

세계전기통신표준총회(WTSC) 동향

Results in WTSC-96

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세계전기통신표준총회(WTSC)는 새로운 전기통신 환경변화에 따라, CCITT 총회가 명칭을 달리한 것으로 이번이 2번째 회의이다. 통상 4년마다 개최되며, 표준 제·개정, 차기 표준화과제 확정, 표준화관련 제도 제·개정, 연구반 의장단 선출, 리드그룹 선정, ITU-T 예산 확정을 다룬다. 본 고에서는 WTSC의 전반적인 변화내용에 대해 분석한다.

I. 머리말

1980년대 중반이후 지역표준화기구와 민간표준화기구의 활동이 활발해짐에 따라, ITU는 세계표준화활동을 선도하기 위한 기존의 방법에 대한 변화를 모색하게 되었다.

130년의 역사와 186개국의 방대한 회원국을 보유한 ITU의 표준화속도 및 과정에 만족하지 못하는 지역표준화기구등이 자체 표준화를 들고 사업자간의 표준을 설정하여 사용하고 있는 관계로 ITU는 이에 대응하기 위해 다각도로 관련 헌장 및 협약을 개정하면서 신속한 표준화 방법 등을 채택하기 시작하였다.

이러한 결과로서 ITU의 새로운 조직으로서 ITU-T가 구성되었고, 이의 작업방법 등 전체적인 운영을 결정하는 WTSC가 새로이 발족되었다. 본 고에서는 이번 WTSC회의에서 주로 다룬 내용 및 1997년-2000까지의 연구과제를 정리하여본다.

II. WTSC의 주요회의 내용

1. 연구반 조직변경

1980년대 들어오면서 ITU의 조직개편의 필요성이 논의되어 오다가 1988년 ITU이사회에서 구체화되어 1989년 니스 전권위원회에서 헌장 및 협약이 개정되고 1992년 추가전권위원회를 소집하여, ITU의 조직개편이 127년만에 단행되었다. 단행된 내용으로는 전기통신표준화분야, 전파분야, 전기통신개발분야의 3가지 분야로 개편하였으며, 표준화분야는 CCITT와 CCIR의 표준화 분야를 통합하게 되었다.

이번 WTSC에서는 1993년 제1차 WTSC 이후 유지되어 오던 작업구조 등이 변경되었다. 이에 따라 동 회의에서 결정된 연구반은 ITU-T SG1과 SG14 분야가 폐지되고, 멀티미디어분야인

〈표 1〉 ITU-T의 조직변경내용

종 전	변 경
SG1: Service definition	SG1: 해 체
SG2: Network Operation	SG2: Network and <u>Service</u> Operation
SG3: Tariff and accounting Principles	SG3: Tariff and accounting Principles <u>related Telecommunication Economic and Policy Issues</u>
SG4: Network maintenance	SG4: <u>TMN</u> and Network maintenance
SG5: Protection against electromagnetic environment effects	SG5: 좌 등
SG6: Outside plant	SG6: 좌 등
SG7: Data networks and open system communications	SG7: 좌 등
SG8: Terminals for telematic services	SG8: <u>Characteristics</u> Terminals of telematic <u>Terminal</u> services
SG9: (former CMTT): Television and Sound transmission (신설)	SG9: 좌 등
SG10: Languages for telecommunication application	SG10: <u>Languages and General Software Aspects for telecommunication System</u>
SG11: Switching and signalling	SG11: <u>Signalling Requirements and Protocols</u>
SG12: End to end transmission performance of networks and terminals	SG12: 좌 등
SG13: General network aspects	SG13: 좌 등
SG14: Modem and transmission techniques for data, telegraph and telematic services	SG14: 해 체
SG15: Transmission system and equipment	SG15: <u>Transport Networks</u> , System and equipment
TSAG: Telecommunication Standardization Advisory Group	SG16: Multimedia Services and system (신설) TSAG: Telecommunication Standardization Advisory Group

〈표 2〉 특정 연구분야의 선도 연구반(Lead Study Group)

Lead Study Group	분 야
SG 2	Service definition, Numbering, Routing and Global Mobility
SG 4	TMN
SG 7	ODP, Frame Relay and for Communications Systems Security
SG 8	Facsimile
SG11	IN and FPLMTS
SG13	General network aspects, GII and B-ISDN
SG15	Access Network Transport
SG16	Multimedia Services and systems

로 이관되었으며, 2) 멀티미디어에 대한 연구반이 SG 16(멀티미디어 서비스 및 시스템)으로 신설되고 3) 여러 연구반에 걸친 유사 연구분야에 대한 Lead Study Group을 정한 것을 가장 큰 특징으로 꼽을 수 있다.

새로 조직된 선도연구반(Lead Study Group)과 연구반의 구성 대한 내용을 각각 〈표 2〉와 〈표 3〉에 나타내었다.

SG16이 신설되었다. 변경된 내용은 〈표 1〉과 같다.

구체적으로 1) SG 1(서비스 정의) 및 SG 14(모뎀 및 데이터/전신/텔리매텍 서비스를 위한 전송 기법)가 폐지되면서 연구과제들이 다른 연구반으

2. ITU-T의 변화된 작업방법 및 연구조직

ITU-T는 금번 WTSC-96을 통하여 ITU-T를 움직이는 표준화 제도의 개편은 물론이고, 연구반을 재구성함으로써 변화하는 표준화환경에 대응

〈표 3〉 1997 ~ 2000 연구회기 동안의 ITU-T 연구반 구성 및 의장단

연구반	연구반명	의장단	
		(의장)	(부의장)
SG 2	Network and service operation	G. Gosztony (헝가리)	A. Lewis(헝가리) B. Martory(프랑스) R. Blane(그리스)
SG 3	Tariff and accounting principles including related telecommunications, economic and policy issues	T. Matsudaira (일본)	W. Lucas(그리스) S.M. Al Tiwani(오만)
SG 4	TMN and network maintenance	D. Sidor (미국)	N. Fujii(일본) A. Rojdestvensky(러시아)
SG 5	Protection against electromagnetic environment effects	G. Meineri (이탈리아)	G.Varju(헝가리)
SG 6	Outside plant	L. Molleda (스페인)	1차 회의에서 결정
SG 7	Data networks and open system communications	H. Bertine (미국)	Y. Hiramatsu(일본) 이영희(한국) V. Ossipov(러시아)
SG 8	Characteristics of telematic systems	W. Staudinger (독일)	A. Pugh(그리스) A. Macchioni(이탈리아)
SG 9	Television and sound transmission	J. L. Tejerina (스페인)	R. Green(미국) H. Murakami(일본)
SG10	Languages and general software aspects for telecommunication systems	A. Sarma (독일)	A. Meisingset(노르웨이)
SG11	Signalling requirements and protocols	S. Kano (일본)	E.A. Matarazzo(브라질) W. Vandebroek(벨지움) Ph. Distler(프랑스)
SG12	End-to-end transmission performance of networks and terminals	M. Cao (중국)	C. Dvorak(미국) J. Y. Montfort(프랑스)
SG13	General network aspects	B. W. Moore (그리스)	J. Luetchford(캐나다) K. Asatani(일본) F. Lucas(프랑스)
SG15	Transport networks, systems and equipment	P. Wery (캐나다)	M. Yamashita(일본) G. Bonaventura(이탈리아)
SG16	Multimedia services and systems	P. A. Probst (스위스)	J. Magill(그리스) F. Tosco(이탈리아) G. Helder(미국)
TSAG	Telecommunication Standardization Advisory Group	G. Fishman (미국)	J. Fanjul(스페인) I. Kreinguel(러시아) 박기식(한국) B. Brett(캐나다) N. Kisrawi(시리아)

하고 있다.

이번 WTSC회의를 통해 지난 연구회기에 비해 특별히 변화된 점으로는 표준의 승인이 대부분 연구회기중에 이루어짐으로써 연구회기중 표준의 승인절차의 적용이 정착단계에 이르고 있음을 보

여주고 있으며, 표준화자문역할을 하는 TSAG의 역할이 연구회기중 연구반을 신설할 수 있는 집행 권한을 가질 수 있도록 하는 등 그 권한이 강화되어 표준화 전략 측면에서의 기획조정 기능이 대폭 강화된 점을 대표적으로 꼽을 수 있다.

〈표 4〉 WTSC-96에서 결정된 Resolutions(개정 및 폐기)

Res. No.	Resolution의 제목	현황
1	Rules of procedure of the ITU Telecommunication Standardization Sector(ITU-T)	개정
2	Study Group responsibility and mandates	개정
3	Publication of ITU-T Recommendations and WTSC proceedings	개정
4	Identification and layout of Recommendations	개정
5	Supplements to the ITU-T Recommendations	개정
6	Relation with other standardization organizations	폐기
7	Collaboration with the International Organization for Standardization(ISO) and the International Electrotechnical Commission(IEC)	개정
8	Cooperation with the IEC on the standardization of cables, wires, optical fibres and waveguides	7번에 통합
9	Continued development of Electronic Document Handling	개정
10	Electronic Document handling Group within the Telecommunication Standardization Advisory Group	개정
11	Collaboration with the Consultative Council for Postal Studies(CCPS) of the Universal Postal Union(UPU) in the study of new services concerning both the postal and the telecommunication sectors	개정
12	An information Bulletin for the Telecommunication Standardization Sector	폐기
13	Protection of the common names of ITU-T defined international public services	폐기
14	Establishment of an Intersector Coordination Group(ICG) to deal with satellite matters of common interest to the Telecommunication Standardization and Radiocommunication Sectors	폐기
15	Establishment of an Intersector Coordination Group(ICG) to deal with activities relating to the Future Public Land Mobile Telecommunication Systems(FPLMTS) in the Telecommunication Standardization and Radiocommunication Sectors	폐기
16	Initiation of joint coordination groups to deal with matters of concern to multiple study groups in the Telecommunications Standardization Sector in accordance with Resolution No.1	폐기
17	Telecommunication standardization in relation to the interests of developing countries	개정
18	Principles and procedures for the allocation of work to, and coordination between, the Radiocommunication and Telecommunication Standardization Sectors	개정
19	Inclusion of appropriate work from the Radiocommunication Sector into the programme of the Telecommunication Standardization Sector	폐기
20	Procedures for allocation and management of international numbering resources	개정
21	Collection and dissemination of operational and service information by the Telecommunication Standardization Bureau	폐기

가. 변화된 작업방법

ITU-T를 움직이는 기본적인 제도는 WTSC에서 제·개정되는 결의안(Resolutions)이다. 이번 WTSC-96에서는 TSAG에서 2건의 결의안이 신규로 제안되었으나, 회의중 쟁점이 되었던 ITU-R의 작업을 ITU-T로 이관하는 문제, 이와 관련한 새

로운 연구반의 설립 문제, EDH의 활성화 문제, TSAG의 집행권한 부여 문제 등과 관련하여 새로운 결의안이 제안되어 WTSC회의중 제정되는 결과를 보았다. 〈표 4〉 및 〈표 5〉는 금번 회의에서 제·개정 또는 폐기가 결정된 Resolutions을 정리한 것이다.

〈표 5〉 WTSC-96에서 결정된 Resolutions(신규 제정)

Res. No.	Resolution의 제목	현황
22	Authorization for TSAG to act between WTSCs	신규제정
23	The use of Focus Groups	신규제정
24	Stability of the Telecommunication Standardization Advisory Group	신규제정
25	Action plan to encourage the use of Electronic Document Handling	신규제정
26	Assistance to the Regional Tariff Groups	신규제정
27	Authority for TSAG to establish new Study Groups	신규제정
28	Process for carrying forward work associated with refinement	신규제정
29	Alternative calling procedures on international telecommunication networks	신규제정

또, 표준의 제정에 있어서는 WTSC-93에 비해 WTSC회의에서 제·개정 또는 폐지되는 표준의 수가 격감되어, 협의(consultation; Resolution 1, Section 8)에 의한 효율적인 표준제정이 정착되고 있는 것으로 분석된다. 또 이는 이번 회의중에도 강조된 표준제정의 시의성과도 부합되는 것임과 동시에 WTSC회의의 효율성을 제고시켜 쟁점이 되는 항목에 대한 집중적인 검토를 가능케 하고 연구반 조직 및 표준화방법 측면의 집중적인 토의가 이루어지도록 하였다.

나. 작업방법

표준작업의 방법과 관련하여 이번 회의에서 가장 큰 변화는 연구반의 작업방법과 관련한 부분이 Resolution 1에서 분리되어 권고(A.1)¹⁾로 따로 제정됨으로써 이용자 요구나 시장수요의 반영 등 표준화환경의 변화에 따라 필요 시점에서 연구반에서의 작업방법이 보완될 수 있도록 한 점이다.

표준화의 품질과 관련하여 이는 세계 전기통신표준화기구를 선도하기 위한 중요한 요소임을

인식하고 TSAG에서 지속적인 검토를 하기로 하였다²⁾. 또 표준의 시의성에 대해서도 TSAG에서 새로운 작업방법의 개발을 통하여 지속적으로 검토하기로 하였다(Resolution 1, 22, 23).

또 신속한 대응이 필요한 표준화 항목을 취급하기 위한 Focus Group의 설립이 허용되어 시험적 운용이 가능해짐으로써 ITU-T의 연구반 작업을 가속화하기 위한 기본적 사항이 정리된 것도 표준화 작업방법의 개선책으로 꼽을 수 있다(Resolution 23).

이밖에도 IPR문제와 관련하여, 표준의 실현 또는 구현이 주장되고 있는 IPR(claimed IPR)의 사용일 수도 있다는 점을 제·개정되는 표준의 커버시트에 추가로 기재하기로 하였으며(Resolution 1, Section 8.5.2), 이에 대해서는 지속적으로 개선책을 모색하기로 하였다. 교토 전권위원회의 Resolution 15에 따라 설립된 Review Commit-

1) Work method for Study Groups of ITU Telecommunication Standardization Sector(ITU-T)

2) 표준의 품질에 대한 요소로서 고려되고 있는 것은 상호운용성과 시험성을 보장하는 precision, unambiguity, completeness, implementability 등이다.

tee(RevCom)의 보고서³⁾중 작업방법에 관한 내용의 검토결과 제안된 Recommendation중 일부만이 채택된 점에 대해 앞으로 TSAG이 이를 분석하도록 하고, ITU-T가 이들 권고를 우선적으로 구현하도록 하는 보고서를 채택하였다.

다. TSAG의 역할

이번 회의에서는 특히 자문역할을 하는 TSAG에 대해 집행권한 부여가 이루어졌는데, 첫째 연구회기중의 집행권한으로서 최신의 효과적인 작업 가이드라인 유지, A시리즈 권고(ITU-T의 작업조직)에 대한 책임, 조정그룹의 제안검토 및 합의된 제안의 실현, 신속한 조치를 위한 짧은 주기의 작업반 신설 등이 주어졌으며(Resolution 22), 이와 함께 연구회기중 새로운 연구반의 신설 및 의장단의 구성에 대한 집행권한이 주어졌다(Resolution 27)⁴⁾

또 TSAG의 역할이 ITU-T뿐만 아니라 ITU 전체에서 중요해지고 있으나, TSAG의 존재는 전권 위원회의 승인여부에 달려있는 등 그 법적 기반이 취약하므로, TSAG을 영구적인 기구로서 Convention에 적절한 조항을 신설할 것을 차기 전권위원

회에 권고하도록 하고 있다(Resolution 24).

라. EDH의 활성화

표준작업에의 효율적인 참여를 위한 전자적인 방법의 활용으로서 EDH의 개발 및 이를 위한 TSAG내의 EDH Group의 노력에 대해 동의하고(Resolution 9, 10), 이를 장려하기 위한 실천항목이 구체적으로 결의되었다(Resolution 25)⁵⁾.

마. ITU-T 계열별 연구제목

- A : ITU-T의 작업조직
- B : 표현수단(정의, 기호, 분류)
- C : 전반적 전기통신 통계
- D : 일반 과금원칙
- E : 전반적 망운용(번호계획, 루팅, 망관리, 운용성능 및 트래픽공학) 전화서비스, 서비스 운용 및 휴먼 팩터
- F : 전화 이외의 전기통신서비스(운용, 서비스품질, 서비스 정의 및 휴먼팩터)
- G : 전송시스템과 미디어, 디지털 시스템 및 망
- H : A/V 및 멀티미디어 시스템
- I : ISDN
- J : TV, 음성 프로그램 및 기타 멀티미디어

3) Membership, Financial Matters, Working Methods/ Decision Making, Constitution & Convention의 4개 분야로 작업이 진행되어 27개의 Recommendation을 작성했으나, 이사회에서는 6개 Recommendation만 채택되었다. 또 이사회에서는 이들 문제를 계속 연구하기 위한 새로운 작업반으로서 ITU-2000 Group을 설립하기로 하고 채택되지 못한 Recommendation을 ITU-2000 Group로 되돌렸다.

4) 이번 회의중 ITU-R의 표준화작업을 ITU-T로 이관받아 새로운 연구반을 신설하자는 영국의 제안과 함께 표준화의 전략적인 문제로서 ITU-T와 ITU-R간의 작업조정 문제가 유럽과 미국간의 의견대립으로 이어졌는데, 그룹형식의 검토에 의한 조정을 거쳐 새로운 연구반의 신설문제는 Resolution 27로 정리되었으며, ITU-T와 ITU-R간의 작업조정제에 관한 문제는 Resolution 28로 정리되었다.

5) EDH 향상을 위한 TSB(ITU-T 사무국)의 실행계획으로서 다음의 측면을 언급함

- TSB는 회의 전에 전자적으로 이용가능한 white contribution과 delayed contribution 등의 문서는 회의 직전 전용 장소에서 입수할 수 있도록 함
- TD의 전자적인 형태 입수
- TSB는 회의기간 동안 회의보고서의 작성을 도와 회의 종료시 전체적인 회의보고서의 입수를 가능하도록 함
- 회의종료시 회의보고서가 완료되지 못할 경우 2주 내에 전자적 수단으로 입수가 가능하도록 함
- 실질적 측면으로 PC의 증설 및 회의장 내 데이터엑세스 포트와 콘센트를 증설함

- | | |
|---|---------------------|
| 신호의 전송 | R : 전신전송 |
| K : 간섭보호 | S : 전신 서비스 및 단말장치 |
| L : 케이블 등 옥외설비의 건설, 가설 및 보호 | T : 텔리매틱 서비스용 단말 |
| M : 유지보수 : 국제전송시스템, 전화 회선,
전신, 팩스 및 전용회선 | U : 전신교환 |
| N : 유지보수 : 국제음성프로그램 및 TV전송회선 | V : 전화망을 통한 데이터통신 |
| O : 측정장비의 규격 | W : (미할당) |
| P : 전화전송품질, 전화가설, 로컬라인망 | X : 데이터망 및 개방시스템 통신 |
| Q : 교환 및 신호방식 | Y : (미할당) |
| | Z : 프로그래밍 언어 |

III. ITU-T SG별 차기회기(1997 2000) 연구과제 할당

1. Study Group 2 - Network and service operation

Question	Title	Status	Keywords (area/domain)
1/2	Applications of numbering and addressing plans for fixed and mobile services	Revised Q.5/2	Generic Numbering
2/2	Routing and interworking plans for fixed and mobile networks	Revised Q.6/2	Generic Routing
3/2	Service quality networks	Revised Q.8/2	Generic Network performance, QoS (Customer expectations)
4/2	Network management	Revised Q.9/2	Generic Fault, configuration, accounting, performance and security management
5/2	Facsimile service quality on public networks	Revised Q.2/2	Facsimile Network performance, QoS
6/2	Traffic engineering: performance objectives	Revised and rearranged Qs. 12, 13, 15, 16, 17/2	Generic Traffic engineering (Performance)
7/2	Traffic engineering: measurement and modelling	Revised and rearranged Qs. 12, 13, 15, 16, 17/2	Generic Traffic engineering (Measurement and modelling)
8/2	Traffic engineering: dimensioning and control	Revised and rearranged Qs. 12, 13, 15, 16, 17/2	Generic Traffic engineering (Dimensioning and control)

Question	Title	Status	Keywords (area/domain)
1/1	Bureau services	Continuation Q.1/1	Bureau services Interworking Tariff/charging/ accounting
4/1	Management and development of PSTN-based telecommunication services	Continuation Q.4/1	PSTN based services Service definition
5,6/1	New services and service enhancements for N- ISDN and B-ISDN	Continuation/ expansion Qs.21/1, 22/1, 24/1	ISDN, B-ISDN/ATM Service definition
8/1	Mobile/personal telephone, telegraph, telematic, data, audiovisual and multimedia services	Continuation Q.8/1	Mobile Service definition
9/1	Service aspects of international multipoint communication via satellite	Continuation Q.9/1	Satellite Service definition
10/1	Universal Personal Telecommunication (UPT) service	Continuation Q.7/1	UPT Service definition, human factors, security, charging/accounting
11/1	Human factors issues in telecommunications affecting multiple services or not related to specific services	Combination of Q.17/1, 19/1	Generic Human factors
12/1	Human factors aspects of voice and non-voice services using public terminals	Revision Q.18/1	Public terminals Human factors

2. Study Group 3 - Tariff and accounting principles including related telecommunications economic and policy issues

Question	Title	Status	Keywords (area/domain)
A/3	Study of economic issues and of the impact of national policies as they relate to the development of telecommunication services and networks		
B/3	Reform and development of charging, accounting and settlement principles for the international telephone services	Continuation Q.5/3, 8/3, 9/3, 10/3, 23/3	Tariff/charging/ accounting International telephone systems
C/3	Development of charging, accounting and settlement principles for international mobile services	Continuation Q.7/3, 17/3	Tariff/charging/ accounting International mobile systems
D/3	Development of charging and accounting principles in the non-mobile international telecommunication satellite services	Continuation Q.6/3, 12/3	Tariff/charging/ accounting Satellite
E/3	Development of charging and accounting principles in the data and message communication services	Continuation Q.3/3, 4/3, 8/3, 9/3, 10/3, 18/3, 19/3	Tariff/charging/ accounting Data services, telex, MHS, directories
F/3	Development of charging and accounting principles for B-ISDN services, telecommunication services of a multimedia nature, including those supported by the ATM or offered in conjunction with global information infrastructures	Continuation Q.8/3, 9/3, 10/3, 11/3, 16/3	Tariff/charging/ accounting Multimedia

Question	Title	Status	Keywords (area/domain)
G/3	Development of charging and accounting principles in the services not covered by other Questions	Continuation Q.1/3, 2/3, 19/3, 22/3	Tariff/charging/ accounting Others
H/3	Regional costing studies for the development of cost models together with related economic and policy issues	Continuation Q.13/3, 14/3	
I/3	Terms and definitions for Recommendations dealing with charging and accounting principles	Continuation Q.15/3	Terminology Tariff/ charging accounting

3. Study Group 4 - TMN and network maintenance

Question	Title	Status	Keywords (area/domain)
A/4	Terms and definitions	Continuation of Q.1/4. Revised text	Terminology
B/4	Designations in the international networks (circuits, group and line links, digital blocks, digital paths, data transmission systems, digital blocks created between DCMEs, virtual containers, multiplex sections etc., and related information)	Continuation of Q.17/4. Revised text	Transmission system/ equipment
C/4	Maintenance of switched international circuits including telephone, ISDN and B-ISDN type circuits	Continuation of Q.18/4. Revised text	Transmission system/ equipment, TMN, PSTN Fault, configuration, accounting, performance
D/4	Maintenance of leased circuits and supporting transmission networks	Continuation and integration of Qs 20/4 and 22/4. Revised text	Leased lines, transmission networks, TMN Fault, configuration, accounting, performance
E/4	Assessment of network performance and exchange of information for maintenance purposes	Continuation of Q.8/4. Revised text	Network performance, QoS (information exchange)
F/4	Test and measurement techniques and equipments for use on transmission equipment	Continuation of Q.24/4. Revised text	Transmission system/equipment Testing
G/4	General aspects of test and measurement techniques and equipments	Continuation of Q.25/4. Revised text	Transmission system/equipment Testing
H/4	Common channel signalling maintenance	Continuation of Q.19/4. Revised text	Signalling networks, TMN Fault, configuration, accounting, performance
I/4	Maintenance of digital transport networks	Continuation of Q.16/4. Revised text	Transmission networks Fault, configuration, accounting, performance

Question	Title	Status	Keywords (area/domain)
J/4	Fault, performance and configuration management of ISDNs and B-ISDNs	Continuation of Q.21/4. Revised text	ISDN, B-ISDN/ATM, TMN Fault, configuration, accounting, performance
K/4	Maintenance of mobile telecommunications systems	Continuation of Q.4/4. Revised text	Mobile Fault, performance, configuration management
L/4	TMN principles, architecture and methodology	Continuation of part of Q.23/4. New text	TMN Architecture
M/4	Requirements, integration and management information/models for TMN interfaces	Continuation and elaboration of part of Q.23/4. New text	TMN Interfaces/ Protocols Fault, configuration, accounting, performance and security management
N/4	Requirements for the TMN F interface	Continuation of Q.2/4. Revised text	TMN Interfaces/ protocols (F interface)
O/4	Requirements for the TMN X interface	Continuation of Q.5/4. Revised text	TMN Interfaces/ protocols (X interface)
A/TMN	OSI systems management	Continuation Q.13/7 transferred from SG 7	OSI, TMN Systems management
B/TMN	Quality assurance for TMN specifications	Transferred from SG 7	OSI, TMN
B/11	Managed object definitions for management of telecommunication services, for network management and for network elements, based on TMN interfaces	Continuation Q.25/11	TMN Signalling, Interfaces/protocols (Information models)
K/11	Protocols to support operation, administration and maintenance at the F, Q3 and X interfaces	Continuation Q.11/11	TMN Interfaces/ protocols (F, Q3, X interfaces)
L/11	Protocols for the remote operation of management applications	Continuation Q.26/11	TMN Interfaces/ protocols Traffic management
AE/15	Network level management of transmission systems	Continuation Q.30/15	Transmission networks Transmission systems/equipment Management, TMN

4. Study Group 5 - Protection against electromagnetic environment effects

Question	Title	Status	Keywords (area/domain)
A	Electromagnetic resistibility of telecommunication equipment	Merger of Qs. 1 and 10/5	EMC, protection, safety
B	Protective components and assemblies	Revised Q.2/5	EMC, protection, safety

Question	Title	Status	Keywords (area/domain)
C	Protection of telecommunications lines and installations against lightning	Revised Q.11/5	EMC, protection, safety
D	Bonding configurations and earthing of telecommunication systems	Revised Q.12/5	EMC, protection, safety
E	Human safety related to operating voltages and currents in telecommunication systems	New	EMC, protection, safety
F	Basic principle of emission and immunity requirements for telecommunications	Merger of Qs. 3 and 7/5	EMC, protection, safety
G	Generic emission and immunity requirements	Merger of Qs. 8 and 9/5	EMC, protection, safety
H	Product family emission and immunity requirements	Merger of Qs. 9 and 10/5	EMC, protection, safety
I	Radio frequency effects on telecommunication voice terminals	New	EMC, protection, safety
J	Human safety from electromagnetic field exposure	New	EMC, protection, safety
K	Telecommunications system unbalance	Revised Q.4/5	EMC, protection, safety
L	Interference produced by power lines and electrified railway lines into telecommunications lines	Merger of Qs. 5, 6, 9, 10 and 13/5	EMC, protection, safety
M	Mitigation techniques for telecommunications installations	Revised Q.7/5	EMC, Protection, Safety

5. Study Group 6 - Outside plant

Question	Title	Status	Keywords (area/domain)
A	Environmental issues for the outside plant	Revised Q.1/6	Cables/network components Environmental issues
B	Fire safety of telecommunication installation	Revised Q.2/6	Cables/network components EMC/protection/safety
C	Amendments and additions to the Manuals	Revised Q.5/6	
D	Copper networks for new services (ISDN, ADSL/HDSL, etc.)	Revised Q.6/6	Cables/network components Access networks
E	Optical fibre cable installation	Revised Q.7/6	Cables/network components
F	Optical fibre cable network maintenance	Revised Q.8/6	Cables/network components Maintenance
G	Optical fibre cable construction	Revised Q.9/6	Cables/network components
H	Performance tests and acceptance criteria for optical fibre cables and associated hardware	Revised Q.10/6	Cables/network components Testing
I	Marinized terrestrial cables	Revised Q.11/6	Cables/network components

Question	Title	Status	Keywords (area/domain)
J	Passive optical components	Revised Q.13/6	Cables/network components
K	Electrical power supply for equipment installed in outside plant including customer premises	New	Cables/network components
L	Trenchless techniques for the construction of underground infrastructures for telecommunication cables installation	New	Cables/network components
M	Access facilities using hybrid fibre/copper networks	New	Cables/network components Access networks Sound and television transmission AVMMS

6. Study Group 7 - Data networks and open system communications

Question	Title	Status	Keywords (area/domain)
1/7	Technical characteristics, classes of service, facilities and categories of access for networks providing data communication	Continuation Q.1/7	Data networks Network capabilities
2/7	Network performance and quality of service in data communication networks	Continuation Q.2/7, 19/7 (part)	Data networks (Multimedia, mobile, wireless) Network performance, QoS
3/7	Numbering plan for public data networks	Continuation Q.3/7	Data networks Numbering (interworking)
4/7	Routing principles for public data networks	Continuation Q.4/7	Data networks Routing
5/7	Principles of management for data networks and for the customer network management service	Continuation Q.11/7	Data networks, ATM, TMN, OSI Service management
6/7	Network multicast	Continuation Q.5/7	Data networks Network capabilities (multicast)
7/7	DTE/DCE interface for packet and frame mode DTEs	Continuation Q.6/7 (part), 7/7	Data networks Interfaces/protocols
8/7	Non-native mode terminal access DTE/DCE interface procedures	Continuation Q.8/7	Data networks Network capabilities
9/7	Packet and frame mode signalling between public networks providing data communication	Continuation Q.9/7	Data networks Interworking, Interfaces/protocols
10/7	Interworking for networks providing data communication	Continuation Q.6/7 (part), 10/7	Data networks, ISDN Interworking
11/7	Lower layer protocol and service mechanisms and features	Continuation Q.23/7 (part), 24/7	OSI Service definition, Interfaces/protocols

Question	Title	Status	Keywords (area/domain)
12/7	Data compression	Continuation Q.23/7 (part)	Data networks Compression
13/7	End-to-end multicast	Continuation Q.19/7 (part), 23/7 (part)	Data networks Network capabilities (multicast end-to-end)
14/7	Message handling systems	Continuation Q.14/7, 18/7 (part)	MHS
15/7	Directory systems	Continuation Q.15/7, 18/7 (part)	Directories
16/7	Open distributed processing	Continuation Q.16/7	Software/application Open distributed processing (ODP)
17/7	Testing of data communication protocols	Continuation Q.17/7	ATM Conformance/testing
18/7	X.400 and X.500 conformance testing	Continuation Q.18/7 (part)	MHS Conformance/testing
19/7	Open systems architecture	Continuation Q.19/7 (part)	OSI Architecture
20/7	Security services, mechanisms and protocols	Continuation Q.20/7	OSI Security
21/7	Naming, addressing and registration	Continuation Q.19/7 (part), 21/7 (part)	OSI Naming/addressing/ registration
22/7	Open systems interconnection application, presentation and session layers	Continuation Q.18/7 (part), 21/7 (part), 22/7	OSI Upper layers
23/7	Revision of Recommendations	Continuation Q.25/7	
3/1	Directory services	Continuation Q.5/1, 13/1	Directories Interworking
AAA/7 extracted from Q.2/1	Message handling services	Continuation Q.10/1, 11/1, 12/1 Extracted from Q.2/1	MHS generic

7. Study Group 8 - Characteristics of telematic systems

Question	Title	Status	Keywords (area/domain)
1/8	Facsimile terminals	Proposed by Questions 5 and 9/8 during 1993- 1996	Facsimile
2/8	Facsimile test charts and test images	Proposed by Q.6/8 during 1993-1996	Facsimile
5/8	Colour for telematic applications	Proposed by Q.4/8 during 1993-1996	Telematic services Coding

Question	Title	Status	Keywords (area/domain)
6/8	Common components for image communication	Proposed by Q.16/8 during 1993-1996	AVMMS Coding
7/8	Coded character sets and control functions for telematic and other ITU-T services	Proposed by Q.17/8 during 1993-1996	Telematic services coding
8/8	Communication protocol PCIs for terminal equipment	Proposed by Q.21/8 during 1993-1996	Interfaces/protocols (PCI)
9/8	User interfaces for terminal equipment and protocols	Proposed by Q.1/8 during 1993-1996	Interfaces/protocols (API)
10/8	Cooperative document handling	Proposed by Q.3, Q.8 and Q.15/8 during 1993-1996	Software/applications
BBB/8 extracted from Q.2/1	Document communication services	Continuation Q.10/1, 11/1, 12/1 Extracted from Q.2/1	Software/applications (file transfer) Facsimile Interface/protocols

8. Study Group 9 - Television and sound transmission

Question	Title	Status	Keywords (area/domain)
A/9	Definition of hypothetical reference connection for combined analogue-and-digital and all digital sound-programme transmission	Continuation Q.12/9	Sound and television transmission
B/9	Digital transmission of sound-programme signals	Revised Q.40/9	Sound and television transmission Coding
C/9	Performance of sound-programme transmission using all-digital circuits	Continuation Q.41/9	Sound and television transmission Network performance/QoS
D/9	Performance of digital networks carrying sound- programme signals for broadcasting	Continuation Q.38/9	Sound and television transmission Network performance/QoS
E/9	Maintenance and alignment of digital sound- programme circuits	New Question transferred from SG 4	Sound and television transmission maintenance
F/9	Subjective and objective assessment of sound quality in broadcast transmission circuits	Continuation Q.42/9	Sound and television transmission Network performance/QoS Test- ing
G/9	Methods of measurement, test signals and operational requirements for sound-programme transmission	Continuation Q.43/9	Sound and television transmission Network performance/QoS Testing
H/9	Transmission time differences between the sound and vision components of a television signal	Continuation Q.15/9	Sound and television transmission Network performance QoS

Question	Title	Status	Keywords (area/domain)
I/9	Maintenance and alignment of digital television circuits	New Question transferred from SG 4	Sound and television transmission maintenance
J/9	Digital transmission of conventional television and high-definition television signals for contribution	Continuation Q.23/9	Sound and television transmission Coding
K/9	Digital transmission of conventional and high- definition television signals for primary distribution	Continuation Q.29/9	Sound and television transmission Coding
L/9	Performance of digital networks carrying television signals for broadcasting	Continuation Q.37/9	Sound and television transmission Network performance/QoS
M/9	Transmission of MPEG-compressed television signals on 34-45 Mb/s circuits	Revised Q.35/9	Sound and television transmission Transmission (PDM, SDH)
N/9	Transmission of enhanced television signals over digital links	Revised Q.36/9	Sound and television transmission gos
O/9	Use of non-homogeneous networks comprising digital and analogue links for the secondary distribution of television	Continuation Q.37/9	Sound and television transmission Architecture
P/9	Digital secondary distribution of conventional and high-definition television	Revised Q.5/9	Sound and television transmission Architecture, coding
Q/9	Multimedia data transmission on non- homogeneous cable transmission systems	New Question	AVMMS, sound and television transmission Interfaces/protocols
R/9	Physical layer of Multichannel Multipoint Distribution Systems (MMDS)	Continuation Q.45/9	Sound and television transmission, MMDS Architecture
S/9	Use of hybrid links for the secondary distribution of television into the user's premises	Continuation Q.34/9	Sound and television transmission Transmission
T/9	Asymmetric networks for television distribution services such as video on demand	Continuation Q.44/9	Sound and television transmission Architecture
U/9	Laws of addition for impairments associated with all-digital and mixed analogue-and-digital transmission of television signals	Continuation Q.6/9	Sound and television transmission Network performance/QoS
V/9	Measurement and control of the quality of service of digital television transmission on contribution and/or distribution networks	New Question	Sound and television transmission Network performance/QoS Testing
W/9	Development of an assessment aid for MPEG-2 codecs	Continuation Q.39/9	Sound and television transmission coding
X/9	Requirements and possibilities for interactivity in the secondary distribution of television	Continuation Q.32/9	Sound and television transmission, AVMMS Interfaces/protocols

Question	Title	Status	Keywords (area/domain)
Y/9	Additional services carried on networks predominantly intended for the secondary distribution of television	Continuation Q.31/9	Sound and television transmission, AVMMS Service definition
Z/9	Access systems for interactive services in SMATV networks	New Question	Sound and television transmission interfaces/protocols
AA/9	Electronic programme guides	New Question	Sound and television transmission, AVMMS
AB/9	Conditional access methods and practices for digital cable distribution to the home	New Question	Sound and television transmission Security
AC/9	Statistical multiplexing of several programmes on a transmission channel	New Question	Sound and television transmission Transmission
AD/9	Terminology for television and sound transmission	New Question	Sound and television transmission Terminology

9. Study Group 10 - Languages and general software aspects for telecommunication systems

Question	Title	Status	Keywords (area/domain)
1/10	Description techniques for GII interfaces		GII Interfaces/ protocols
2/10	ITU-T object definition language	Text modified	ODP Languages
3/10	Software platforms and middlewares for the telecom domain	Text modified	Software/ applications, GII
4/10	Software quality of telecommunication systems	Continuation Q.4/10	Software/ applications
5/10	Specification of behaviour in GDMO		TMN, Languages Management
6/10	Maintenance and support of SDL	Continuation Q.6/10	Languages
7/10	Support for fast development of protocol standards using formal methods		Languages
8/10	Testing based on formal specifications and validation of formal specifications	Continuation Q.8/10	Languages Testing
9/10	Maintenance of message sequence charts (MSCs) syntax and semantics	Continuation Q.9/10	Languages
10/10	Maintenance and evolution of chill (continuation of Question 10/10 studied in 1993-1996)	Continuation Q.10/10	Languages
11/10	Graphic GDMO		TMN, languages Management
12/10	Specification of HMI data for a GDMO/ASN.1 object model	Continuation Q.12/10	TMN, languages Management
13/10	Design principles for Human-Machine Interfaces (HMI) for the management of telecommunications network resources and services		TMN Management Human factors

10. Study Group 11 - Signalling requirements and protocols

Question	Title	Status	Keywords (area/domain)
A/11	Signalling and protocol framework for an evolving environment	Continuation Q.5/11 Clarification on the scope Partly transferred to SG 13	Architecture
C/11	Signalling System No. 7 - Management (OMAP)	Continuation Q.4/11	TMN, signalling networks (SS 7 management)
D/11	Access and network security requirements	Continuation Q.29/11	Security (access and network security)
E/11	The unified functional methodology for the specification of protocol requirements for services and network capabilities	Continuation Q.1/11	Interfaces/protocols
F/11	Intelligent network capability sets	Continuation Q.6/11	Intelligent network Network capabilities
G/11	New signalling capabilities and requirements for advanced broadband multimedia services	Continuation Q.10/11	B-ISDN, AVMMS Signalling
H/11	Signalling, call handling and management requirements for universal personal telecommunications and for use mobility in future public land mobile systems	Continuation Q.7/11	UPT, mobility Signalling, interfaces/protocols
I/11	Signalling requirements for emerging land mobile and satellite mobile networks	Continuation Q.8/11	FPLMTS, mobile signalling
J/11	Signalling requirements for transmission equipment including satellite systems	Continuation Q.9/11	Transmission, satellite signalling
M/11	Common upper layer protocols to support signalling applications	Continuation Q.18/11	Signalling networks Interfaces/protocols
N/11	Access signalling to support narrow-band and broadband ISDN services and third generation (FPLMTS) mobile networks	Continuation Q.15/11	B-ISDN/ATM, ISDN Signalling (UNI)
O/11	Network signalling for the support of narrow-band ISDN services	Continuation Q.21/11 and Q.2/11 (part)	ISDN Signalling (NNI)
P/11	Network signalling for the support of broadband services and third generation land mobile networks (FPLMTS)	Continuation Q.22/11	B-ISDN/ATM, FPLMTS Signalling (NNI)
Q/11	Updating and enhancements of ISDN user-network interface data link layer protocol	Continuation Q.12/11	ISDN Interfaces/ protocols (UNI)
R/11	Asynchronous transfer mode adaptation layer for signalling	Continuation Q.14/11	B-ISDN/ATM Signalling
S/11	Common channel Signalling System No. 7 - Network service part (MTP and SCCP)	Continuation Q.16, 17, 19 (part) and 2 (part)	Signalling networks Interfaces/protocols
T/11	Updating of Q-Series Recommendations	Continuation Q.27/11	
U/11	Reliability aspects of Signalling System No. 7	Continuation Q.20/11	Signalling networks Networks performance, QoS

Question	Title	Status	Keywords (area/domain)
V/11	Signalling methods used by alternative calling procedures		

11. Study Group 12 - End-to-end transmission performance of networks and terminals

Question	Title	Status	Keywords (area/domain)
A/12	Evolution of the programme of work	Continuation Q.1/12	
B/12	Specification and test principles for hands-free terminals, acoustic echo cancellers and speech enhancement devices	Continuation Q.2/12, 19/12	Terminal equipment Signal processing, interworking
C/12	Definitions in the fields of telephony, speech signal processing, video signal processing, multimedia, terminal equipment and of characteristics of international connections and circuits	Continuation Q.3/12	Terminology
D/12	Updating the "Handbook on Telephony"	Continuation Q.4/12	Telephony
E/12	Transmission planning in the evolving mixed analogue/digital and ISDN networks	Continuation Q.6/12, 25/12	PSTN-ISDN Transmission
F/12	Analysis methods using complex measurement signals	Continuation Q.7/12	Transmission, telephony Testing
G/12	General aspects in telephone electroacoustic measurement	Continuation Q.8/12, 9/12, 12/12, 23/12	Telephony Testing
H/12	Speech transmission characteristics and measurement methods for digital handset and hands-free terminals for both telephone band (300 - 3 400 Hz) and wideband (50 - 7 000 Hz)	Continuation Q.2/12, 10/12, 20/12	Transmission performance Testing
I/12	Noise aspects in evolving networks	Continuation Q.11/12	Transmission performance Testing (Noise aspects)
J/12	Objective measurement of speech quality under conditions of non-linear processing	Continuation Q.13/12	Testing, coding (Speech quality)
K/12	Interconnection of private networks with the public ISDN/PSTN	Continuation Q.15/12	ISDN/PSTN Transmission performance (private networks connection)
L/12	Methods and tools for the subjective assessment of digital transmission systems	Continuation Q.13/12, 18/12	Transmission performance Testing (digital processing equipment)
M/12	Echo, transmission time and stability in multicarrier network environments	Continuation Q.22/12	Transmission performance (multicarrier network)
N/12	Subjective methods for evaluating audiovisual quality in multimedia services	Continuation Q.22/12	Transmission performance (multimedia services) AVMMS
O/12	In-service non-intrusive assessment of voiceband channel transmission performance	Continuation Q.24/12	Transmission performance (Non-intrusive measurement)

Question	Title	Status	Keywords (area/domain)
P/12	Efficiency of devices for preventing the occurrence of excessive acoustic pressure by telephone receivers	Continuation Q.26/12	Telephony
Q/12	Cordless and mobile terminal audio performance and testing requirements	Continuation Q.27/12	Wireless, mobile, terminals Testing
R/12	Transmission performance considerations for networks which are implemented using ATM technology	Continuation Q.28/12	B-ISDN/ATM Transmission performance
S/12	Analysis and extension of the E-model	New Question	Telephony
T/12	Objective methods for evaluating audiovisual quality in multimedia services	Continuation Q.22/12	AVMMS Performance/ QoS (end-to-end)
U/12	Radio frequency effects on telecommunication voice terminals	New Question, same as Q.I/5	Terminals EMC/protection/safety

12. Study Group 13 - General network aspects

Question	Title	Status	Keywords (area/domain)
A/13	New network capabilities for networks other than B-ISDN	Continuation of Q.1/13	ISDN Network capabilities
B/13	Network capabilities required for the support of B-ISDN based services	Continuation of Q.2/13, 4/13	B-ISDN/ATM Network capabilities
C/13	Network capabilities for interactive multimedia services	Continuation of Q.3/13	AVMMS Architecture, network capabilities
D/13	ATM layer	Continuation of Q.5/13	B-ISDN/ATM Network capabilities (AAL)
E/13	ATM adaptation layer	Continuation of Q.6/13	B-ISDN/ATM Network capabilities (AAL)
F/13	OAM and network management in B-ISDN	Continuation of Q.7/13	B-ISDN/ATM Management (Network)
G/13	B-ISDN resource management	Continuation of Q.8/13	B-ISDN/ATM Network performance/QoS, Traffic management
H/13	B-ISDN interworking	Continuation of Q.9/13	B-ISDN/ATM Interworking
I/13	Interworking of 64k ISDNs with other networks	Continuation of Q.10/13	ISDN Interworking
J/13	ISDN Frame Mode Bearer Service (FMBS)	Continuation of Q.11/13	ISDN (Frame-relay) Interworking
K/13	Enhancement and maintenance of ISDN layer 1 Recommendations	Continuation of Q.13/13	ISDN, B-ISDN Interfaces/protocols
L/13	Access network architecture principles and the interface functional characteristics	Continuation of Q.14/13	Access networks Architecture, network capabilities
M/13	General performance issues	Continuation of part of Q.16/13	GII Network performance/QoS

Question	Title	Status	Keywords (area/domain)
N/13	B-ISDN ATM cell transfer performance	Continuation of part of Q.16/13	B-ISDN/ATM Network performance/QoS
O/13	Availability performance	Continuation of Q.17/13	B-ISDN/ATM Network performance/QoS
P/13	Transmission error performance	Continuation of Q.19/13	B-ISDN/ATM, SDM Network performance/QoS
Q/13	Call processing performance	Continuation of Q.20/13	B-ISDN/ATM Network performance/QoS
R/13	Network synchronization and time distribution performance	Continuation of Q.21/13	SDH Synchronization
S/13	Transport network architecture and interworking principles	Continuation of Q.23/13, Q.24/13 and part of Q.25/13	Transport network, SDH Architecture, interworking
U/13	Support of broadband connectionless data services on B-ISDN	Continuation of Q.27/13	B-ISDN/ATM Interfaces/ protocols (IP over ATM)
V/13	General coordination of the network aspects for the support of interactive multimedia services	Continuation of Q.28/13	AVMMS Architecture, network capabilities
W/13	Use of the satellite transmission medium in the framework of the ISDN	Continuation of Q.29/13	B-ISDN/ATM, ISDN, Satellite network capabilities
X/13	General network studies	New Question	Open networking, Internetworking
Y/13	Global Information Infrastructure (GII)	New Question	GII (Standardization plan)
Z/13	GII principles and framework	New Question	GII Architecture, terminology
AA/13	Multimedia customer access layer 1 requirements	New Question	AVMMS, access network (CPN) Architecture Interfaces/protocols
AB/13	Interworking between mobile and other networks	New Question	Mobile, data networks, B-ISDN/ATM, ISDN Interworking
AC/13	Vocabulary for general network aspects	Contribution of Q.26/13	Terminology
AD/13	Telecommunications architecture for an evolving environment	New Question covering part of Q.A/1	Architecture

13. Study Group 15 - Transport networks, systems and equipment

Question	Title	Status	Keywords (area/domain)
L/15	Operation and administration aspects of signal processing network equipment	Continuation of part of Q.9/15, 13/15, 15/15, 16/15	Signal processing Management, TMN

Question	Title	Status	Keywords (area/domain)
O/15	Circuit Multiplication Equipment (CME) and Systems (CMS)	Continuation of part of Q.9/15, 13/15	CME Signal processing Management, TMN
P/15	Network echo control and interaction of acoustic echo controllers and network equipment	Continuation Q.14/15, 15/15	Signal processing
Q/15	Speech, voiceband and audio transmission in ATM/B-ISDN systems	Continuation Q.16/15	B-ISDN/ATM Signal processing
R/15	SDH equipment and network protection/restoration	Continuation Q.17/15, 19/15 Text modified to include part of old Q.24/11	Transmission networks, SDH FCAPSM
S/15	ATM equipment	Continuation Q.18/15 and part of Q.24/11 Text modified to include part of old Q.24/11	B-ISDN/ATM Transmission system/equipment
T/15	Digital hierarchy bit rates, interfaces, multiplexing structures and interworking	Continuation Q.22/15 and part of Q.25/13	Transmission networks Transmission system/equipment
U/15	Access network transport	New Question	Access networks Generic
V/15	Characteristics and test methods of optical fibres and cables	Continuation Q.23/15	Cables/network components Transmission system/equipment
W/15	Characteristics of optical systems in local access networks for transport and distribution	Continuation and extension of Q.24/15	Cables/network components Transmission system/equipment
X/15	Characteristics of optical systems for inter-office and long distance networks	Continuation Q.25/15	Cables/network components Transmission system/equipment
Y/15	Characteristics of active and passive optical components and sub-systems	Continuation Q.26/15	Cables/network components Transmission system/equipment
Z/15	Characteristics of optical fibre submarine cable systems	Continuation Q.27/15	Cables/network components Transmission system/equipment
AA/15	Reliability and availability of optical systems	Continuation Q.28/15	Cables/network components Transmission system/equipment
AB/15	Characteristics of optical networking	New Question	Cables/network components Transmission system/equipment

Question	Title	Status	Keywords (area/domain)
AC/15	Management functions and services of transmission systems and equipment	Continuation of part of Q.29/15	Transmission networks Transmission systems/equipment Management, TMN
AD/15	Management of transmission equipment from the element level view	Continuation of part of Q.29/15	Transmission networks Transmission systems/equipment Management, TMN
B/14	DCEs for digital leased circuits	Revised Q.3/14	Leased lines Terminal equipment adaptor
I/14	DCEs for subscriber access systems	New Item 1), items for study deleted from the text	Terminal equipment adaptor (cable, HDSL, ADSL, VDSL)
J/14	Muldexes and statistical muldexes for telegraphy and data transmission using digital bearer channels	Revised Q.12/14	Transmission, TDM

14. Study Group 16 - Multimedia services and systems

Question	Title	Status	Keywords (area/domain)
7/1	Audiovisual/multimedia services	Continuation of Q.20/1	Multimedia Service definition
3/8	Interactive Multimedia Information Retrieval Services (MIRS)	Proposed by Questions 2, 7 and 11/8 during 1993-1996	AVMMS Interfaces/protocols Software/applications (API)
4/8	Data protocols for multimedia conferencing	Proposed by Q.10/8 during 1993-1996	AVMMS Interfaces/protocols
A/14	Modems for switched telephone network and telephone-type leased circuits	Revised Q.1/14	PSTN, leased lines Terminal equipment adaptor
C/14	ISDN terminal adapters, and interworking of DTEs on ISDNs with DTEs on other networks	Revised Q.5/14	ISDN Terminal equipment adaptor Interworking
D/14	DTE-DCE interchange circuits	Revised Q.6/14	Interfaces/protocols (DTE-DCE)
E/14	DTE/DCE protocols	Revised Q.7/14	Interfaces/protocols (DTE-DCE)
F/14	DCE/DCE protocols	Revised Q.2/14	Interfaces/protocols (DTE-DCE)
G/14	Text telephony	Revised Q.8/14	Telematic services
H/14	Testing	Revised Q.10/14	Testing (DCE)
A/15	Circuit-Switched Network (CSN) multimedia systems and terminals	Continuation of parts of Q.2/15, 3/15	AVMMS PSTN, ISDN Terminals
B/15	B-ISDN multimedia systems and terminals	Continuation of parts of Q.1/15, 2/15, 3/15	AVMMS B-ISDN/ATM Terminals

Question	Title	Status	Keywords (area/domain)
C/15	Packet-switched multimedia systems and terminals	Continuation of parts of Q.2/15	AVMMS Data networks Terminals
D/15	Common protocols, MCUs and protocols for interworking with H.300-Series terminals	Continuation of parts of Q.2/15, 3/15	AVMMS Protocols, interworking
E/15	Advanced video coding	Continuation of parts of Q.2/15, 3/15	AVMMS Coding
F/15	Harmonization of multimedia systems, applications and services	Continuation of part of Q.3/15	AVMMA (Coordination)
G/15	AVMMS	New Question It is suggested to rename the title "Multimedia"	AVMMS (Coordination)
H/15	Interaction of high-speed voiceband data systems with signal processing equipment in the public-switched telephone network	Continuation of Q.4/15, 8/15	PSTN Signal processing, interworking
I, N/15	Extension to existing ITU-T speech coding standards at bit rates below 16 kbit/s	Continuation of Q.5/15, 12/15	Coding
J/15	Audio and wideband coding in public telecommunication networks	Continuation Q.6/15	Coding
K/15	Encoding of speech signals at bit rates around 4 kbit/s	Continuation Q.7/15	Coding
M/15	Software and hardware tools for signal processing standardization activities	Continuation Q.10/15	Signal processing Software/applications

IV. 맺음말

급속한 환경변화에 대응하기 위한 ITU의 변화에 따라 각국의 정부관련기관들도 기존의 국가별 연구조직으로는 한계를 느끼게 될 것이며, 새로운 변화를 가지고 ITU에 대처할 것으로 예상된다. 정부는 이에 대응하기 위한 표준화전문가를 육성하여야 하며, 표준화전문가는 전문적인 표준화기술 외에 상호협력을 통한 조정으로 표준화 작업이 진행되고 있는 점을 감안하여 향후 자기 분야의 표준화회의에 전문가로서의 역할을 지속적으로 증대시켜야 할 것이다.

또한 지속적, 주도적인 참여로 국가의 위상제고는 물론 장기적으로 연구반 의장단으로 진출할 수 있는 계기 마련이 이루어지도록 노력하여야 할

것이다.

또한 이번 WTSC에서는 ITU-T SG7, ITU-T TSAG의 부의장으로 한국의 전문가가 피선됨으로써 향후 우리나라 표준화 연구 및 활동에 많은 기여가 기대된다.

약어 표

EDH	Electronic Document Handling
FPLMTS	Future Public Land Mobile Telecommunications System
GII	Global Information Infrastructure
IN	Intelligent Network
IPR	Intellectual Property Rights
ITU-T	ITU Telecommunication Standardization Sector
ODP	Open Distributed Processing

SG	Study Group
TD	Temporary Document
TMN	Telecommunication Management Network
TSAG	Telecommunication Standardization Advisory Group
WTSC	World Telecommunication Standardization Conference