 3600		3400 - 3500		
3410		3410		
FIXED		FIXED-SATELLITE		
FIXED-SATELLITE		RADIOLOCATION		
(Space-to-Earth)		(Space-to-Earth)		
MOBILE		Amateur		
Radiolocation		Amateur-Satellite		
Amateur-Satellite		376		
Amateur		376		
372 373 374 375				

REASON: The band 3400 - 3410 can be shared on a secondary basis with the amateur satellite services which needs this spectrum for continued research in this field.

3410 - 3500		3410 - 3500		
FIXED		FIXED-SATELLITE		
FIXED-SATELLITE		RADIOLOCATION		
(Space-to-Earth)		(Space-to-Earth)		
MOBILE		Amateur		
Radiolocation		376		
Amateur				
372 373 374 375				

85.

AND 362C Sharing criteria among those services operating in the band 4950-4990 MHz shall be up to the discretion of the administrations concerned.

MHz:

Region 1	Region 2	Region 3
4990 - 5000 FIXED MOBILE RADIO ASTRONOMY 283B	4990 - 5000 RADIO ASTRONOMY 383A	4990 - 5000 FIXED MOBILE RADIO ASTRONOMY 283B

REASON: Expansion of the band 4990-5000 MHz also provides access to 4970-4990 MHz which is necessary to support Radio Astronomy continuous observations. If given status in the Table MHz 233B and 382B are no longer required.

86.

MHz:

5000 - 5250 AERONAUTICAL RADIONAVIGATION

MOB 352A 352B 363B:

REASON: Continued use for microwave landing system and distance measuring equipment.

Region 1	Region 2	Region 3

5250 - 5255

RADIOLOCATION
Space Research
384 346A

5255 - 5350

RADIOLOCATION
384 384A 346A

5350 - 5460

AERONAUTICAL RADIONAVIGATION 385
Radiolocation

5460 - 5470

RADIONAVIGATION 385
Radiolocation 367C

REASON: This part of spectrum is required for continued use of radiolocation, space research, radionavigation and aeronautical radionavigation services.

86.

MHz		
Region 1	Region 2	Region 3
5850 - 5925 FIXED SATELLITE (Earth-to-Earth) MOBILE 391	5950 - 5925 FIXED SATELLITE (Space-to-Earth) MOBILE RADIOLOCATION 391	5950 - 5925 FIXED SATELLITE (Space-to-Earth) MOBILE RADIOLOCATION 391

5925 - 6425
FIXED SATELLITE (Earth-to-Space)
MOBILE

REASON: Continued use of fixed, mobile and fixed satellite services.

6425 - 7850
MOBILE
3925

379A 3904A 3908 393 393A

AD0 322A In the band 6.425-7.125 GHz, passive microwave sensor measurements are carried out over the Earth's oceans. Administrations should bear in mind the needs of the Earth exploration satellite (passive) and space research (passive) services in their future planning of this band.

87.

MHz		
Region 1	Region 2	Region 3
5470 - 5480 MARITIME RADIO NAVIGATION RADIOLOCATION 386 387 387C		

5650 - 5670
RADIOLOCATION
Amateur-Satellite
Amateur
388 389

5670 - 5725
Amateur
Space Research (Deep Space)
RADIOLOCATION
388 389 389A

5725 - 5850
FIXED SATELLITE
(Earth-to-Earth)
RADIOLOCATION
Amateur
369 391 391A 317A

30C 391
REASON: Continuing need for ISN.

MHz		
Region 1	Region 2	Region 3
8215 - 8400 FIXED FIXED-SATELLITE (Earth-to-Space) MOBILE Earth Exploration-Satellite (Space-to-Earth) 39A 394B	8215 - 8400 EARTH EXPLORATION-SATELLITE (Space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-Space) MOBILE	8215 - 8400 FIXED FIXED-SATELLITE (Earth-to-Space) MOBILE Earth Exploration Satellite (Space-to-Earth) 39A
REASON: Continued need for existing service.		
8400 - 8500 FIXED MOBILE except aeronautical mobile (R) SPACE RESEARCH (Space-to-Earth) (deep space only) Land Mobile Satellites (Earth-to-Space) 394A 394D		
REASON: Continuing need for existing service.		
8500 - 8750 RADIOLOCATION 354 395		
REASON: Continuing need for existing service.		
8750 - 8850 RADIOLOCATION AERONAUTICAL RADIONAVIGATION 396 397		
REASON: Continuing need for existing service.		
8850 - 9000 RADIOLOCATION 397 398		
REASON: Continuing need for existing service.		
9000 - 9200 AERONAUTICAL RADIONAVIGATION MOD 346 Radiolocation 397		

MHz		
Region 1	Region 2	Region 3
7900 - 7975 FIXED FIXED-SATELLITE (Earth-to-Space) MOBILE		
REASON: Continuing need for existing service.		
7975 - 8025 FIXED-SATELLITE (Earth-to-Space) 392B		
8025 - 8175 FIXED FIXED-SATELLITE (Earth-to-Space) MOBILE Earth Exploration-Satellite (Space-to-Earth) 394B	8025 - 8175 EARTH EXPLORATION-SATELLITE (Space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-Space) MOBILE	8025 - 8175 FIXED FIXED-SATELLITE (Earth-to-Space) MOBILE Earth Exploration-Satellite (Space-to-Earth) 394B
8175 - 8215 FIXED FIXED-SATELLITE (Earth-to-Space) METEOROLOGICAL-SATELLITE (Earth-to-Space) MOBILE Earth Exploration-Satellite (Space-to-Earth) 394B	8175 - 8215 EARTH EXPLORATION-SATELLITE (Space-to-Earth) FIXED FIXED-SATELLITE (Earth-to-Space) METEOROLOGICAL-SATELLITE (Earth-to-Space) MOBILE	8175 - 8215 FIXED FIXED-SATELLITE (Earth-to-Space) METEOROLOGICAL-SATELLITE (Earth-to-Space) MOBILE Earth Exploration-Satellite (Space-to-Earth) 394B

93.

MHz		
Region 1	Region 2	Region 3
10.5 - 10.55 FIXED Mobile Radiolocation	10.5 - 10.55 RADIOLOCATION 404	

REASON: Continued need for existing services.

404

REASON: Preserve system compatibility.

10.55 - 10.6

FIXED
MOBILE Except aeronautical Mobile
Radiolocation

10.6 - 10.68

FIXED
MOBILE except aeronautical mobile
RADIO ASTRONOMY
Radiolocation
404A 404B

10.68 - 10.7

FIXED
MOBILE except aeronautical mobile
RADIO ASTRONOMY
405P 405B

SUP 405P Consequential to allocation change
ADD 405B All airborne emissions are excluded.

REASON: Radio astronomy can share the 10.6 - 10.7 continuous band as long as airborne transmissions are excluded from the mobile and radiolocation services. The bands above are otherwise needed for continued and expanding use of the fixed, mobile and radiolocation services.

10.7 - 10.95

Mobile
FIXED
FIXED SATELLITE (Space-to-Earth)

REASON: This frequency band is currently in considerable use in the radio-relay service in the United States. The fixed-satellite allocation is needed on a world-wide basis.

93.

MHz		
Region 1	Region 2	Region 3
9800 - 9300 RADIOLOCATION 397 398		

REASON: Continuing need for existing services.

9300 - 9500
RADIOAVIDIANCE 367A 367B

Radiolocation
399

9500 - 9800

RADIOLOCATION
398 344A

9800 - 10000

RADIOLOCATION
Fixed
400 401 401A

10000 - 10500

RADIOLOCATION
Amateur
401A 402 403

96.

GHz

Region 1	Region 2	Region 3
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REASON: Satellite communications are assigned to large numbers of inexpensive earth stations widely dispersed throughout the United States. TV mobile pick-up service is currently provided in this band on a secondary basis.

SUP 405BB

REASON: To enhance versatility in use of this band.

12.2 - 12.5

FIXED
MOBILE except aeronautical mobile
BROADCASTING
BROADCASTING-SATELLITE

REASON: To meet the projected requirements of the Broadcasting-Satellite Service.

12.5 - 12.75

FIXED-SATELLITE
(Space-to-Earth)
(Earth-to-Space)
405BB

FIXED
FIXED-SATELLITE
(Earth-to-Space)
MOBILE except
aeronautical mobile

12.5 - 12.75

FIXED
FIXED-SATELLITE
(Space-to-Earth)
(Earth-to-Space)
MOBILE except
aeronautical mobile

REASON: Unidirectionality needed for compatibility.

12.75 - 13.25

FIXED-SATELLITE (Earth-to-Space)
FIXED
MOBILE
SPACE RESEARCH (deep space only) (Space-to-Earth)

REASON: Continuing need for existing services. The Fixed-Satellite Service is needed on a worldwide basis. Space research for reception at selective sites.

13.25 - 13.4

Space Research
AERONAUTICAL RADIONAVIGATION
406 407 407A

REASON: Required for airborne doppler radar.

SUP 407A

Reason: Consequential to allocation change

95.

GHz

Region 1	Region 2	Region 3
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10.95 - 11.2
FIXED
MOBILE
FIXED-SATELLITE
(Space-to-Earth)
(Earth-to-Space)

10.95 - 11.2
FIXED
MOBILE
FIXED-SATELLITE (Space-to-Earth)

REASON: Unidirectionality needed for compatibility.

11.2 - 11.45
FIXED
MOBILE
FIXED-SATELLITE (Space-to-Earth)

FIXED-SATELLITE (Space-to-Earth)

REASON: This frequency band is currently in considerable use in the radio-relay service in the United States. The fixed-satellite allocation is needed on a world-wide basis.

11.45 - 11.7
FIXED
MOBILE
FIXED-SATELLITE (Space-to-Earth)

FIXED-SATELLITE (Space-to-Earth)

REASON: Mobile allocation not needed.

11.7 - 12.5
FIXED
MOBILE except
aeronautical
mobile
BROADCASTING
BROADCASTING-SATELLITE

11.7 - 12.2
FIXED Mobile
MOBILE except
aeronautical
mobile
BROADCASTING-
BROADCASTING-SATELLITE

11.7 - 12.2
FIXED
MOBILE except
aeronautical
mobile
BROADCASTING
BROADCASTING-SATELLITE

405BA

FIXED-SATELLITE
(Space-to-Earth)
405BB 405BC

405BA

98.

GHz		Region 1	Region 2	Region 3
14.5 - 15.2	FIXED MOBILE			
	Space Research MOD 409B MOD 409C			
15.2 - 15.35	FIXED MOBILE			
	Space Research Earth Exploration Satellite (Passive) MOD 409B MOD 409C			
15.35 - 15.4	EARTH EXPLORATION SATELLITE (PASSIVE) SPACE RESEARCH (PASSIVE) RADIO ASTRONOMY MOD 409C			
15.4 - 15.7	AERONAUTICAL RADIO NAVIGATION SATELLITE AERONAUTICAL RADIO NAVIGATION MOD 392A 392B 407			
<p>REASON: Other passive services can share the band 15.35 - 15.40 GHz. The band 15.4 - 15.7 GHz is required for continued and expanded use for micro-wave landing systems (MLS) and airborne weather radar.</p>				
15.7 - 16.6	RADIOLOCATION MOD 407 408 409CA			
<p>REASON: The frequency band is required for radiolocation.</p>				
16.6 - 17.1	SPACE RESEARCH (EARTH-TO-SPACE) RADIOLOCATION MOD 407 408			
<p>AND MOD 409CA in the U.S., the portion 15.7-16.2 GHz may be used also for Airport Surface Detection Equipment (ASDE).</p>				

97.

GHz		Region 1	Region 2	Region 3
13.4 - 14	Earth Exploration Satellite (Active Sensors) Standard Frequency Satellite (Earth-to-Space) RADIOLOCATION Space Research MOD 407A 408 409			
14 - 14.3	Space Research FIXED SATELLITE (Earth-to-Space) RADIO NAVIGATION MOD 408A MOD 407A 408 409			
14.2 - 14.3	FIXED SATELLITE (Earth-to-Space) RADIO NAVIGATION MOD 408A MOD 407A 408A			
<p>REASON: This frequency band is currently used for marine radar. This frequency band will be used for long-haul and international voice and data channel communications. The band 13.4-14 is required for radiolocation type active sensors.</p>				
<p>The use of the bands 14.1-14.3 GHz and 14.3-14.4 GHz by the radiolocation service and radiolocation-satellite service respectively, shall be such as to provide sufficient protection to space stations of the fixed-satellite service (see Recommendation No. Sp2-13, paragraph 2.14).</p>				
<p>REASON: Consequential to allocation change.</p>				
14.3 - 14.4	FIXED-SATELLITE (Earth-to-Space) RADIO NAVIGATION-SATELLITE MOD 408A			
14.4 - 14.5	Space Research (Space-to-Space) MOBILE FIXED FIXED-SATELLITE (Earth-to-Space) MOD 408B MOD 409C			
<p>Reason: These bands will be used for the domestic and international voice and data channel communications. The bands 13.25-14.2 and 14.4-14.5 GHz will be used for space research.</p>				
<p>MOD 409C Radio astronomy observations on the formaldehyde line (rest frequency 14.489 GHz) are being carried out in a number of countries under national arrangements. In making assignments to stations in the fixed and mobile other services, administrations are urged to take all practicable steps to protect radio astronomy observations from harmful interference, particularly from aircraft transmitters, in the band 14.485-14.515 GHz.</p>				
<p>REASON: Consequential to allocation change.</p>				

100.

99.

GHz		
Region 1	Region 2	Region 3
19.7 - 21.2	20.2	
FIXED-SATELLITE (Space-to-Earth)		
409E		
20.2 - 21.2		
FIXED-SATELLITE (Space-to-Earth)		
MOBILE-SATELLITE (Space-to-Earth)		
Standard Frequency Satellite (Space-to-Earth)		
409E		
Reason: Required for Mobile-Satellite sharing.		

GHz		
Region 1	Region 2	Region 3
17.1 - 17.25		
RADIOLOCATION		
407 408		
20.2 - 21.2		
EARTH EXPLORATION SATELLITE (ACTIVE SENSORS)		
SPACE RESEARCH (ACTIVE SENSORS)		
RADIOLOCATION		
407 408		
Reason: Space services listed appear to be compatible with existing services		

17.7 - 17.9		
FIXED		
FIXED-SATELLITE (Space-to-Earth)		
MOBILE		
17.9-19.7		
METEOROLOGICAL SATELLITE (Space-to-Earth)		
FIXED-SATELLITE (Space-to-Earth)		
FIXED		
MOBILE		
18.7 - 19.7		
FIXED		
FIXED-SATELLITE (Space-to-Earth)		
MOBILE		
Reason: Required for read out of telemetry from meteorological satellite.		

17.7 - 17.9		
FIXED		
FIXED-SATELLITE (Space-to-Earth)		
MOBILE		
17.9-19.7		
METEOROLOGICAL SATELLITE (Space-to-Earth)		
FIXED-SATELLITE (Space-to-Earth)		
FIXED		
MOBILE		
18.7 - 19.7		
FIXED		
FIXED-SATELLITE (Space-to-Earth)		
MOBILE		
Reason: Required for read out of telemetry from meteorological satellite.		

102.

GHz	
Region 1	Region 2
Region 1	Region 2
Region 1	Region 3

22.5 - 23.0 <u>22.7</u>	FIXED MOBILE	22.5 - 23.0 <u>22.7</u>	FIXED MOBILE BROADCASTING-SATELLITE MOD 410B
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REASON: This frequency band will be used for terrestrial radio relay systems and for land mobile experimental, developmental and research uses.

MOD 410B In Region 3, the broadcasting-satellite service is authorized in the band 22.5-23.0 22.7 GHz, subject to power flux density limits for the protection of the terrestrial services in this band.

101.

GHz	
Region 1	Region 2
Region 1	Region 2
Region 1	Region 3

21.2 - 21.4
 SPACE RESEARCH (Passive)
 EARTH EXPLORATION SATELLITE
 (Passive) (Space-to-Earth)
 FIXED MOBILE

21.4 - 21.7
 LARGE-EXPLORATION-SATELLITES (Space-to-Earth)
 MOBILE
 LOWER-SATELLITE

21.7 - 22
 FIXED MOBILE
 BROADCASTING-SATELLITE (Space-to-Earth)

REASON: This band will be used for terrestrial radio relay and for land mobile experimental, developmental and research uses and for satellite-to-satellite communications.

22 - 22.5 22.21
 FIXED MOBILE 410A

REASON: This frequency band will be used for terrestrial radio relay and for land mobile experimental, developmental and research uses.

22.21 - 22.5
 FIXED MOBILE (except aeronautical mobile)
 EARTH EXPLORATION SATELLITE (Passive)
 SPACE RESEARCH (Passive)
 RADIO ASTRONOMY 410A

REASON: This frequency band will be used for radio astronomy observations of the water vapor line (rest frequency 22.235 GHz) and for terrestrial radio relay service and for land mobile experimental, developmental and research uses.

SUP 410A

REASON: Consequential to allocat.

104.

GHz		Region 1	Region 2	Region 3
24.05 - 24.25	RADIOLOGICAL AMATEUR K10C K07 K10D			
REASON: To promote exchange of thoughts and ideas.				
24.25 - 25.25	RADIONAVIGATION K11 K12			
REASON: Required for existing radionavigation.				
25.25 - 27.5	Standard Frequency Satellite (Earth-to-Space) FIXED MOBILE EARTH EXPLORATION SATELLITE (Space-to-Space)			
27.5 - 29.5	FIXED FIXED-SATELLITE (Earth-to-Space) MOBILE K11A			
REASON: To provide an uplink band to pair with the band around 20 GHz. This frequency band will be used for the terrestrial radio relay system.				
29.5 - 30	FIXED-SATELLITE (Earth-to-Space) K09E K11A			
30 - 31	FIXED-SATELLITE (Earth-to-Space) MOBILE-SATELLITE (Earth-to-Space) Standard Frequency Satellite (Space-to-Earth) K09E			

ADD K11A: Within the frequency band 27.5-30 GHz, a 50 MHz wide band may be used for space-to-space communications in the earth exploration satellite service for telemetry, tracking and control purposes.

103.

GHz		Region 1	Region 2	Region 3
22.7 - 23	FIXED MOBILE INTER-SATELLITE BROADCASTING-SATELLITE K40B ADD K10D			
REASON: This frequency band will be used for communications between satellites.				
23 - 23.6	FIXED MOBILE K10D			
REASON: The bands 22.81-22.86 GHz, 23.07-23.12 GHz and 24.11-24.16 GHz are also allocated to the Radio Astronomy service for observations of spectral lines due to Ammonia (rest frequencies 22.834, 23.098 and 24.139 GHz).				
23.6 - 24	EARTH EXPLORATION SATELLITE (PASSIVE) SPACE RESEARCH (PASSIVE) RADIO ASTRONOMY K07			
REASON: This frequency band will be used for terrestrial microwave and operational fixed users.				
24 - 24.05	AMATEUR AMATEUR-SATELLITE K10C			
REASON: This is a very important continuum band that also covers the important ammonia (NH ₃) lines. Passive space services can share.				
REASON: To promote national and international exchange of thoughts and ideas.				

106.

GHz		Region 1	Region 2	Region 3
34.2 - 35.2			<u>RADIOLOCATION</u> Space Research <u>SPACE RESEARCH (ACTIVE SENSORS)</u> <u>METEOROLOGICAL AIDS</u> <u>EARTH EXPLORATION SATELLITE (ACTIVE SENSORS)</u> 407 408 412 412C 412D	
REASON: Required for radiolocation type sensors and meteorological aids radar.				
35.2 - 36			<u>RADIOLOCATION</u> 407 408 412	
36 - 40 37			<u>FIXED</u> <u>MOBILE</u> <u>SPACE RESEARCH (PASSIVE)</u> <u>EARTH EXPLORATION SATELLITE (PASSIVE)</u> 391A 412E	
37 - 40			<u>FIXED</u> <u>MOBILE</u> 391A 412E	
40 - 41			<u>FIXED-SATELLITE (Space-to-Earth)</u> <u>FIXED</u> <u>MOBILE</u> <u>MOBILE-SATELLITE (Space-to-Earth)</u>	
REASON: This band will be used for terrestrial systems and shared with the mobile- and fixed-satellite services.				
41 - 43			<u>BROADCASTING-SATELLITE</u> <u>FIXED</u> <u>MOBILE</u> <u>ADD 412L</u>	

105.

GHz		Region 1	Region 2	Region 3
31 - 31.3			<u>Standard Frequency Satellite (Space-to-Earth)</u> <u>FIXED</u> <u>MOBILE</u> Space Research 412H 412I	
31.3 - 31.5			<u>SPACE RESEARCH (PASSIVE SENSOR)</u> <u>EARTH EXPLORATION SATELLITE (PASSIVE SENSOR)</u> <u>RADIO ASTRONOMY</u> 412A	
31.5 - 31.8		<u>SPACE RESEARCH (PASSIVE)</u> <u>RADIO ASTRONOMY</u> <u>EARTH EXPLORATION SAT-</u> <u>ELITE (PASSIVE)</u> 405C	31.5 - 31.8 <u>SPACE RESEARCH (PASSIVE)</u> <u>RADIO ASTRONOMY</u> <u>FIXED</u> Mobile except aeronautical mobile <u>RADIO ASTRONOMY</u> <u>EARTH EXPLORATION SAT-</u> <u>ELITE (PASSIVE)</u>	
REASON: The frequency region 31.3-31.8 GHz is the first atmospheric window in the millimeter radio regions where observations can be made. This spectral region has been very useful in defining the high frequency continuum spectra of galactic and extragalactic objects. Passive services can share with Radio Astronomy.				
31.8 - 32.3			<u>RADIOMAVIGATION</u> Space Research 412B	
32.3 - 33			<u>RADIOMAVIGATION</u>	
33 - 33.4			33 - 33.4 <u>RADIOMAVIGATION</u> 412E	
REASON: Required for sweep radar for small aircraft.				
33.4 - 34.2			<u>RADIOLOCATION</u> 407 408 412 412G	

308.

Region 1	*	Region 2	*	Region 3
	*		*	
43-48 - 45				
AERONAUTICAL-MOBILE-SATELLITE MARITIME MOBILE SATELLITE AERONAUTICAL RADIONAVIGATION SATELLITE MARITIME RADIONAVIGATION SATELLITE FIXED-SATELLITE (Earth-to-Space) MOBILE-SATELLITE (Earth-to-Space) 412L				

Reason: To satisfy requirements.

45-48

AERONAUTICAL MOBILE
 AERONAUTICAL MOBILE-SATELLITE
 MARITIME MOBILE
 MARITIME MOBILE-SATELLITE
 AERONAUTICAL RADIONAVIGATION
 AERONAUTICAL RADIONAVIGATION-SATELLITE
 MARITIME RADIONAVIGATION
 MARITIME RADIONAVIGATION-SATELLITE

Reason: This frequency band will be used for communicating to ships and aircraft for position determination and surveillance.

48-49.8

AERONAUTICAL MOBILE
 AERONAUTICAL MOBILE-SATELLITE
 MARITIME MOBILE
 MARITIME MOBILE-SATELLITE
 AERONAUTICAL RADIONAVIGATION
 AERONAUTICAL RADIONAVIGATION-SATELLITE
 MARITIME RADIONAVIGATION
 MARITIME RADIONAVIGATION-SATELLITE
 ADD 412H

ADD 412H Radio Astronomy observations on molecular lines of carbon sulfide (CS) (rest 48.991, 97.981 and 146.969 GHz) are being carried out in a number of countries under national arrangements. In making assignments in the bands 48.94-49.04, 97.88-98.08, and 146.82-147.12 GHz, administrations are urged to prevent harmful interference, particularly from airborne and spaceborne transmissions, to radio astronomy observations.

49.8-50

AMATEUR
 AMATEUR-SATELLITE

50-51 - 50.2

FIXED
 FIXED-SATELLITE (Earth-to-Space)
 MOBILE

Reason: This frequency band will be used by the terrestrial systems.

307.

Reason: This frequency band will be used for terrestrial systems.

ADD 412L Radio astronomy observations on the silicon monoxide lines are carried on in a number of countries under national arrangements. In making assignments to protect radio astronomy observations from harmful interference, particularly from airborne or spaceborne transmitters, in the 42.77 - 42.87, 43.07-43.17, and 43.37 - 43.47 GHz bands.

NOTICES

110.

GHz	
Region 1	Region 2
* *	* *
Region 3	
30.4 - 51	
FIXED-SATELLITE (Earth-to-Space) FIXED MOBILE MOBILE-SATELLITE (Earth-to-Space)	

51 - 52-51.4

EARTH EXPLORATION-SATELLITE
 SPACE RESEARCH
 FIXED
 MOBILE
 FIXED-SATELLITE (Earth-to-Space)
 MOBILE-SATELLITE (Earth-to-Space)

Reason: Required to satisfy multiple services.

51.4-52

EARTH EXPLORATION-SATELLITE (Passive)
 SPACE RESEARCH (Passive)
 -MOD 412J

Reason: This frequency band will continue to be used to explore the resources of the Earth by satellite techniques.

52-54.25

EARTH EXPLORATION-SATELLITE (Passive)
 SPACE RESEARCH (Passive)
 MOD 412J

Reason: This frequency band will continue to be used in conducting research work in space.

MOD 412J All emissions in the bands 51.4-52 GHz, 52-54.25 GHz, 58-2-59 GHz, 64-65 GHz, 86-92 GHz, 101-102 GHz, 105-116 GHz, 130-140 GHz, 182-185 GHz, and 230-240 GHz are prohibited. The use of passive sensors by other services is also authorized.

109.

GHz	
Region 1	Region 2
Region 3	
20.2 - 50.4	
FIXED FIXED-SATELLITE (Earth-to-Space) MOBILE SPACE RESEARCH (Passive) EARTH EXPLORATION SATELLITE (Passive)	

112-

GHz		Region 1	Region 2	Region 3
REASON: This frequency band will be used for conducting passive research in space.				
65 - 66	EARTH EXPLORATION-SATELLITE SPACE RESEARCH			
REASON: This frequency band will be used for exploring the resources of the earth by satellite techniques.				
66 - 71	AERONAUTICAL MOBILE AERONAUTICAL MOBILE-SATELLITE MARITIME MOBILE MARITIME MOBILE-SATELLITE AERONAUTICAL RADIO NAVIGATION AERONAUTICAL RADIO NAVIGATION-SATELLITE MARITIME RADIO NAVIGATION MARITIME RADIO NAVIGATION-SATELLITE			
REASON: This frequency band will be used for maritime and aeronautical mobile services.				
71 - 84 - 72	EARTH EXPLORATION SATELLITE (Active Sensors) SPACE RESEARCH (Active Sensors) RADIOLOCATION Amateur Amateur-Satellite			
Reason: Band required for services specified.				
72-76	RADIOLOCATION Amateur Amateur-Satellite ADD 5A2H			
Reason: This frequency band will be used for amateur services to promote national and international exchange of thoughts and ideas.				

111.

GHz		Region 1	Region 2	Region 3
REASON: This frequency band will be used for terrestrial systems, and space services as shown.				
54.25 - 58.2	SPACE RESEARCH (Passive) FIXED MOBILE FIXED-SATELLITE EARTH EXPLORATION SATELLITE (Passive)			
REASON: This frequency band will continue to be used for conducting research in space.				
59 - 64	EARTH EXPLORATION SATELLITE (Passive) SPACE RESEARCH (Passive) MOD 412J FIXED MOBILE FIXED-SATELLITE ADD 410E			
REASON: This frequency band will be used for terrestrial service and for satellite-to-satellite communications.				
ADD 410E The frequency 61.25 GHz is designated for industrial, scientific and medical purposes. Emissions must be contained within the limits of 4 290 MHz of that frequency. Radiocommunication services operating within these limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.				
REASON: New applications; heating of small fibers and pellets; insect control; host of specific biological applications based on recent evidence of frequency specific effects.				
64 - 65	SPACE RESEARCH (Passive) EARTH EXPLORATION SATELLITE (Passive) MOD 412J			

NOTICES

114.

Region 1	*	Region 2	*	Region 3
76-78				
<p>MOBILE-SATELLITE (Space-to-Earth) FIXED-SATELLITE (Space-to-Earth) MOBILE</p>				
79-80				
<p>FIXED-SATELLITE (Space-to-Earth) MOBILE</p>				
80-81				
<p>FIXED-SATELLITE (Earth-to-Space) MOBILE</p>				
81-84				
<p>MOBILE-SATELLITE (Earth-to-Space) FIXED-SATELLITE (Earth-to-Space) MOBILE</p>				
<p>Reason: These frequency bands will be used for terrestrial and space services.</p>				
84-86				
<p>BROADCASTING-SATELLITE FIXED MOBILE</p>				
<p>Reason: This frequency band will be used for terrestrial services and for providing services to multi-destination low cost users.</p>				
86-92				
<p>EARTH EXPLORATION-SATELLITE (Passive) RADIO ASTRONOMY SPACE RESEARCH (Passive) MOBILE 412J</p>				
<p>Reason: This frequency band will be used for radio astronomy observations and for conducting passive research in space.</p>				
92-95				
<p>RADIOLOCATION FIXED-SATELLITE (Earth-to-Space) MOBILE ADD 412K</p>				
<p>Reason: The frequency band will be used for terrestrial services and transmission of voice, data, television signals by satellites. Also required for Radiolocation.</p>				

113.

ADD 412M
 Radio astronomy observations on the E₂CO formaldehyde lines are being carried out by a number of countries under national arrangements. In making assignments, administrations are urged to protect radio astronomy observations from harmful interference in the 72.35-72.45, 140.6-141, 187.45-187.75, and 190.35-190.65 GHz bands.

115.

ADD 412N Radio astronomy observations on the Dinitrogen Hydronium line are being carried out on a number of countries under national arrangements. In making assignments administrations are urged to protect radio astronomy observations in the band 93.12 to 93.22 GHz from harmful interference.

Region 1	Region 2	Region 3
95 - 99.100 Radiolocation AERONAUTICAL MOBILE AERONAUTICAL MOBILE-SATELLITE MARITIME MOBILE MARITIME MOBILE-SATELLITE AERONAUTICAL RADIONAVIGATION AERONAUTICAL RADIONAVIGATION-SATELLITE MARITIME RADIONAVIGATION MARITIME RADIONAVIGATION-SATELLITE ADD 412I		
100 - 101 SPACE RESEARCH (Passive) EARTH EXPLORATION SATELLITE (Passive) AERONAUTICAL MOBILE AERONAUTICAL RADIONAVIGATION MARITIME MOBILE MARITIME RADIONAVIGATION AERONAUTICAL MOBILE SATELLITE AERONAUTICAL RADIONAVIGATION SATELLITE MARITIME MOBILE SATELLITE MARITIME RADIONAVIGATION SATELLITE Radiolocation		
101 - 102 EARTH EXPLORATION SATELLITE (Passive) SPACE RESEARCH (Passive) MOD 412J		
REASON: This frequency band will be used for ship and aircraft communications, position determination and air traffic control.		
102 - 105 FIXED-SATELLITE (Space-to-Earth) FIXED MOBILE		
REASON: This frequency band will be used for conducting passive research in space.		
105 - 109 EARTH EXPLORATION-SATELLITE (Passive) EARTH EXPLORATION-SATELLITE RADIO ASTRONOMY SPACE RESEARCH (Passive) MOD 412K 412K		
REASON: This frequency band will be used for radio astronomy observations of the carbon monoxide lines and for conducting passive research in space.		

118.

GHz		Region 1	Region 2	Region 3
142 - 150				
		Radiolocation AERONAUTICAL MOBILE AERONAUTICAL MOBILE-SATELLITE MARITIME MOBILE MARITIME MOBILE-SATELLITE AERONAUTICAL RADIO NAVIGATION AERONAUTICAL RADIO NAVIGATION-SATELLITE MARITIME RADIO NAVIGATION MARITIME RADIO NAVIGATION-SATELLITE ADD 4128 ADD 412H ADD 412II		

REASON: This frequency band will be used for ship, aircraft communications, position determination and for air traffic control.

ADD 4129
 Radio astronomy observations on the deuterated cyanide line are being carried out in a number of countries under national arrangements. In making assignments to stations in the mobile services, administrations are urged to protect radio astronomy observations from harmful interference in the 144.60-14.98 GHz band.

150 - 151
 FIXED-SATELLITE (Space-to-Earth)
 FIXED
 MOBILE
 SPACE RESEARCH (Passive)
 LAUNCH EXPLORATION SATELLITE (Passive)
 ADD 412K

REASON: This frequency will be used for terrestrial and space services.

151 - 152
 FIXED-SATELLITE (Space-to-Earth)
 FIXED
 MOBILE
 ADD 412M

REASON: This frequency band will be used for terrestrial services and for communication of voice, data, television signals by satellites.

117.

GHz		Region 1	Region 2	Region 3
116 - 126				
		SPACE RESEARCH (Passive) LAUNCH EXPLORATION SATELLITE (Passive) FIXED MOBILE ADD 410F		
126 - 130				
		INTER-SATELLITE FIXED MOBILE ADD 412K		

REASON: This frequency band will be used for communications between satellites and for terrestrial radio relay service.

SUP 412K
 REASON: Consequential to reallocation.

ADD 410F
 The frequency 120 GHz is designated for industrial, scientific and medical purposes. Emissions must be confined within the limits of + 500 MHz of that frequency. Radiocommunication services operating within these limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.

REASON: New applications; heating of small fibers and pellets; insect control; host of specific biological applications based on recent evidence of frequency specific effects.

130 - 140
 INTER-SATELLITE
 FIXED
 MOBILE
 RADIO-ASTRONOMY
 SPACE-RESEARCH (passive)
 ADD 412R

REASON: This frequency band will be used for communications between satellites and for terrestrial services.

140 - 142
 FIXED-SATELLITE (Earth-to-Space) (Space-to-Earth)
 FIXED
 MOBILE
 ADD 412M

REASON: This frequency band will be used for terrestrial services and for transmission of voice, television signals by satellite.

120.

GHz		
Region 1	Region 2	Region 3
170-183	174.5	

FIXED
MOBILE except aeronautical mobile
INTER-SATELLITE

Reason: This frequency band will be used for terrestrial services.

174.5 - 176.5

INTER-SATELLITE
EARTH EXPLORATION SATELLITE (Passive)
SPACE RESEARCH (Passive)
FIXED
MOBILE (except Aeronautical Mobile)

ADD 412P

Reason: This band required for both terrestrial and space services as shown.

ADD 412P

Radio astronomy observations on the ethynyl radical line, hydrogen cyanide line, formal ion line, hydrogen isocyanide line, and dinitrogen hydrous line are being carried out in a number of countries under national arrangements. In making assignments, administrations are urged to protect radio astronomy observations from harmful interference in the 174.52-175.02, 177-177.4, 178.8-178.6, 181-181.4, and 186.8-186.6 GHz bands.

176.5 - 182

FIXED
MOBILE except aeronautical mobile
INTER-SATELLITE

ADD 412P

Reason: This frequency band will be used for terrestrial services and for communications between satellites.

119.

GHz		
Region 1	Region 2	Region 3
152 - 164		

FIXED
MOBILE
FIXED-SATELLITE (Space-to-Earth)

Reason: These frequency bands will be used for terrestrial and space services.

165 - 169

RADIOLOCATION
Amateur
Amateur-Satellite
SPACE RESEARCH (Passive)
EARTH EXPLORATION SATELLITE (Passive)

Reason: This frequency band is proposed to be used for Radiolocation, Amateur and space services.

169 - 170

RADIOLOCATION
Amateur
Amateur-Satellite

Reason: This frequency band will be used for determining position of objects and for amateurs to promote national and international exchange of thoughts and ideas.

121.

GHz		
Region 1	Region 2	Region 3
*	*	*

182 - 185
EARTH EXPLORATION SATELLITE (Passive)
SPACE RESEARCH (Passive)
RADIO ASTRONOMY

MOD 412J

Reason: This frequency band will be used for radio astronomy observations of water vapor line and for conducting passive research in space.

185-190

FIXED
INTER-SATELLITE
MOBILE

ADD 412P

Reason: This frequency band will be used for terrestrial services and for communications between satellites.

122.

GHz		
Region 1	Region 2	Region 3

200
 190 - 195

AERONAUTICAL MOBILE
AERONAUTICAL MOBILE-SATELLITE
MARITIME MOBILE-SATELLITE
AERONAUTICAL RADIONAVIGATION
AERONAUTICAL RADIONAVIGATION-SATELLITE
MARITIME RADIONAVIGATION-SATELLITE

Reason: This frequency band will be used for aircraft communications and position determination and for air traffic control.

195-200

AERONAUTICAL MOBILE-SATELLITE
MARITIME MOBILE-SATELLITE
AERONAUTICAL-RADIONAVIGATION-SATELLITE
MARITIME RADIONAVIGATION-SATELLITE
MARITIME MOBILE
MARITIME RADIONAVIGATION

Reason: This frequency band will be used for ship and position determination and for air traffic control. communications

200-220 201.5

FIXED
MOBILE
SPACE RESEARCH (Passive)
EARTH EXPLORATION SATELLITE (Passive)

Reason: This frequency will be used for terrestrial and space services.

123.

CBS	
Region 1	Region 2
221 - 225	Region 3
<p><u>FIXED-SATELLITE (Space-to-Earth)</u> <u>FIXED</u> <u>MOBILE</u> <u>Relocation</u></p>	
<p><u>222 - 227</u></p> <p><u>FIXED-SATELLITE (Space-to-Earth)</u> <u>FIXED</u> <u>MOBILE</u> <u>SPACE RESEARCH (Passive)</u> <u>EARTH EXPLORATION SATELLITE (Passive)</u> <u>Relocation</u></p>	
<p><u>227 - 229</u></p> <p><u>FIXED-SATELLITE (Space-to-Earth)</u> <u>FIXED</u> <u>MOBILE</u> <u>Relocation</u></p>	

REASON: This frequency band will be used for communications of voice, data and television signals by satellite and for terrestrial systems.

229 - 230

FIXED-SATELLITE
FIXED
MOBILE
RADIO ASTRONOMY
SPACE RESEARCH (Passive)
EARTH EXPLORATION SATELLITE (Passive)

REASON: This frequency band will be used for communications of voice, data, and television signals by satellite, for terrestrial systems and for radio astronomy observations.

123.

CBS	
Region 1	Region 2
201.5-217	Region 3
<p><u>FIXED-SATELLITE (Earth-to-Space)</u> <u>FIXED</u> <u>MOBILE</u></p>	

217-220

FIXED
MOBILE (except aeronautical mobile)
RADIO ASTRONOMY

Reason: This frequency band will be used for terrestrial services and for radio astronomy observations.

220-230 221

FIXED-SATELLITE
FIXED
MOBILE (except aeronautical mobile)
RADIO ASTRONOMY

Reason: This frequency band will be used for communications of voice, data and television signals by satellite and for terrestrial systems and for radio astronomy observations.

126.

GHz	
Region 1	Region 2
Region 3	Region 1
<p>REASON: This frequency will be used to determine the location of objects and for the amateur service to promote national and international exchange of thoughts and ideas.</p>	
<p>AND 4100 The frequency 248 GHz is designated for industrial, scientific and medical purposes. Emissions must be confined within the limits of ± 500 kHz of that frequency. <u>Radio</u> communication services operating within these limits must accept any harmful interference that may be experienced from the operation of industrial, scientific and medical equipment.</p>	
<p>REASON: New applications; heating of small fibers and pellets; insect control; host of specific biological applications based on recent evidence of frequency specific effects.</p>	
<p>250 - 252</p> <p><u>EARLY EXPLORATION SATELLITE (Passive)</u> <u>SPACE RESEARCH (Passive)</u> <u>AERONAUTICAL MOBILE</u> <u>AERONAUTICAL MOBILE - SATELLITE</u> <u>AERONAUTICAL RADIONAVIGATION</u> <u>AERONAUTICAL RADIONAVIGATION - SATELLITE</u> <u>MARITIME RADIONAVIGATION</u> <u>MARITIME RADIONAVIGATION - SATELLITE</u> <u>MARITIME MOBILE</u> <u>MARITIME MOBILE - SATELLITE</u></p>	
<p>252 - 265</p> <p><u>AERONAUTICAL MOBILE</u> <u>AERONAUTICAL MOBILE - SATELLITE</u> <u>MARITIME MOBILE</u> <u>MARITIME MOBILE - SATELLITE</u> <u>AERONAUTICAL RADIONAVIGATION</u> <u>AERONAUTICAL RADIONAVIGATION - SATELLITE</u> <u>MARITIME RADIONAVIGATION</u> <u>MARITIME RADIONAVIGATION - SATELLITE</u> <u>AND 4120</u></p>	
<p>REASON: This frequency band will be used by ships and aircraft for communications, and for position determination and for air traffic control.</p>	

125.

GHz	
Region 1	Region 2
Region 3	Region 1
<p>230 - 240</p> <p><u>EARLY EXPLORATION SATELLITE (Passive)</u> <u>RADIO ASTRONOMY</u> <u>SPACE RESEARCH (Passive)</u> <u>AND 4127</u></p>	
<p>REASON: This frequency band will be used for radio astronomy observations and for conducting passive research in space.</p>	
<p>240 - 250</p> <p><u>RADIOLOCATION</u> <u>FIXED</u> <u>MOBILE</u> <u>Amateur</u> <u>Amateur-Satellite</u> <u>AND 4100</u></p>	

127.

GHz		
Region 1	Region 2	Region 3
ADD 4129	Radio astronomy observations on the C-2, E-2, E-3, E-4, E-5, E-6, E-7, and E-8 lines are being carried out in a number of countries under various arrangements. In making assignments, administrations are urged to protect radio astronomy observations from harmful interference, particularly from airborne or spaceborne transmitters, in the frequencies 262.5 GHz, 265.9 GHz, 267.6 GHz, 272.0 GHz, and 279.5 GHz.	
265 - 275	<u>FIXED-SATELLITE (Earth-to-Space)</u> <u>FIXED</u> <u>MOBILE</u> ADD 4129	
REASON: This frequency band will be used by the terrestrial services and for communications of voice, data and television signals by satellites.		
275 - 277	<u>FIXED</u> <u>MOBILE</u> SPACE RESEARCH (Passive) <u>EARTH EXPLORATION-SATELLITE (Passive)</u>	
277 - 300	<u>FIXED</u> <u>MOBILE</u> ADD 4129	

Above 300 GHz not allocated.

APPENDIX 8.—PROPOSAL FOR INTERNATIONAL RADIO REGULATIONS AND APPENDICES (OTHER THAN ARTICLE 5)

Article 3

GENERAL RULES FOR THE ASSIGNMENT AND USE OF FREQUENCIES

NOC 118
NOC 114
NOC 113
MOD 116

14. The frequency assigned to a station of a given service shall be separated from the limits of the band allocated to this service in such a way that, taking account of the frequency band assigned to a station, no harmful interference is caused to services to which frequency bands immediately adjoining are allocated. If a service allocated to an immediately adjoining frequency band is reportedly subject to harmful interference caused by a station whose occupied bandwidth is not wholly contained within the band allocated to the service rendered by that station, it shall be regarded as not complying with this provision.

Article 8

SPECIAL RULES FOR THE ASSIGNMENT AND USE OF FREQUENCIES

(MOD) 413

Members [and Associate Members] of the Union . . .

NOC 414
NOC 415
NOC 416
NOC 417 through 421

Article 7

SPECIAL RULES RELATING TO PARTICULAR SERVICES

NOC 422
Reason: Necessary and adequate as drafted.
MOD 423

In principle, except in the frequency band 3900-4000 kHz. Broadcasting stations using frequencies below [1000] 4000 kHz or above 26100 kHz [41 MHz] shall not employ power exceeding that necessary to maintain economically an effective national service of good quality within the frontiers of the country concerned.

NOC 424 through 428
NOC 428A
ADD

Section 1B. Broadcast Service in Band 7

ADD 428B

To enhance sharing possibilities and to improve receiving conditions, broadcasting stations operating in Band 7, while complying with the provisions of No. 694, shall in no event employ an effective radiated power on any antenna in excess of +73 dBW for A3, +70 dBW for A3A, or +64 dBW for A3A or A3J emission.

ADD 428C

Notwithstanding the provisions of ADD 428B, broadcasting stations operating in Band 7 and notified as serving a target area partially or wholly inside the country containing the station shall in no event employ an effective radiated power in excess of 47 dBW for A3 emission, +44 dBW for A3H, or +38 dBW for A3A or A3J emission.

ADD 428D

Broadcasting stations operating in Band 7 and serving an area as defined in ADD 428C shall not operate on a frequency above 7300 kHz.

ADD 428E

Stations broadcasting in Band 7 shall begin to take the necessary steps to complete conversion to compatible single sideband by xx. (xx date to be subsequently determined)

ADD 428F

Noting the provisions of No. 130 of the Convention, no Administration shall employ more than one frequency per frequency band to provide the same modulated signal simultaneously to any one or contiguous zones.

ADD 428G

Notwithstanding the provisions of footnote 1 to Appendix 4, no transmitter operating in the broadcasting service in Band 7 shall supply to the transmission line a mean power of any spurious emission in excess of -30 dBW.

ADD 428H

No station shall be operated so as to cause harmful interference to another station 10 kilohertz removed.

429 through 432: Under consideration in preparation for 1978 Aero WARC.

NOC 437A, 438
NOC 439, 440
MOD 443

-3 kHz when two adjacent frequencies are used for single sideband radiotelephony.

-4.5 kHz when one frequency is used for single sideband radiotelephony and the adjacent frequency is used for radio telegraphy.

The use of double sideband radiotelephony in all Regions is discouraged and it to be discontinued as soon as possible and, in any event, not later than the date prescribed by these Regulations.

SUP 444

Reason: Will be overtaken by single sideband implementation.
NOC 445, 445A, 456, 457, 457A
NOC 458
NOC 463, 464
MOD 465

Administrations are urged to discontinue, in the fixed service, the use of double sideband radiotelephony transmissions in the bands below 90 MHz, if possible as from January 1, 1970.

NOC 466, 467
MOD 468

To obtain economy in the use of frequencies, the International Frequency Registration Board [should] may be consulted by the administrations concerned whenever such agreements are under discussion on a regional or world-wide basis.

NOC 469
MOD 470

To obtain economy in the use of frequencies, the International Frequency Registration Board [should] may be consulted by the administrations

concerned whenever such agreements are under discussion on a regional or world-wide basis.

Reason: For consistency and to aid administrations in reaching their desired goal in their own competent, multilaterally agreed manner noting No. 128 of the Convention.
NOC 470A, 470AA, 470AB
MOD 470AC

[In the frequency bands above 18 GHz there shall be no restriction as to the direction of maximum radiation for stations in the fixed or mobile services.] As far as practicable, sites for transmitting stations, in the fixed or mobile service, employing maximum values of equivalent isotropically radiated power exceeding +45 dBW in the frequency bands between 18 and 40 GHz, should be selected so that the direction of maximum radiation of any antenna will be at least * away from the geostationary satellite orbit, taking into account the effect of atmospheric refraction.

Reason: To provide for compatibility in the bands between 18 and 40 GHz which are now more heavily populated with that population growing.

*Note: Comments as to the value which would be inserted are requested.
NOC 470B, 470BA, 470C, 470CA
MOD 470DB, 470E

(B) The limits given in Nos. 470B and 470CA apply in the following frequency bands allocated to the fixed-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:

- 37.5-20.8 GHz
- 30.5-31.0 GHz (for the country mentioned in No. 400E)
- 50-51.4 GHz
- 78-84 GHz
- 82-95 GHz
- 101.5-217 GHz
- 265-375 GHz

NOC 470E
MOD 470J

(3A) The limits given in No. 470G apply in the following frequency bands allocated to transmission by earth stations in the fixed-satellite service and earth exploration-satellite service, and in particular the meteorological-satellite service, where these bands are shared with equal rights with the fixed or mobile service:

- 2 655-2 690 MHz (Regions 2 and 3)
- 4 400-4 700 MHz
- 5 800-5 880 MHz (for the countries mentioned in No. 390)
- [5 850-5 925 MHz (Regions 1 and 3)]
- 5 925-6 425 MHz
- 6 425-6 925 MHz
- 7 900-7 975 MHz
- 7 975-8 025 MHz (for the countries mentioned in No. 392E)
- 8 025-8 400 MHz

- [10.05-11.20 GHz (Region 1)]
- 12.50-12.75 GHz (Regions 2 and 3 and for the countries mentioned in No. 405BD)

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GENE
NOC 471 through
MOD 492
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NOC 493, 494
NOC 495
Reason: Simplify
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SECTION 11
PREPARATION OF
BROADCASTING B
ADD 645A

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ADD 645C

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Article 18
LICENSES

NOC 735 through 737
MOD 738

The holder of a license is required to preserve the secrecy of telecommunication, as provided in Article 23 of the Convention. Moreover, the [license] issuing authority shall provide specifically or by reference, . . .

Reason: To provide for those administrations who may not issue written licenses.
NOC 739, 740
MOD 741

(3) For land mobile stations, including stations comprised of only a receiver or receivers, a clause shall be * * *
Reason: To explicitly characterize a station noting No. 21 of these Regulations.
NOC 732 through 734.

Article 19

IDENTIFICATION OF STATIONS

MOD 735

Transmissions [without identification or with false identification are prohibited.] and transmitting stations shall be uniquely identified. Administrations shall make every effort at the earliest possible time to introduce and use automatic identification. On frequencies assigned for international use . . .

a) the call signs of coast and aeronautical stations consist of:

- three letters;
- or
- three letters followed by [one or two] not more than three digits * * *

Reason: To accord with existing practice.
NOC 745 through 770
Reason: Necessary and adequate as drafted.

MOD 771
However, land mobile stations employing radiotelephony may also use a call sign consisting of:

- two, [or] three or four letters followed by four digits (other than the digits 0 or 1 in cases where they immediately follow a letter).

NOC 772, 773
Reason: Necessary and adequate as drafted.

MOD 774
* * * follow a letter). [(See also No. 787A.)]
Reason: Consequential to other proposals.
NOC 775 through 781
Reason: Necessary and adequate as drafted.

NOC 782
NOC 783, 783A
Reason: Necessary and adequate as drafted.

SUP

[Formation of ship station selective call numbers and coast station identification numbers]
Reason: Superfluous.

formation shall be available in computer printed form.

Reason: For increased use of the information, long-term cost reduction, and to preclude interpretation that service documents shall be produced only in hard copy form.
NOC 790 through 813
Reason: Adequate as drafted.

SUP 813
Reason: Unnecessary, expensive item of limited usefulness.

NOC 814 through 839A
Reasons Acceptable as drafted.

SUP 840
Reason: Item of limited usefulness, difficult for at least some administrations to supply the sought data, and other data, such as sales of equipment, are potentially more useful for administrations' purposes.
NOC 831 through 837
Reason: Acceptable as drafted.

APPENDIX 8A

NOTE: Many of the matters treated in the balance of this Appendix presently fall beyond the scope of the draft agenda established pursuant to the 51st Session of the Administrative Council.

Article 21

MOD INSPECTION OF [MOBILE] STATIONS [AND MOBILE EARTH STATIONS IN THE MARITIME MOBILE SATELLITE SERVICE]
MOD 838

MOD 644
The Members of t
not to] shall not
mobile stations or
earth stations (in
satellite service)
within their territ
a temporary stati
technical and o
more severe than
in these Regulati
[ing] provision in
arrangements wh
international agr
[maritime or air-
or mobile ser
are therefore no
Regulations.
Reason: To generalis
constraints upon Mem
Regulations.
NOC
Chapte
Personnel of Stations [i
and the Maritime Mob
NOC
Article
MOD
Authority of the [i
MOD 845
The service of
placed under the
the [Master] resp
responsible * * *
Reason: To generalis
applicability of these pr

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APPENDIX 3.—PROPOSAL FOR INTERNATIONAL
RADIO REGULATIONS AND APPENDICES (OTHER
THAN ARTICLE 5)

Article 3

GENERAL RULES FOR THE ASSIGNMENT AND
USE OF FREQUENCIES

NOC
NOC 113
NOC 114
NOC 115
MOD 116

§4. The frequency assigned to a station of a given service shall be separated from the limits of the band allocated to this service in such a way that, taking account of the frequency band assigned to a station, no harmful interference is caused to services to which frequency bands immediately adjoining are allocated. If a service allocated to an immediately adjoining frequency band is reportedly subject to harmful interference caused by a station whose occupied bandwidth is not wholly contained within the band allocated to the service rendered by that station, it shall be regarded as not complying with this provision.

Article 6

NOC
SPECIAL RULES FOR THE ASSIGNMENT AND USE
OF FREQUENCIES

(MOD) 413

Members [and Associate Members] of
the Union . . .

NOC 414
NOC 415
NOC 416
NOC 417 through 421

Article 7

SPECIAL RULES RELATING TO PARTICULAR
SERVICES

NOC 422

Reason: Necessary and adequate as
drafted.
MOD 423

[In principle, except in the frequency band 3900-4000 kHz] Broadcasting stations using frequencies below [5060] 4063 kHz or above 26,100 kHz [41 MHz] shall not employ power exceeding that necessary to maintain economically an effective national service of good quality within the frontiers of the country concerned.

NOC 424 through 428

NOC 428A

ADD

Section IB. Broadcast Service in Band 7

ADD 428B

To enhance sharing possibilities and to improve receiving conditions, broadcasting stations operating in Band 7, while complying with the provisions of No. 694, shall in no event employ an effective radiated power on any azimuth in excess of +73 dBW for A3, +70 dBW for A3H, or +64 dBW for A3A or A3J emission.

ADD 428C

Notwithstanding the provisions of ADD 428B, broadcasting stations operating in Band 7 and notified as serving a target area partially or wholly inside the country containing the station shall in no event employ an effective radiated power in excess of 47 dBW for A3 emission, +44 dBW for A3H, or +38 dBW for A3A or A3J emission.

ADD 428D

Broadcasting stations operating in Band 7 and serving an area as defined in ADD 428C shall not operate on a frequency above 7500 kHz.

ADD 428E

Stations broadcasting in Band 7 shall begin to take the necessary steps to complete conversion to compatible single sideband by xx. (xx date to be subsequently determined)

ADD 428F

Noting the provisions of No. 130 of the Convention, no Administration shall employ more than one frequency per frequency band to provide the same modulated signal simultaneously to any zone or contiguous zones.

ADD 428G

Notwithstanding the provisions of footnote 1 to Appendix 4, no transmitter operating in the broadcasting service in Band 7 shall supply to the transmission line a mean power of any spurious emission in excess of -30 dBW.

ADD 428H

No station shall be operated so as to cause harmful interference to another station 10 kilohertz removed.

429 through 432: Under consideration in preparation for 1978 Aero WARC.

NOC 437A, 438

NOC 439, 440

MOD 443

-3 kHz when two adjacent frequencies are used for single sideband radiotelephony;

-4.5 kHz when one frequency is used for single sideband radiotelephony and the adjacent frequency is used for radio telegraphy.

The use of double sideband radiotelephony in all Regions is discouraged and is to be discontinued as soon as possible and, in any event, not later than the date prescribed by these Regulations.

SUP 444

Reason: Will be overtaken by single sideband implementation.

NOC 445, 445A, 456, 457, 457A

NOC 458

NOC 463, 464

MOD 465

Administrations are urged to discontinue, in the fixed service, the use of double sideband radiotelephone transmissions. [In the bands below 30 MHz, if possible as from January 1, 1970.]

NOC 466, 467

MOD 468

To obtain economy in the use of frequencies, the International Frequency Registration Board [should] may be consulted by the administrations concerned whenever such agreements are under discussion on a regional or world-wide basis.

NOC 469

MOD 470

To obtain economy in the use of frequencies, the International Frequency Registration Board [should] may be consulted by the administrations

concerned whenever such agreements are under discussion on a regional or world-wide basis.

Reason: For consistency and to aid administrations in reaching their desired goal in their own competent, multilaterally agreed manner noting No. 128 of the Convention.

NOC 470A, 470AA, 470AB
MOD 470AC

[In the frequency bands above 15 GHz there shall be no restriction as to the direction of maximum radiation for stations in the fixed or mobile service.] As far as practicable, sites for transmitting stations, in the fixed or mobile service, employing maximum values of equivalent isotropically radiated power exceeding +45 dBW in the frequency bands between 15 and 40 GHz, should be selected so that the direction of maximum radiation of any antenna will be at least * * away from the geostationary satellite orbit, taking into account the effect of atmospheric refraction.

Reason: To provide for compatibility in the bands between 15 and 40 GHz which are now more heavily populated with that population growing.

*Note: Comments as to the value which would be inserted are requested.
NOC 470B, 470BA, 470C, 470CA

MOD 470DB, Spa 2

(5) The limits given in Nos. 470B and 470CA apply in the following frequency bands allocated to the fixed-satellite service for reception by space stations, where these bands are shared with equal rights with the fixed or mobile service:

27.5-29.5 GHz

29.5-31.0 GHz (for the country mentioned in No. 409E)

50-51.4 GHz

76-84 GHz

92-95 GHz

201.5-217 GHz

265-275 GHz

NOC 470E

MOD 470J

(3A) The limits given in No. 470G apply in the following frequency bands allocated to transmission by earth stations in the fixed-satellite service and earth exploration-satellite service, and in particular the meteorological-satellite service, where these bands are shared with equal rights with the fixed or mobile service:

2 655-2 690 MHz (Regions 2 and 3)

4 400-4 700 MHz

5 800-5 850 MHz (for the countries mentioned in No.

15 850-5 925 MHz, 1 and

5 925-6 42F

6 425-6 92

7 900-7

7 975-8 0 (for the countries mentioned in No. 392H)

8 025-8 400 MHz

[10.95-11.20 GHz (Region 1)]

12.50-12.75 GHz (Regions 2 and 3 and for the countries mentioned in No. 405BD,

12.75 -13.25 GHz
14.175-14.300 GHz (for the countries mentioned in No. 407)

14.4 -14.5 GHz

(3B) The limits given in No. 470GA apply in the following frequency band allocated to transmission by earth stations in the fixed-satellite service, where this is shared with equal rights with the fixed or mobile service:

27.5-29.5 GHz
30 - 34 GHz
92 - 95 GHz
201.5-217 GHz
265 -275 GHz

NOC 470K, 470V, 470VA

Article 8

GENERAL PROVISIONS

NOC 471 through 481

MOD 482

) the technical planning for radio conferences with a view to reducing their duration without diminishing their effectiveness; and

NOC 483, 484

NOC 485

Reason: Simplification, and to state explicitly the implicit intent of the present provisions.

Article 10

SECTION II. PRELIMINARY EXAMINATION AND PREPARATION OF TENTATIVE HIGH FREQUENCY BROADCASTING SCHEDULE

ADD 645A

Before the Board shall begin the work outlined in No. 646, it shall examine each notice received with respect to its conformity with the Convention, the Table of Frequency Allocations and the other provisions of the Radio Regulations including Nos. ADD 428B through ADD 428F. Further, it shall examine the Supplementary Information portion of each notice to determine whether the notifying administration has affirmed that the subject station does, in fact, comply with the provisions of No. 428G. If the Board's finding in respect to the examination of the notice to this point is in all respects entirely satisfactory, the Board shall proceed to No. 646. Otherwise, No. 645B shall apply.

ADD 645B

If the Board's finding is unfavorable with respect to Article 7, the notice shall be returned by airmail to the notifying administration drawing attention to the Regulation or Regulations with respect to which the finding was unfavorable. If the notice is resubmitted without being sufficiently changed to enable a favorable finding in respect to Article 7, or if the notice is resubmitted with changes sufficient to enable a favorable finding in respect to Article 7 based upon the strength of the notice alone but in formation provided to the Board by another administration gives reason to believe the resubmitted notice may be in error, the notice shall again be returned to the notifying administration together with a reference to this Radio Regulation. A suitable entry shall be made in the Tentative High Frequency Broadcasting Schedule.

ADD 645C

If any resubmitted notice receives a satisfactory finding in respect to ADD 645A and the Board does not have in

its possession such information as may be in the view of the administration supplying that information give cause to believe that the resubmitted notice may be in error, the Board shall proceed to No. 646.

ADD 645D

During the period between the coming into force of the Final Acts of this conference and November, 1989, the Board shall in every case ascertain whether only single sideband emission has been notified and, if so, shall enter a suitable remark in Column B of the Tentative High Frequency Broadcasting Schedule and in Column 13C of the Master International Frequency Register. Where apparent or actual incompatibilities arise between stations using single sideband emission and other stations broadcasting in Band 7, the former shall not be required to accommodate the latter.

NOC

Article 11

NOC

INTERNAL REGULATIONS OF THE INTERNATIONAL FREQUENCY BOARD

Article 12

TECHNICAL CHARACTERISTICS OF EQUIPMENT AND EMISSIONS

NOC 667 through 675

NOC 676

NOC 677

Article 13

INTERNATIONAL MONITORING

NOC 678 through 681

MOD 682

§ 5. Administrations agree that monitoring requests from international organizations not participating in the international monitoring system [should] may be co-ordinated by the Board and, if appropriate, forwarded by it to administrations.

NOC 683

MOD 684

§ 7. The technical standards recommended by the C.C.I.R. to be observed by monitoring stations shall be recognized by the Board as the optimum practicable technical standards for monitoring stations participating in the international monitoring system. [However, to meet some needs for monitoring data, stations observing lower technical standards may participate in the international monitoring system at the discretion of their administrations.]

NOC 685

SUP 688

MOD 689

§ 11. [To ensure that published monitoring data are current and world wide in nature,] administrations [having jurisdiction over monitoring stations listed in the List of International Monitoring Stations (see Article 20)] shall make every effort [as practicable,] to arrange for monitoring observations to be [made by such stations and] submitted to the Board as soon as possible [after the date of observation.]

SUP 691

NOC 692

Article 14

INTERFERENCE AND TESTS

NOC 694 through 703

Article 15*

NOC

PROCEDURE IN A CASE OF HARMFUL INTERFERENCE

(MOD) 704

It is essential that Members [and Associate Members] exercise * * *

Reason: To reflect the action of the 1973 Plenipotentiary Conference.

NOC 705 through 711A

Reason: Adequate and necessary as drafted.

MOD 711B

When cases of harmful interference occur as a result of emissions from space stations, the administrations concerned shall, upon request from the administration having jurisdiction over the station experiencing the interference, furnish current ephemeral data necessary to allow [calculation] determination of the positions of the space station when not otherwise known.

Reason: To generalize to preclude the need for calculations where not needed otherwise.

ADD 711C

Notwithstanding any other provision of the Radio Regulations, should station(s) providing a safety service experience harmful interference irrespective of the source, that source shall immediately upon notification to the controlling administration, cease operation pending resolution of the difficulty.

NOC 712 through 717

Reason: Adequate and necessary as drafted.

MOD 718

However, the Board shall not be required to deal with problems of harmful interference between stations operating in [the same band and in conformity with the Table of Frequency Allocations when at least one of these stations is in a class the frequency of which is not required to be notified according to Nos. 486 or 487 of these Regulations; or between stations in] the band [535] 525 [1605] 1800 kHz in Region 2. Such cases of interference shall be resolved by appropriate bilateral or multilateral arrangements in which administrations should particularly observe the provisions of No. 704.

Reason: To add to the Board's effectiveness in resolving cases of harmful interference.

Article 16

NOC

REPORTS OF INFRINGEMENTS

NOC 719 through 720

Reason: Adequate and necessary as drafted.

MOD 721

If an administration has information of an infringement of the Convention or Radio Regulations, committed by a station over which it [has authorized] may exercise authority, it shall ascertain * * *

Reason: To permit action against possibly unauthorized stations committing infringements.

Article 17

SECRECY

MOD 722

Noting the provisions of Article 22 of the Convention, [The] the administrations bind themselves * * *

NOC 723, 724