RESOLUTION ITU-R 5-2

WORK PROGRAMME OF RADIOCOMMUNICATION STUDY GROUPS FOR 1998-1999

(1993-1995-1997)

The ITU Radiocommunication Assembly,

considering

a) that according to Article 8 of the ITU Convention (Geneva, 1992), the Radiocommunication Assembly shall, bearing in mind the need to reduce the demands on the resources of the Union, approve the programme of work arising from the review of existing Questions and new Questions and determine the priority, urgency, estimated financial implications and time-scale for the completion of their study, allocate the work to Radiocommunication Study Groups and report to the associated World Radiocommunication Conference on the progress of matters that may be included in the agenda of future radiocommunication conferences;

b) the Strategic Plan for the Union given in Resolution 1 of the Plenipotentiary Conference (Kyoto, 1994);

c) those parts of § 1, 2 and 3 of Resolution ITU-R 1 concerning the Questions to be studied by the Radiocommunication Study Groups,

resolves

1 that the categories used to identify the priority and urgency of Questions to be studied should be:

C: Conference oriented Questions associated with work related to specific preparations for, and decisions of, world and regional radiocommunication conferences (see Note 1):

C1: Very urgent and priority studies, required for the World Radiocommunication Conference to be held within the next two-year period;

C2: urgent studies, expected to be required for other radiocommunication conferences;

S: Questions which are intended to respond to:

– matters referred to the Radiocommunication Assembly by the Plenipotentiary Conference, any other conference, the Council, the Radio Regulations Board (see Note 1);

– advances in radiocommunication technology or spectrum management;

– changes in radio usage or operation:

S1: urgent studies which are intended to be completed within two years;

S2: important studies, necessary for the development of radiocommunications;

S3: required studies, expected to facilitate the development of radiocommunications;

2 that the work programme for the next study period shall be the Questions listed in Annex 1 with Categories C and S. These Questions shall be referred to the appropriate Study Group. The texts of the Questions listed in Annex 1 are to be found in Document 1 of the series of documents for the next study period of the appropriate Study Group,

further resolves

3 that Conference-oriented Questions for study by the Study Groups shall:

– address topics seeking a Recommendation or a report to a conference;

– address a single specific issue;

– include a specified target date for the output;

4 that each Question shall:

- indicate in a concise form the reason for the study;
- specify the scope of the study as precisely as possible;
- indicate the form in which the response should be prepared (e.g. as a Recommendation or other text, etc.) and, when possible, an outline of the contents of the expected response;
- specify the date when a complete or partial response is needed or the time period for the study, together with the milestones for the progress of the study;
- be modified to take account of partial answers;
- identify relevant Study Groups working in closely related areas, to which the text of the Question should be sent for information;

5 that Study Groups shall consider all their Questions and make proposals to each Assembly:

- so as to bring them into conformity with *further resolves* 3 and 4;
- for the categorization of Questions in accordance with *resolves* 1;
- for the deletion of Questions, where the study has been completed, where no contributions are expected within the next study period, or, in conformance with Resolution ITU-R 1, § 1.7, where no contributions have been made; such Questions shall be identified as category D;

6 that each Study Group shall report to each Radiocommunication Assembly the progress that has been made in respect of each Question allocated to it with categories C1, C2 or S1;

7 that, as a part of the work programme, a Study Group may also undertake studies, within the scope of its mandate, for the revision of an existing Recommendation or on a topic for which a new Question is required. Where such study is expected to continue beyond the date of the next Radiocommunication Assembly, an appropriate Question should be drafted for approval by the Assembly.

NOTE 1 – If necessary, following a world or regional radiocommunication conference, the Director of the Radiocommunication Bureau, in consultation with the Chairmen of the Study Groups concerned, may assign appropriate categories to Questions which are related to the decisions of the conference or to the agendas of future world or regional radiocommunication conferences.

ANNEX 1

Questions assigned by the Radiocommunication Assembly to Study Group 1

Spectrum management

Question ITU-R No.	Title	Category
22-2/1	Frequency measurements at monitoring stations	S2
26-3/1	Bandwidth measurements at monitoring stations	S2
28-3/1	Direction finding at monitoring stations	S2
29-4/1	Automatic monitoring of the radio-frequency spectrum	S2
32-4/1	Application of monitoring to assist radiocommunications development	S2
34-3/1	Identification of radio stations by manual or automatic means	S2
44-1/1	System models for the evaluation of compatibility in spectrum use	S3
45-4/1	Techniques and technical criteria for frequency sharing	S2
47/1	Definition of efficiency and utility of spectrum use	S2
54-1/1	Frequency tolerance of transmitters	C2
60-1/1	Spectra and bandwidths of emissions	S2
65/1	Improved methods of exchanging computer programs and data for spectrum management purposes	S1
66/1	Methods and algorithms for frequency planning	S3
67/1	Method of measuring the maximum frequency deviation of FM broadcast emissions at monitoring stations	S2
71-1/1	The use of spread spectrum techniques	S2
80-1/1	Definition of interference and units and methods of measurement	S2
201/1	Spectrum management aspects of short-range communication systems	S2
202/1	Characterization and measurement of various interference sources to digital communication services (according to their interference effect)	S2
203/1	New spectrally efficient techniques and systems	S2
204-1/1	Adaptive systems in the MF/HF bands	S2
205-1/1	Long-term strategies for spectrum utilization	S2
206/1	Strategies for economic approaches to national spectrum management and their financing	S1
207/1	Assessment, for spectrum planning and strategic development, of the benefits arising from the use of the radio spectrum	S1
208/1	Alternative methods of national spectrum management	S1
209/1	Parameters of radio equipment required for spectrum management and the efficient use of the radio spectrum	S1
210/1	Wireless power transmission	S3
211/1	Unwanted emissions	C2
212/1	Development of method(s) for the determination of the coordination area around earth stations	C1
213/1	Technical and operating parameters and spectrum requirements for short-range devices	S2
214/1	Monitoring of digital broadcasting signals	S2
215/1	Monitoring of the radio coverage of land mobile networks to verify compliance with a given licence	S2

ANNEX 2

Questions assigned by the Radiocommunication Assembly to Study Group 3

Radiowave propagation

ITU-R Question No.	Title	Category
201-1/3	Radiometeorological data required for the planning of terrestrial and space communication systems and space research applications	S2
202/3	Methods for predicting propagation over the surface of the Earth	S2
203-1/3	Propagation data and prediction methods for terrestrial broadcasting and terrestrial mobile services at frequencies above 30 MHz	S2
204-2/3	Propagation data and prediction methods required for terrestrial line-of-sight systems	S2
205-1/3	Propagation data and prediction methods required for trans-horizon systems	S2
206-2/3	Propagation data and prediction methods for fixed and broadcasting-satellite services	S2
207-2/3	Propagation data and prediction methods for satellite mobile and radiodetermination services above about 0.1 GHz	S2
208-1/3	Propagation factors in frequency sharing issues affecting fixed-satellite services and terrestrial services	S2
209/3	Variability and risk parameters in system performance analysis	S2
210/3	Propagation prediction procedure for the land mobile and terrestrial broadcasting services in the frequency range 30 MHz to 3 GHz	S1
211/3	Propagation data and propagation models for the design of short-range wireless personal communication systems and wireless local area networks (WLAN) in the frequency range 300 MHz to 100 GHz	S1
212-1/3	Ionospheric properties	S3
213/3	The short-term forecasting of operational parameters for ionospheric and trans-ionospheric radiocommunications	S3
214/3	Radio noise	S2
215-1/3	Sky-wave field strength and circuit performance at frequencies below about 1.7 MHz	S2
217-1/3	Radio system reliability, variations of ionospheric propagation characteristics and fading at frequencies between about 1.6 and 30 MHz	S2
218-2/3	Ionospheric influences on space systems	S2
220/3	Ionospheric effects and operational considerations associated with artificial modification of the ionosphere and the radio-wave channel	S3
221/3	VHF and UHF propagation by way of sporadic E and other ionization	S3
222/3	Measurements and databanks	S2
223/3	Prediction of sky-wave propagation conditions, signal intensity and circuit performance at frequencies between about 1.6 and 30 MHz	S2
224-1/3	The prediction of system performance and reliability for digital modulation techniques at HF	S2
225-1/3	The prediction of propagation factors affecting systems using digital modulation techniques at LF and MF	S1
226/3	Ionospheric and tropospheric characteristics along satellite-to-satellite paths	S2

ANNEX 3

Questions assigned by the Radiocommunication Assembly to Study Group 4

Fixed-satellite service

Question ITU-R No.	Title	Category
7-3/4	Baseband transmission variability, delay and echoes in systems in the fixed-satellite service	S2
32-3/4	Methods for determining the interference potential of earth stations in the fixed-satellite service in the frequency bands shared with radio-relay systems	S2
42-1/4	Characteristics of antennas at earth stations in the fixed-satellite service	S1
44-1/4	Use of transportable transmitting earth stations in the fixed-satellite service including use for feeder links to broadcasting satellites	S2
46-2/4	Preferred multiple-access characteristics in the fixed-satellite service	S2
55-2/4	Feeder links in the fixed-satellite service used for the connections to and from geostationary satellites in various mobile-satellite services	S1
56-1/4	Frequency sharing between the inter-satellite service when used for links of the fixed-satellite service and terrestrial radiocommunication services	S2
57-1/4	Preferred technical characteristics and selection of sites for earth stations in the fixed-satellite service to facilitate sharing with terrestrial services	S2
60-1/4	Sharing criteria for protecting systems in the fixed-satellite service against interference from line-of-sight radio-relay transmitters operating in shared frequency bands	S2
61/4	Criteria for frequency sharing between the fixed service and the fixed-satellite service in bidirectionally allocated frequency bands	S3
62/4	Frequency sharing of the fixed-satellite service and the inter-satellite service with the fixed service under provisions of RR Article 14	S2
63-1/4	Frequency sharing of the fixed-satellite service with terrestrial radio services other than the fixed service under the provisions of Article 14 of the Radio Regulations	S3
67-1/4	Frequency sharing between the fixed-satellite service and the Earth exploration-satellite (passive) and space research (passive) services near 19 GHz	C1
68-1/4	Frequency sharing of the fixed-satellite service and the inter-satellite service with other space radio services under provisions of Article 14 of the Radio Regulations	S2
70-1/4	Protection of the geostationary-satellite orbit against unacceptable interference from transmitting earth stations in the fixed-satellite service at frequencies above 15 GHz	S2
73-1/4	Availability and interruptions to traffic on digital paths or circuits in the fixed-satellite service	S2
75-3/4	Performance objectives of international digital transmission links in the fixed-satellite service	S1
76-1/4	Voice and data signal processing for international digital transmission links in the fixed-satellite service	S2
77-1/4	Video signal processing for international digital transmission links in the fixed-satellite service	S2
78-1/4	Use of satellite communication systems in the B-ISDN	S2
81-1/4	Frequency sharing among networks in the fixed-satellite service, the mobile-satellite service and those of satellites equipped to operate in more than one service in the 20-50 GHz band	S2

Fixed-satellite service *(continued)*

Question ITU-R No.	Title	Category
201-1/4	Digital satellite systems in the FSS in synchronous transport networks based on the SDH	S1
202-1/4	Interference criteria in the fixed-satellite service for the optimum inhomogeneous use of the available capacity of the geostationary orbit	S1
203-1/4	The impact of using small antennas on the efficient use of the geostationary-satellite orbit	S1
204/4	Interference of undetermined origin on Earth-to-satellite links	S2
205-1/4	Frequency sharing between non-geostationary satellite feeder links in the fixed-satellite service used by the mobile-satellite service	S1
206-2/4	Sharing between non-geostationary satellite feeder links in the fixed-satellite service used by the mobile-satellite service and other space services, and networks of the fixed-satellite service using geostationary satellites	S1
208/4	Use of statistical and stochastic methods in evaluation of interference between satellite networks in the fixed-satellite service	S2
209/4	The use of frequency bands allocated to the fixed-satellite service for both the up and down links of geostationary-satellite systems	S2
214/4	Technical implications of steerable and reconfigurable satellite beams	S1
216/4	Interruptions to traffic due to site diversity arrangements and/or equipment protection arrangements on digital paths or circuits in the fixed-satellite service	S2
218-1/4	Compatibility between on-board processing satellites in the FSS and terrestrial networks	S2
219/4	Protection of non-geostationary satellite feeder links in the fixed-satellite service used by the mobile-satellite service from radio-relay systems in the shared frequency bands	S2
220/4	Interference criteria for systems in the fixed-satellite service using spread spectrum multiple access	S2
221/4	Selection of radio stars visible in southern hemisphere for use in determining *G/T* values for antennas in the fixed-satellite service	S2
222/4	Protection ratio masks for TV/FM carriers	S1
223/4	Interference criteria for short-term interference events into the fixed-satellite service networks	S1
224/4	Technical coordination and optimization methods for systems in the fixed-satellite service to be used under Appendix 30B of the Radio Regulations	S1
226-1/4	Use of portable and transportable transmitting earth stations for digital transmission of digital high-definition television for news gathering and outside broadcasts via satellite	S1
227/4	Use of digital transmission techniques for satellite news gathering (sound)	S2
230/4	Studies on efficient use of FSS orbit/spectrum resources resulting from Resolution 18 (Kyoto-94)	C1
231/4	Sharing between networks of the fixed-satellite service using non-geostationary satellites and other networks of the fixed-satellite service	S1
232/4	Use of regenerative processing in FSS allocations	S2
233/4	Dedicated user digital satellite communications systems and their associated architectures	S2
234/4	Phase jitter and wander requirements for satellite earth station modems	S1
235/4	Use of operational facilities to meet power flux-density limitation under Article 28 of the Radio Regulations	S1
236/4	Interference criteria and calculation methods for the fixed-satellite service	S1

Fixed-satellite service *(end)*

Question ITU-R No.	Title	Category
237-1/4	Sharing criteria for systems in the fixed-satellite service involving a large number of non-geostationary satellites with radio-relay systems in the 18.8 to 19.3 GHz and 28.6 to 29.1 GHz bands	S1
238/4	Sharing criteria for inter-satellite links between non-geostationary satellites in connection with feeder links for the mobile-satellite service using the same frequency bands with radio-relay systems	S2
239/4	Sharing criteria between systems utilizing inter-satellite links	C1
240/4	Technical implications of possible definition of the quasi-geostationary orbit on the fixed-satellite service sharing frequency bands with the fixed service	C1
241/4	Technical implications of possible definition of the quasi-geostationary orbit on the fixed-satellite service using geostationary and non-geostationary orbits	C1
242/4	Sharing between feeder links for the mobile-satellite service and the aeronautical radionavigation service in the space-to-Earth direction in the band 15.4-15.7 GHz and the protection of the radioastronomy service in the band 15.35-15.4 GHz	C1
243-1/4	Sharing between feeder links for the mobile-satellite service and the aeronautical radionavigation service in the Earth-to-space direction in the band 15.45-15.65 GHz	C1
244/4	Sharing between feeder links of the mobile-satellite (non-geostationary) service in the band 5 091-5 250 MHz and the aeronautical radionavigation service in the band 5 000-5 250 MHz	C2
245/4	Out-of-band and spurious emission limits	C1
246/4	Sharing between the inter-satellite service, Earth-exploration satellite (passive) service and other services in frequency bands above 50 GHz	C1
247/4	Design objectives for radiation patterns applicable to non-geostationary-satellite orbit/mobile-satellite service feeder link earth stations operating in the 5/7 GHz band	S1
248/4	Frequency sharing between systems in the fixed-satellite service and wireless digital networks around 5 GHz	S1
249/4	Interoperability of equipment for digital transmission of television news gathering via satellite news gathering (SNG)	S1
250/4	Feasibility of the fixed-satellite service sharing with the fixed service operating on the same frequencies in the range 30-52 GHz	S1
251/4	Sharing criteria for systems in the fixed-satellite service using the same frequency bands with stratospheric high density systems in the fixed service	S1
252/4*	Criteria for the protection of Appendix 30B Plan against interference from NGSO systems	S1
253/4	Determination of coordination area for earth stations operating with non-geostationary satellites in the fixed-satellite service in the frequency bands shared with the fixed service	S1

* At the Radiocommunication Assembly 1997 (RA-97), some Administrations considered that work on this Question should not be continued because in their opinion it conflicts with the provisions of S5.441 of the Radio Regulations.

ANNEX 4

Questions assigned by the Radiocommunication Assembly to Study Group 7

Science services

Question ITU-R No.	Title	Category
101-2/7	Performance and reliability of frequency standards and their use in time-scales	S3
102-2/7	Terrestrial standard-frequency and time-signal dissemination	S2
103-1/7	Techniques for time transfer	S2
104-1/7	Stability of standard-frequency and time-signal emissions as received	S3
110-2/7	Time codes	S2
111-1/7	Signal delays in antennas and other circuits and their calibration for high-accuracy time transfer	S2
112-1/7	Worldwide dissemination of time signals to an accuracy of 1 μs or better for industrial purposes	S3
117-1/7	Radio links between earth stations and spacecraft by means of geostationary data relay satellites	S2
118-1/7	Factors which affect frequency sharing between data relay satellite systems and systems of other services	S2
127-1/7	Radiation patterns and side lobe characteristics of large antennas used for space research earth stations and radio astronomy	S3
129-1/7	Unwanted emissions radiated from and received by stations of the science services	C2
139-2/7	Data transmission systems for earth exploration-satellite systems	S2
141-2/7	Data transmission for meteorological-satellite systems	S2
142-2/7	Earth exploration-satellite and meteorological-satellite data collection and position location systems	C1
143-1/7	Radiocommunications for satellite systems for geodesy and geodynamics	S2
144/7	Radiocommunication systems for the meteorological aids service	S2
145-1/7	Technical factors involved in the protection of radio astronomical observations	S2
146-1/7	Criteria for evaluation of interference to radio astronomy	S2
147/7	Radio astronomy in the vicinity of the L_2 Sun-Earth Lagrangian point	S2
148/7	Radar astronomy	S2
149-1/7	Frequency utilization on the far side of the Moon	S2
150/7	Radiocommunication requirements for systems to search for extraterrestrial intelligence	S2
152-2/7	Standard frequencies and time signals from satellites	S3
154-1/7	Possible relocation of frequency assignments to certain space missions from 2 GHz bands to bands above 20 GHz	C2
201-1/7	Two-way time transfer through communication satellites	S1

Science services *(end)*

Question ITU-R No.	Title	Category
202-1/7	Protection criteria and frequency sharing between space VLBI and other space research systems	S2
203-1/7	Characteristics and telecommunications requirements for space VLBI	S2
204-1/7	Sharing of the band 1 675-1 710 MHz between the mobile-satellite service and the meteorological-satellite and meteorological aids service	C1
205/7	Radio observations of pulsars	S2
206-1/7	Frequency comparisons of remotely located standards at the 10^{-15} level of uncertainty	S2
207-1/7	Time and frequency transfer using digital communication links	S1
211/7	Frequency sharing between the space research service and other services in the 37-38 GHz and 40-40.5 GHz bands	S2
212/7	Frequency sharing between the space research service and other services in the bands near 400 MHz	C1
214/7	Frequency sharing between earth exploration-satellite systems and systems in the fixed-satellite and meteorological-satellite services in the band 8 025-8 400 MHz	C2
215/7	Frequency sharing between earth exploration-satellite systems (passive), space research systems (passive) and systems in the fixed, mobile and fixed-satellite services in the band 18.6-18.8 GHz	C2
216/7	Frequency sharing between earth exploration-satellite systems (passive), space research systems (passive) and systems in the fixed, mobile, fixed-satellite, mobile-satellite, inter-satellite and radiolocation services in the band 50.2-65 GHz	C2
217/7	Frequency sharing in the band 401-403 MHz between satellite data collection and position location systems for earth exploration and meteorology and systems in the fixed, mobile, space operation and meteorological aids services	C1
218/7	Frequency sharing between active sensor systems in the earth exploration-satellite service and systems operating in other services at around 440 MHz, 1 300 MHz, 5 300 MHz, 35 GHz and 95 GHz	C2
219/7	Space operation and space research services frequency bands for telecommand links in the range 100 MHz to 1 GHz	C1
220/7	Frequency sharing between earth exploration-satellite systems and systems of the fixed, mobile, inter-satellite and standard frequency and time-signal satellite services operating in the band 25.5-27 GHz	C2
221/7	Preferred frequency bands and protection criteria for space research service observations (passive)	S2
222/7	Radio links between earth stations and lunar and planetary missions by means of lunar and planetary data relay satellites	S2
223/7	The role of differential GPS networks in timing applications	S2
224/7	Algorithms for ensemble time-scales and measurement systems	S3
225/7	Sharing between inter-satellite service systems in the frequency band 25.25-27.5 GHz	S1
226/7	Frequency sharing between the radio astronomy service and other services in bands above 70 GHz	C1
227/7	Percentage of time for which interference harmful to the radio astronomy service can be accepted	C2
228/7	Preferred frequencies for the earth exploration-satellite (passive) and space research (passive) services above 70 GHz and the feasibility of sharing with other services in these bands	C1

ANNEX 5

Questions assigned by the Radiocommunication Assembly to Study Group 8

Mobile, radiodetermination, amateur and related satellite services

Question ITU-R No.	Title	Category
1-2/8	Signal-to-interference protection ratios and minimum field strengths required in the mobile services	S3
5-5/8	The introduction of direct-printing telegraph equipment in the maritime mobile service	S2
7-5/8	Characteristics of equipment for the land mobile service between 25 and 3 000 MHz	S2
9-6/8	Digital selective-calling system for future operational requirements of the maritime mobile service	S2
12-4/8	Radio-paging systems	S2
28-2/8	Frequency requirements for shipborne transponders	S2
35-1/8	Efficient use of the radio spectrum by radar stations in the radiodetermination service	S2
36-1/8	Leaky feeder systems in the land mobile service	S2
37-4/8	Systems with improved spectrum efficiency for the land mobile service	S1
39-5/8	International Mobile Telecommunications-2000 (IMT-2000)	S1
40-4/8	Digital transmission in the land mobile service	S1
45-4/8	Technical and operating considerations for a global land and maritime distress and safety system	S3
48-3/8	Techniques and frequency usage in the amateur service and amateur-satellite service	S3
51-3/8	Automatic determination of location and guidance in the land mobile service	S1
52-1/8	Integration of public mobile radiocommunication services in the VHF/UHF frequency bands	S3
53-3/8	Use of frequencies by the maritime mobile service in the band 435-526.5 kHz	S3
55-3/8	Development and future implementation of data exchange systems and ship movement telemetry and telecommand systems	S3
62-2/8	Interference to the aeronautical mobile and aeronautical radionavigation services	S2
67-1/8	Multi-transmitter radio systems using quasi-synchronous (simulcast) transmission in the land mobile service	S2
72-1/8	Minimum channel separation and optimum systems of modulation, co-channel and adjacent-channel coordination criteria for simultaneous use of different modulation techniques in systems of the land mobile services between 25 and 3 000 MHz	S3
74-3/8	Public mobile telephone service with aircraft	S2
76-4/8	Data communication in the maritime mobile service	S3
77-3/8	Adaptation of mobile radiocommunication technology to the needs of developing countries	S1
82-3/8	System concepts of the mobile-satellite services	S2
83-3/8	Efficient use of the radio spectrum and frequency sharing within the mobile-satellite service (MSS)	C2
84-3/8	Use of non-geostationary-satellite orbits in mobile-satellite services	C2
85-1/8	Availability of circuits in mobile-satellite services	S2
87-3/8	Transmission characteristics for a mobile-satellite communication system	S2
88-1/8	Propagation and mobile earth station antenna characteristics for mobile-satellite services	S3

Mobile, radiodetermination, amateur and related satellite services *(continued)*

Question ITU-R No.	Title	Category
89-2/8	Compatibility for interworking between the mobile-satellite systems and terrestrial networks including ISDN	S2
90/8	Technical and operating characteristics of systems providing radiocommunication using satellite techniques for distress and safety operations	S2
91-1/8	Technical and operating characteristics of the radiodetermination-satellite service	S2
92-1/8	Study on general questions relating to the Global Maritime Distress and Safety System (GMDSS)	S3
93-2/8	Automation of MF, HF and VHF maritime mobile communications	S2
94/8	Necessary bandwidth required for radio altimeters operating in the band 4 200-4 400 MHz	S3
95/8	Sharing between the aeronautical radionavigation service and the mobile service in the band 5 000-5 250 MHz	S2
96-1/8	Improved efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service	S2
97/8	System for automatically identifying VHF and UHF radio stations transmitting in the maritime mobile service	S3
98/8	Transmission of digital data for the updating of electronic chart display systems (ECDIS)	S2
99/8	Interference due to intermodulation products in the land mobile services between 25 and 3 000 MHz	S3
101-2/8	Digitally encoded speech in the land mobile service	S1
103/8	Criteria for sharing between the mobile service and the space research, space operation and earth exploration-satellite service space stations in the 2 025-2 110 MHz and 2 200-2 290 MHz bands	C2
104-1/8	Technical and operational considerations for multiservice satellites operating in the frequency bands from about 20 to about 50 GHz	C2
105/8	Criteria for sharing between the fixed service, and the mobile, radiodetermination, amateur and related satellite services within the range 1-3 GHz	S1
106/8	Criteria for sharing between the broadcasting-satellite service (sound) and complementary terrestrial broadcasting and the mobile, radiolocation and amateur services within the range 1-3 GHz	C2
107-1/8	Cellular land mobile telecommunication systems	S2
109/8	GMDSS requirements for mobile-satellite systems operating in the bands 1 530-1 544 MHz and 1 626.5-1 645.5 MHz	S2
110/8	Interference to the aeronautical mobile-satellite (R) service	S2
111/8	Coordination of frequency assignments in bands allocated to the aeronautical mobile-satellite (R) service	S2
112/8	Performance objectives for digital mobile-satellite services	S3
113/8	Technical and operational characteristics of land mobile systems using multichannel access techniques without a central controller	S2
114/8	Technical and operational characteristics of cordless telephones and cordless telecommunication systems	S2
201/8	Frequency sharing between mobile-satellite services and other services	C2
202-1/8	Spurious emissions of radar systems	S2
203/8	Use of the maritime radionavigation band 285-325 kHz (283.5-315 kHz in Region 1)	S1
205-1/8	Transport information and control systems (TICS)	S2

Mobile, radiodetermination, amateur and related satellite services *(end)*

Question ITU-R No.	Title	Category
206/8	Technical and operational requirements for multimode mobile radio stations	S1
208/8	Evolution of land mobile systems towards IMT-2000	S1
209/8	Contributions of the mobile and amateur services and associated satellite services to the improvement of disaster communications	S1
210/8	Technical characteristics for mobile earth stations operating with global non-geostationary-satellite systems in the mobile-satellite service (MSS) in the band 1-3 GHz	S1
211/8	Interference criteria and calculation methods for the mobile-satellite service (MSS)	S1
212/8	Radio local area networks for mobile applications	S2
213/8	Transmission of data messages on shared private land mobile radio (PMR) channels	S1
214/8	The replanning of bands in the land mobile service	S1
215/8	Frequency bands, technical characteristics, and operational requirements for wireless access local loop systems	S1
216/8	Compatibility of radionavigation and radiolocation services operating in the bands 2 900-3 100 MHz and 5 350-5 650 MHz	S1
217/8	Interference to the radionavigation-satellite service in the ICAO global navigation satellite systems	S1
218/8	Essential technical requirements of mobile earth stations for global and regional geostationary mobile-satellite service systems in the band 1-3 GHz	S1
219/8	Technical criteria for spaceborne receivers operating in the radionavigation-satellite service in the space-to-space direction	S1
220/8	Spurious emission limits for stations of the mobile-satellite service	S1

ANNEX 6

Questions assigned by the Radiocommunication Assembly to Study Group 9

Fixed service

Question ITU-R No.	Title	Category
102-3/9	Availability of digital radio-relay systems	S1
103-2/9	Digital trans-horizon radio-relay systems	S3
107-1/9	Characteristics of radio-relay systems operating in frequency bands above about 17 GHz	S2
108-1/9	Radio-frequency channel arrangements for radio-relay systems operating in frequency bands above about 17 GHz	S2
109-1/9	Methods for frequency sharing between radio-relay systems and systems in the fixed-satellite service	S2
110/9	Antenna radiation diagrams of radio-relay stations for use in sharing studies	S2
111-2/9	Sharing criteria between the broadcasting-satellite service (sound and television) and the fixed service	C2
113-1/9	Frequency sharing between radio-relay systems and systems of the earth exploration-satellite service and the space research service	C1
114-1/9	Maximum e.i.r.p. and e.i.r.p. spectral density for line-of-sight radio-relay transmitters operating in frequency bands shared with the fixed-satellite service	S2
115/9	Criteria for frequency sharing between the fixed service and the fixed-satellite service in bidirectionally allocated frequency bands	S3
116-1/9	Sharing criteria for protecting the fixed service from systems in the fixed-satellite service in shared frequency bands	S2
118-1/9	Sharing criteria between the mobile-satellite services and the fixed service in the band 1 to 3 GHz	S1
119-1/9	Limitation of unwanted emissions from radio-relay systems	S1
122-1/9	Effects of propagation on the design and operation of radio-relay systems	S2
125-3/9	Point-to-multipoint radio systems	S2
127-2/9	Maximum allowable performance and availability degradations of radio-relay systems due to various sources of interference	S2
129-1/9	Evaluation of interference among line-of-sight radio-relay systems	S3
133/9	Sharing criteria between the fixed and mobile services in the frequency bands between about 0.5 and 3 GHz	S1
136-1/9	Radio-frequency channel arrangements for digital radio-relay systems operating in frequency bands below about 17 GHz	S2
140-2/9	The use of cellular type mobile technologies in fixed wireless local loop applications	S2
142-1/9	Radio local area networks (RLANs)	S2
145/9	Characteristics required for single-sideband and independent-sideband systems used for high-speed data transmission over HF radio circuits	S2
147-1/9	Automatically controlled radio systems and networks in the HF fixed service	S2
158/9	Packet data transmission protocols for systems operating below about 30 MHz	S3
159/9	Effects of unwanted emissions from radar systems in the radiodetermination service on systems in the fixed service	S2
160-1/9	Radio-relay systems in a synchronous digital network	S2

Fixed service *(end)*

Question ITU-R No.	Title	Category
161-3/9	Performance limits for bringing into service and maintenance of digital radio-relay systems	S1
163/9	Criteria for frequency sharing between the fixed service and the inter-satellite service operating in bands above about 20 GHz	S2
164/9	Digitized speech transmissions for systems operating below about 30 MHz	S3
201/9	Protection of radio-relay systems from non-geostationary-satellite feeder links in the fixed-satellite service used by the mobile-satellite service in the shared frequency bands	S2
202/9	Reference radiation patterns of omnidirectional and sectoral antennas in point-to-multipoint systems for use in sharing studies	S1
203/9	Influence of propagation conditions on the bringing-into-service procedure for digital radio-relay systems	S2
204/9	Radio-frequency signals transport through optical fibres	S2
205/9	Technical and operational implications of using discrete blocks of spectrum by adaptive HF systems	S1
206-1/9	Sharing criteria for radio-relay systems with systems in the fixed-satellite service involving a large number of non-geostationary satellites in the 18.8 to 19.3 GHz and 28.6 to 29.1 GHz bands	C1
207/9	Sharing criteria for radio-relay systems using the same frequency bands with inter-satellite links between non-geostationary satellites in connection with feeder links for the mobile-satellite service	S2
208/9	Necessary planning tools to assist those administrations considering a replanning of their terrestrial fixed networks in the 2 GHz range	S2
209/9	Technical implications of a possible definition of the quasi-geostationary orbit on the fixed service sharing frequency bands with the fixed-satellite service	C1
210/9	Error performance objectives for digital radio-relay sections operating at or above the primary rate of the digital hierarchy	S1
211/9	Inclusion of radio specific management functions into SDH telecommunication management network (TMN) from the network element view	S2
212/9	FS systems utilizing relays located at fixed points in the stratosphere serving high-density regions	C1
213/9	Simulation of HF transmission through an ionospheric channel	S1
214/9	Use of adaptive spread spectrum communications in the HF bands by the fixed service	S1
215/9	Development of an annex to Recommendation ITU-R F.1247 to facilitate its application in planning and design of new systems in the FS in the bands 2 025-2 110 MHz and 2 200-2 290 MHz	S1
216/9	System characteristics and sharing criteria for FS operating in frequency bands below 1 GHz	S2
217/9	Feasibility of the FS sharing with the FSS operating at the same frequencies in the range 30-52 GHz	C1
218/9	Sharing criteria for stratospheric high density systems in the FS using the same frequency bands with systems in the FSS	C1
219/9	Determination of coordination area related to the FS for earth stations operating with non-GSO in the FSS	C1

ANNEX 7

Questions assigned by the Radiocommunication Assembly to Study Group 10

Broadcasting service – sound

ITU-R Question No	Title	Category
44-2/10	LF, MF and HF sound broadcasting	S3
49-2/10	Receivers for sound broadcasting below 30 MHz	S3
55-1/10	Protection ratios in LF, MF and HF broadcasting	S2
56/10	Minimum usable field strength in LF, MF and HF broadcasting	S2
57-1/10	Sky-wave reception in LF, MF and HF broadcasting	S2
58-1/10	Coverage in LF, MF and HF broadcasting	S2
61-1/10	Single-sideband (SSB) system for broadcasting (HF)	S2
65-1/10	Short-distance broadcasting in band 7(HF) in the Tropical Zone	S2
71/10	Transmission of supplementary information with a single transmitter in frequency-modulation sound broadcasting	S1
75/10	Immunity of FM broadcast receivers against interference	S2
76-3/10	Transmitting and receiving antennas at VHF and UHF	S1
78-1/10	Standards for the transmission of several sound signals in one television channel in terrestrial or satellite broadcasting including high-definition and enhanced definition television systems	S1
84-1/10	Sound systems for the hearing impaired	S2
85-2/10	Subjective assessment of sound quality in broadcasting using digital techniques	S2
91-1/10	Digital recording of sound programmes on magnetic tape for international exchange	S3
93-1/10	Characteristics of systems in the broadcasting-satellite service (sound) for individual reception by means of portable and vehicular receivers	C2
105-1/10	Multilingual services in multichannel sound systems	S2
106-1/10	Subjective assessment of sound quality	S2
107/10	Characteristics of terrestrial digital sound-broadcasting systems for reception by vehicular, portable and fixed receivers	S1
201-1/10	Transmitting and receiving antennas at LF and MF	S2
204/10	Frequency sharing issues related to the introduction of the broadcasting-satellite service (sound) in the frequency range 1-3 GHz	C2
205-1/10	Evaluating fields from broadcasting transmitting systems operating at frequencies below 30 MHz for assessing exposure to non-ionizing radiation	S2
207/10	Standards for digital audio techniques	S2
208-1/10	Low bit rate audio coding standards	S1
210/10	Objective perceptual quality assessment methods	S1
211-1/10	System parameters for multichannel sound systems	S3
212/10	Planning procedures for HF broadcasting	C2
213/10	Synchronized transmitters in LF and MF sound broadcasting	S2
214/10	Unified identification label for international exchange of sound recordings	S1
215/10	Recording of sound programmes for international exchange	S2
216/10	Archival of sound programmes in broadcasting	S1
217/10	Digital broadcasting in AM bands	S2
218/10	Broadcasting of film programmes with multichannel sound	S2
219/10	Spectrum management issues related to the introduction of the broadcasting-satellite service (sound) in the frequency range 1-3 GHz	S1
220/10	Sujbjective assessment of small, medium and large impairments in sound quality	S2

ANNEX 8

Questions assigned by the Radiocommunication Assembly to Study Group 11

Broadcasting service – television

Question ITU-R No.	Title	Category
1-3/11	Colour television standards	S3
4-5/11	Protection ratios in television	S3
27-3/11	Standards for the high-definition television studio and for international programme exchange	S3
35-4/11	Synchronization necessary for the satisfactory reception of sound and picture signals	S1
36-2/11	Polarization of emissions in the terrestrial broadcasting service (television)	S3
42-2/11	Enhanced television	S3
43-1/11	Technical bases required for planning the broadcasting service (television) in bands 8, 9 and 10	S3
45-1/11	Processability margins required for contribution programme material in television production	S3
47-1/11	Standards for digital high-definition television	S1
49-1/11	Characteristics of television signals radiated in bands above 2 GHz from terrestrial broadcasting transmitters	S2
55-1/11	Conditions for a satisfactory television service in the presence of reflected signals	S3
64-4/11	Objective quality parameters and associated measurement and monitoring methods for digital television signals	S3
65-1/11	Interfaces for digital video signals	S1
72-1/11	Multiplexing of data services in a broadcasting channel	S3
73/11	International exchange of captioning material for television programmes	S3
74-1/11	Data broadcasting services provided in a broadcasting channel	S3
75/11	Methods of reducing interference to the broadcasting service (television) from other services operating in the same or adjacent bands	S3
77-1/11	Conditional-access broadcasting systems	S1
79/11	Terrestrial emission of enhanced television	S3
85-1/11	Improved use of the bands allocated to the broadcasting-satellite service (sound and television) in the frequency range 11.7-12.7 GHz	C1
86-1/11	Frequency sharing for the feeder links to a broadcasting satellite (sound and television)	C1
89-1/11	Sharing studies between high-definition television (HDTV) in the broadcasting-satellite service and other services	C1
92-1/11	Digital techniques in the broadcasting-satellite service (sound and television)	S1
93-1/11	Transmitting and receiving antennas for the broadcasting-satellite service (sound and television) and for the associated feeder links	C1
94-1/11	Radiation of unwanted emissions from space stations in the broadcasting-satellite service (sound and television)	S1
99-1/11	Telemetry, tracking and command signals and test signals for maintenance testing of broadcasting-satellite radio-frequency characteristics	S2
100-1/11	Satellite broadcasting of high-definition television (HDTV)	C2
101-1/11	Integrated services digital broadcasting (ISDB) in the broadcasting-satellite service (sound and television)	S2

Broadcasting service – television *(continued)*

Question ITU-R No.	Title	Category
103-1/11	Small format recording of television programmes on magnetic tape for international exchange	S2
104-2/11	Recording of television programmes on optical or magneto-optical disks for international exchange	S3
108-1/11	Digital recording of high-definition television programmes for international exchange	S3
115-1/11	Interconnection specifications for audiovisual equipment related to broadcasting	S3
119-1/11	The harmonization of standards between broadcast and non-broadcast applications of television	S1
121-1/11	Digital terrestrial television broadcasting	S1
202/11	Synchronization of digital video and audio bit streams in production	S1
203/11	Coding for the broadcasting of digitally-encoded TV signals in terrestrial narrow-band channels	S1
204/11	Data broadcasting systems and services in an HDTV environment	S3
205/11	Parameters for integrated services digital broadcasting (ISDB)	S2
206-1/11	Standards for the digital encoding of colour television signals	S3
207-2/11	Generic bit rate reduction coding of digital TV signals (SDTV, EDTV and HDTV) for contribution, for primary and secondary distribution, for emission and for related applications	S1
210-2/11	Planning parameters for television broadcasting using digital terrestrial narrow-band channels	S1
211-2/11	Subjective assessments of the quality of television pictures including alphanumeric and graphic pictures	S3
213/11	Target digital HDTV standard for use in the development of future systems for the studio and for international programme exchange	S1
214/11	User requirements for interconnection of digital HDTV studio equipment operating at full or reduced bit rate	S1
217/11	Digital multi-programme television emissions within a satellite transponder	C1
218/11	Technical characteristics of feeder links to broadcasting satellites operating in the 12, 17 and 21 GHz bands	C1
220/11	Characteristics of systems in the broadcasting-satellite service (sound and television) for reception by transportable and fixed receivers	S2
221/11	Characteristics of receiving systems in the broadcasting-satellite service (sound and television)	S2
222/11	Satellite orbits and space station technology for the broadcasting-satellite service (sound and television)	S2
223/11	Protection ratios for interference studies and system planning in the broadcasting-satellite service (sound and television)	C1
224/11	Simultaneous transmissions of TV programmes on BSS and FSS services from a multiservice space station	S1
225/11	Overall coordination of the technical characteristics and associated test methods for the separate parts of the television signal chain	S2
226/11	Extremely high-resolution imagery	S3
230/11	Acquisition and recovery times in digital television encoding	S2
231/11	Digital HDTV studio interfaces	S1
232/11	Interactive television broadcasting systems	S1
233/11	Unified identification label for international exchange of television recordings and films for television	S3

Broadcasting service – television *(end)*

Question ITU-R No.	Title	Category
234/11	Subjective assessment of stereoscopic television pictures	S3
235/11	Digital coding and compression of stereoscopic television pictures	S3
236/11	User requirements for electronic news gathering (ENG)	S1
237/11	Data structure and requirements for multimedia-hypermedia broadcasting services	S3
238/11	Television recording format for long-term programme archives	S3
239/11	Recording of television programmes for international exchange	S3
240/11	Use of cinematographic film in television	S3
241/11	Interactive satellite broadcasting systems (television, sound and data)	S1
242/11	Use of television disc recording in broadcasters' operation	S3
243/11	Enhancement of conventional analogue television	S3
244/11	Frequency requirements for electronic news gathering	S2
245/11	Use of CD-ROM programme material for television broadcasting	S3
246/11	Recording of television programmes for delayed re-broadcasting at regional centres	S3
247/11	Access to orbit and spectrum resources for broadcasting-satellite service and fixed satellite service «direct-to-home» applications	S2
248/11	Harmonization of methods for delivery of multichannel digital services to the home	S1
249/11	Use of computer technology in television broadcasting applications	S2
250/11	Digital coding for multi-programme television	S2
251/11	User requirements in the area of file management and transfer protocols for television recording in programme production	S3
252/11	Serial data transport mechanism for packetized data within a television production studio based on, and compatible with, Recommendation ITU-R BT.656	S3
253/11	Assessment and optimization of quality of colour reproduction in television	S3
254/11	Adaptive image quality enhancement in future TV systems	S3
255/11	Auxiliary signals for digital codecs to assist editing and cascading	S3