

## **AEQ REFERENCES SPORTS AND OTHER LARGE BROADCAST EVENTS**

At the following major events, we have undertaken the supply and/or the Installation, engineering and operation of equipment for Transmission, Venue inter-connection or -communication purposes, Unilateral Commentary Signals, Commentary Positions, Audio Distribution and Commentary Switching Facilities;

Last updated: Jan 2012

## PANAMERICAN GAMES 2011, GUADALAJARA, MEXICO

Between October 14th and 30th , 2011 the Panamerican Games were held in the city of Guadalajara in Mexico. Athletes representing the 42 different countries were competing during two weeks in the 24 venues hosting this great sporting event . .

The host broadcaster of the event, International Sports Broadcasting, was decided to provide its customary world class services. The choice of AEQ was easily made considering AEQ's more than proven track record.



After studying different options and the available telecoms structure, ISB decided to use the DCS-10 commentary system in combination with the AEQ RANGER E1/T1 Audio Multiplexer systems for venues interconnectivity. Among the reasons why the choice of gear fell on AEQ was the very long and proven track record of service that the AEQ equipment offers together with the ease of maintenance and installation. The DCS-10 has been in service for the commentary systems at most of the worlds largest sporting events since 1998 and the RANGER Multiplexers since year 2000.

For the fully equipped – full service commentary positions at the different venues, AEQ supplied a total of 60 Commentary units for up to three commentators and one guest. The DCS-10 Commentary unit provides very easy to use intercom and talk-back facilities, enabling the commentator to be in communication with his home studio through both

Programme and Coordination circuits and with the local commentary technician. For monitoring, the commentator can choose any mix of his own Programme and Programme return, PA, International Sound, Guide and/or Auxiliary channel. Further, the unit allows the commentator to choose for which ear what signal is to be present in his headset. without having close the programme circuit.



For venues interconnectivity, AEQ also supplied 22 RANGER MULTIPLEXER SYSTEMS. The Multiplexers offer selectable Audio encoding/de-coding algorithms adapting perfectly to the different needs regarding level of service required. Audio bandwidths from 3,5 KHz in Mono to 15 KHz Stereo can be offered in any combination and providing up to 62 Channels per E1 connection. Further, for the technical operations intercommunication between the Commentary Control Rooms at the different venues and the Commentary Switching Centre at the IBC, the AEQ analogue Intercom systems IN-02 and IN-03 were used.

AEQ also provided system maintenance from set-up through games time.

## 2011 FINA WORLD CUP

The 14th FINA World Championships were held at July 16–31, 2011 in Shanghai, China at the Shanghai Oriental Sports Center. The 2011 World Championships featured five aquatics disciplines: swimming, water polo, diving, open water, and synchronised swimming. At this championships, scrynchronized swimmer Natalia Ishchenko, of Russia, was the most decorated competitor winning all six gold medals of her events, at solo, duet and team routines. These championships served as qualifying stages for the 2012 Summer Olympics.



AEQ provided to host broadcaster 55 AEQ TLE02-D portable audiocoders and 110 professional headsets to be used like commentary position.

## 2011 FIFA U-20 WORLD CUP

The 2011 FIFA U-20 World Cup (Spanish: Copa Mundial Sub-20 de la FIFA Colombia 2011) was the eighteenth edition of the FIFA U-20 World Cup since its inception in 1977 as the FIFA World Youth Championship. Colombia hosted the tournament between 29 July and 20 August 2011, with matches being played in eight cities. The tournament was won by Brazil who claimed their fifth title.

In late 2009 the Colombian Football Federation unveiled the budget for conducting the event, to be COP 150 billion[6] (USD 75 million). An estimated 1,021,000 tickets have already been sold, including a complete sell out of all matches that are to take place at the Estadio Nemesio Camacho in Bogotá



AEQ provided to RCN (host broadcaster) 10 AEQ TLE02-D portable audiocoders and 30 headsets to be used like commentary position.



## IAAF WORLD CHAMPIONSHIP IN DAEGU, KOREA 2011

Between August 27 and September 4, 2011 the World Championships in Athletics were held in the city of Daegu in South Korea. With over 1900 athletes representing 202 countries, the event has been the largest broadcasting event covering athletics in 2011.

The host broadcaster consortium for the 2011 IAAF World Championships, were decided to provide world class services in general. Their choice of AEQ was made after carefully evaluating renowned companies and with proven track record.

AEQ was requested to propose a solution and after carefully studying the options and the available telecoms structure, recommended the use of its DCS-10 commentary system in combination with the AEQ Phoenix Studio IP and ISDN Audio-codecs for venues interconnectivity and international contribution. The DCS-10 has been the used for the commentary in most of the worlds largest sporting events since 1998. Contrasting to this, the Phoenix Studio saw its first appearance for a big event. The need to be able to offer a complete service to the world broadcasting community from a sole supplier with experience and the operational know-how for this type of events, were also among the reasons why the definitive choice of gear fell on AEQ.



For the fully equipped – full service commentary positions at the Athletics Stadium and outside races starting venue, AEQ supplied a total of 35 Commentary units for up to three commentators and one guest. The DCS-10 Commentary unit provides very easy to use intercom and talk-back facilities, enabling the commentator to be in communication with his home studio through both Programme and Coordination circuits and with the local commentary technician. For monitoring, the commentator can choose any mix of his own Programme and Programme return, PA, International Sound, Guide and/or Auxiliary channel. Further, the unit allows the commentator to choose for which ear what signal is to be present in his headset. without having close the programme circuit.



For venues interconnectivity and international contribution AEQ also supplied 35 PHOENIX STUDIO, a multi-format, multi-algorithm dual channel audio-codec designed for stationary rack-mounted applications, like links between studios or STL. PHOENIX STUDIO offers the options of working over ISDN and IP networks, among many others. The IP communications interface is fully compatible with the EBU-TECH 3326 technical specification issued by the EBU N/ACIP working group.



## FIFA U-17 WORLD CUP IN MEXICO 2011

When Televisa SA de CV was commended with the task to act as the Host broadcaster for the U-17 World Cup (soccer) in Mexico this summer, they were on the clear with that the choice of equipment had to be world class and with a proven track record.

AEQ was requested to propose a solution and after carefully studying the options and the available telecoms structure, recommended Televisa to use the MPAC-02. Even if this work horse from AEQ has been in production for 12 years, the features and services required were perfectly met by the AEQ MPAC-02; up to three commentators, auxiliary mic/line input providing an additional local audio source and the possibility to transmit over ISDN, PSTN and including V.35 ports for dual audio channel connectivity, etc., etc. The need to be able to offer simultaneous independent program and coordination circuits with return paths were also among the reasons why the definitive choice of gear fell on AEQ.





## GUANGZHOU 16<sup>th</sup> ASIAN GAMES 2010



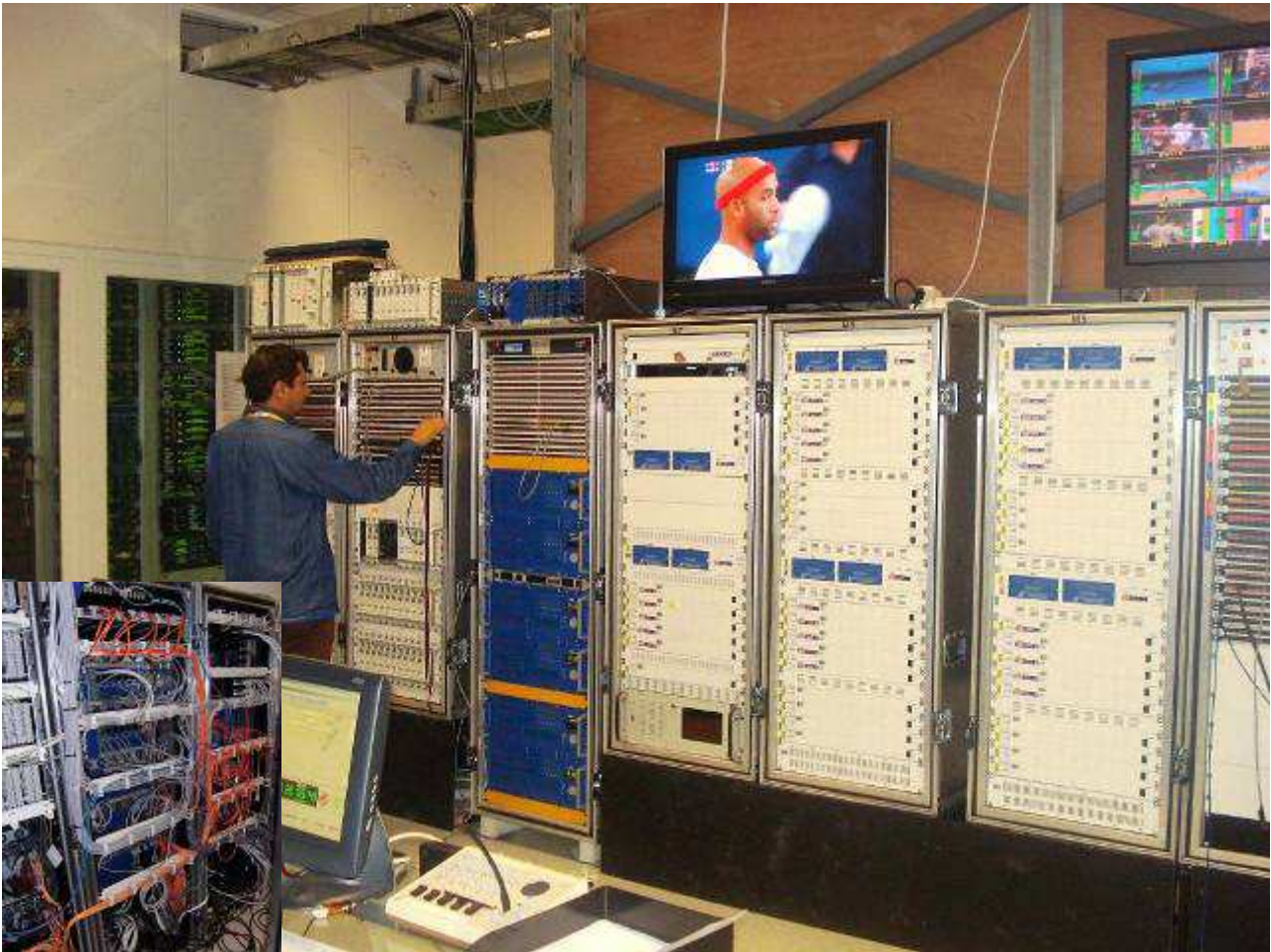
Equipment supply and maintenance: 280 AEQ DCS-10 commentary units and Ranger E1/T1 Audio Multiplexers for contribution network interconnections. Further, some 90 TLE-02D portable ISDN audiocodec were used to interconnect the smaller venues with the IBC through ISDN lines.



All the interconnections of the 51 stadiums to the IBC were done through 2Mbps E1 links using AEQ RANGER multiplexers, and ISDN lines with the AEQ TLE-02D Portable audiocodec.

## VANCOUVER 2010 WINTER OLYMPIC GAMES

AEQ produced and delivered the new generation of commentary system based upon its BC2000 routing systems and with a total routing capability of over 5000 x 5000 cross-points. The system is containing all the necessary elements for interconnection of all the competition venues and the International Broadcasting Centre through either E1/T1 networks or through long range MAD1 links over fiber networks.



EBU being one of the major rights holding broadcaster unions took delivery of additional modules for its BC 2000 D Router Matrix that is used for their 4W commentary circuits. Equipment upgrade included among other things the implementation of the capacity to receive the commentary signals from the New Commentary System used in Vancouver. Additionally, all the EBU broadcasters and other major rights holding organisations were using AEQ's Commentary Console at the different Competition Venues.



## CAF AFRICAN CUP 2010, ANGOLA

Services: 100 AEQ DCS-10 commentary units. Course AudioCodec systems and Ranger E1/T1 Audio Multiplexors for contribution network interconnections. Installation, maintenance and operation.



AEQ provided complete installation and operation of the total commentary system for four stadiums and a modern International Broadcasting Center to centralize all the communications. Luanda stadium has 40.000 seats and uses 40 CU. Bengela, Lubango and Cabinda stadiums have 20000 seats and use 20 CU each. All the interconnections of the stadiums to the IBC are done over 2Mbps E1 links using AEQ RANGER multiplexers, and the external communications use ISDN lines over AEQ COURSE multi-codec.



#### **BEIJING OLYMPIC GAMES 2008 CHINA**

Equipment and Services: 1200 AEQ DCS-10 commentary units and Ranger E1/T1 Audio Multiplexors for contribution network interconnections.

Once again, AEQ played a significant role as the supplier of commentator audio equipment for the 2008 Beijing Olympic Games.

Since the Nagano Games in 1998, commentators at the various competitive venues have used AEQ's DCS 10 Digital Commentator consoles, giving them the ability to

accommodate three reporters plus a guest.



As has been the case since the Sidney Games in 2000, AEQ's Ranger Multiplexers were used to broadcast program and coordination information (and the returns) to the International Broadcasting Center.

The International Broadcasting Center's Commentary Switching Center is where all circuits from the multiple venues are received and supervised. A wide assortment of AEQ products are employed during these events. They include: circuit distribution frames, patch panels, audio distribution amplifiers, intercoms, line identifiers, monitors, audio quality monitors, just to mention a few.

Some of the Olympic broadcasters who used AEQ equipment were: TV AZTECA and TELEVISA (Mexico); Radio Caracol (Colombia); ENTV (Algeria); RTRRA (Russia), ROR (Romania), SABC (South Africa), RTVE (Spain), France 2; Globo (Brazil) and NHK (Japan).

17 ALFACAM OB Vans were used at the multiple venues and the Olympic Stadium to produce HD video had AEQ equipment installed as part of their equipment suites. The most frequently used equipment items were: DA-26, EAGLE, SWING, MPAC-02, Mar4Win, TLE 02, Ranger, and the ACD 5001.

Special mention goes out to the European Broadcasting Union, EBU (EUROVISION), and the primary broadcasters association. For many years the EBU has used AEQ's Impact Digital Switching Center and Course Codecs to deliver audio from the Games.



EBU's Switching Center in Beijing includes AEQ's Impact, Course, and BC 2000D equipment. RNE's engineer Javier Ferreras is operating the equipment.

## FIBA, Basketball World Championship, Japan 2006

Equipment supply: 41 AEQ MPAC-02 commentary units supplied to the Host Broadcaster, Japan Broadcasting Corporation (NHK).

AEQ supplied 41 MPAC 02 codecs to the Japan Broadcasting Corporation, NHK, in order to broadcast the FIBA Basketball World Championship which was held in September of 2006, by the commentators of the different televisions that attended this event.

AEQ continues its participation in the supply of equipment for big sports events, that begun at the Olympic Games in Seoul 1988 and that is continued uninterruptedly in these last 18 years.



## Torino 2006 Winter Olympics, Italy.

Services Rendered: Design, Installation and Maintenance.

Equipment Supply: Delivery of over 750 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the Venues at the Torino Winter Olympics.

Delivery of the Commentary Switching Centre and 4W intercommunication equipment for Commentary Switching Centre at IBC.

The commentary Switching held the capacity of an equivalent of over 4500 4W circuits.

The Commentary Audio was integrally generated by a Digital Commentary System.

Transmissions on the International Side were integrally carried out through ISDN AudioCodecs.

On the international Side Supplementary contracts were awarded to AEQ for the same type of equipment from EBU Sports (European Broadcasting Union) and were distributed throughout the World among the EBU Members and other Broadcasters that contracted this service from EBU Sports.





## FIBA, Basketball European Championship, Serbia 2005



Equipment Supply: delivery of 30 portable audiocodexs AEQ Swing and 5 rack-mounted audiocodexs AEQ Eagle.

These equipment have been used in the retransmission of the European Championship of Basketball 2005, which was hold in four Serbian venues: Belgrade, Novi Sad, Vrsac and Podgorica, from 16<sup>th</sup> to 25<sup>th</sup> September 2005



## Athens Summer Olympics 2004.



Services Rendered: Venue Cabling Services, Design and Maintenance.

Equipment Supply: Design and Delivery of over 1.000 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the Venues at the Athens Summer Olympics.

Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC. The commentary Switching held the capacity of an equivalent of over 5.500 4W circuits.

For the fourth time in History and for an event of this size, the Commentary Audio was integrally generated by a Digital Commentary System.

Over 130 AEQ Ranger 2 Mb. Multiplexer Systems supplied by AEQ handled transmissions on the National side (Venues to IBC and Vice-versa).

This was the fourth time in History that such specific Audio Encoding/Decoding-Multiplexing Equipment was used for the Transmission of the Commentary Circuits.

Transmissions on the International Side for the European Broadcasting Union were integrally carried out through ISDN AudioCodecs.

Furthermore, on the international Side Supplementary contracts were awarded to AEQ for the same type of equipment from Different Broadcasting Unions and were distributed throughout the World among the EBU Members and other Broadcasters that contracted this service from EBU and other associations.



**UEFA Euro-Cup, Portugal, June 12 – July 4, 2004.**



Services Rendered: Pre-Cabling Services, Design, Installation, Operation, Maintenance and de-rigging.

Equipment Supply: Design, Delivery, Installation and Operation of 320 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the 10 different Stadiums for the UEFA Euro-Cup in Portugal.

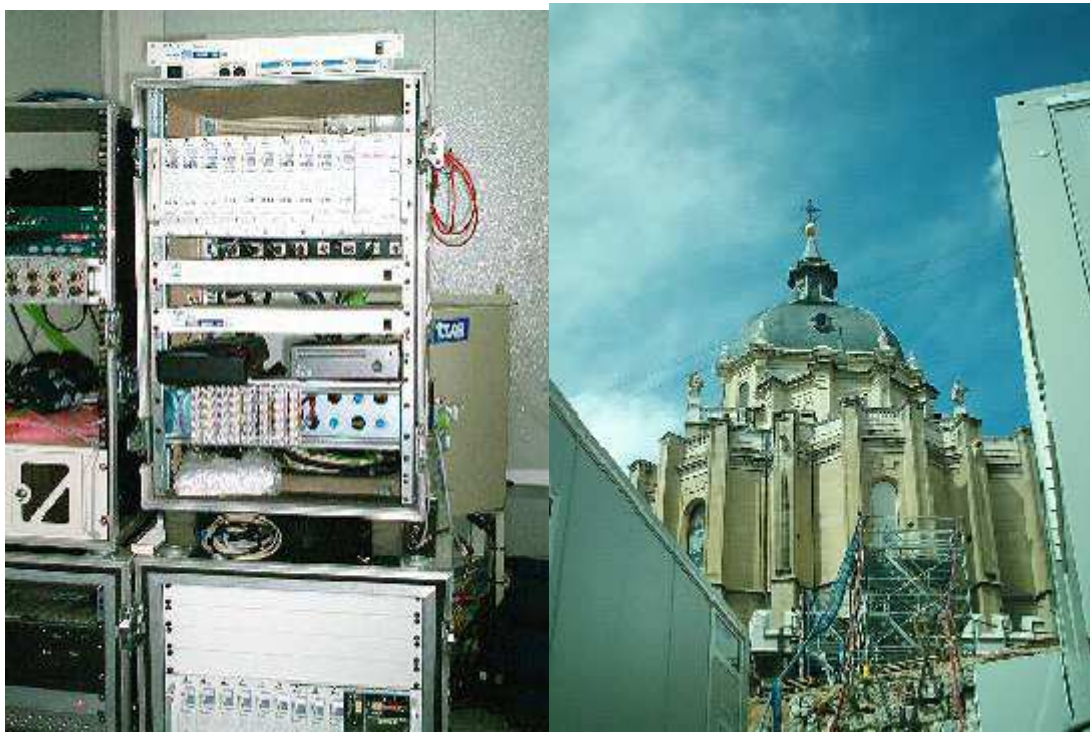
The Delivery, Installation and Operation of 320 Dual Channel AudioCodecs Mounted in 32 Course Multiple AudioCodec Frames Completely Software Controlled and the Cabling of

the ISDN Intercom Facilities for the 10 different Stadiums for the UEFA Euro-Cup in Portugal.

The design and delivery of all the interconnections and cables for Compound Area and TOC of all the 10 different Stadiums for the UEFA Euro-Cup in Portugal.

All the equipment and interconnection cables relative to Stadiums, TOC and Compounds were dismantled after each Match, to be transported to the next venue or Stadium on schedule, installed and operated the next day.

### **Royal Wedding H.R.H. The Prince of Asturias and Doña Letizia Ortiz, May 22, 2004**



Services Rendered: Pre-Cabling Services, Design, Installation, and Maintenance.

Equipment Supply: Design, Delivery, Installation and Maintenance supervision o 2x20 ISDN Lines SYSTEL-6000 Multiplex and Multi-conference Systems for the General Coordination System for the OB-Units during the Broadcast Operations in connection with the Event. The Systel-6000 Systems Consists in a total Hardware Integration through Software of the AEQ Impact Digital Audio Router with AEQ Caddy AD/DA Converters and AEQ Course MultiCodec Systems. The two Systems supplied had a total Multiplexing Capability of up to 40 ISDN communications towards the MCR at Prado del Rey and vice versa, and was Hierarchically structured for 12 different levels of Multiplex, i.e. 12 simultaneous multiplex for different levels and purposes.

### **African Cup of Nations, Tunis, 2004.**

Services Rendered: Equipment Supply.

Equipment Supply: Design and Delivery of 10 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the Venues at the African Cup of Nations, Tunis, 2003. The delivery was to complement the already available System in property of the Tunisian Radio and Television, and acquired in 2001 for the Mediterranean Games. Additionally 20 AEQ MPAC-02 Portable ISDN AudioCodec and Communications Unit was delivered for the partially equipped Commentary Positions at these venues.

Delivery of our equipment was accomplished through AlfaCam of Belgium, as our main contractor.

### **Cycling World Championships, Hamilton, Canada, October 2003.**

Services Rendered: Equipment Supply.

Equipment Supply: Delivery of the EBU (European Broadcasting Union) AudioCodec Systems for the Commentary Audio Circuits. A total of 7 Complete AEQ COURSE Multi-Codec Systems were supplied, equalling to 140 4W Circuits interconnected to EBU's DATA Multiplexer for the international Contribution of the Commentary Signals.

Direct Commentary Unilaterals were Achieved with the AEQ Swing Portable AudioCodec and Transmission Unit. A total of 26 Units were delivered for the Event Through the European Broadcasting Union



**8<sup>th</sup> AAG (All Africa Games), The Unity Games, Nigeria, October 4-18, 2003.**



Services Rendered: Consultancy, Design, Equipment Supply, Installation, Set-up, On-site Training, Operation and Maintenance.

Equipment Supply: Design and Delivery of 110 Commentary Positions of the AEQ DCS-10 Digital Commentary System and the Complete Commentary Switching Centre within the MCR, for all the Venues at the All Africa Games in Abuja, Nigeria, 2003.

The Complete Equipment Delivery was accomplished through Thomson Broadcast Systems, as the Main Contractors to NTA/COJA.



## **IAAF (Athletics) World Championships, Paris, France, August 2003.**

Services Rendered: Equipment Supply.



Equipment Supply: Delivery of the EBU (European Broadcasting Union) AudioCodec Systems for the Commentary Audio Circuits. A total of 7 Complete AEQ COURSE Multi-Codec Systems were supplied, equalling to 140 4W Circuits interconnected to EBU's DATA Multiplexer for the international Contribution of the Commentary Signals.

Direct Commentary Unilaterals were Achieved with the AEQ Swing Portable AudioCodec and Transmission Unit. A total of 14 Units were delivered for the Event Through the European Broadcasting Union.

## **Volleyball EuroCup Finals, Madrid, Spain, June 2003.**

Services Rendered: Equipment Supply through RTVE.

Equipment Supply: Delivery of 20 MPAC-02 ISDN AudioCodecs and Commentary Mixer for the Installation at the Commentary Positions and Transmission of the Commentary Audio Circuits from the Different Venues in Madrid (Spain).

This was the first time in History that an Event of this type was covered integrally through the Use of ISDN Codecs/Mixers of this Type.

### **Swimming World Cup Barcelona, Spain, June 2003.**

Services Rendered: Equipment Supply.

All in all some 55 AEQ DCS-10 Digital Commentary Positions pertaining to RTVE of Spain (Host Broadcaster for the Event) were installed. The Commentary Audio was entirely transmitted from the event with the AEQ Course MultiCodec System for all the Commentary Positions that were fully Equipped. Alternative Positions were equipped with AEQ MPAC-02 portable AudioCodec and Commentary Unit.

### **Cricket WorldCup, South Africa, February 2003.**

Services Rendered: Equipment Supply.

Equipment Supply: Design and Delivery of 30 Commentary Positions of the AEQ DCS-10 Digital Commentary System and 30 MPAC-02 Portable AudioCodec for all the Venues in South Africa. The communications between Venues and IBC and Unilaterals was accomplished through Eagle and Course Multicodec Systems from AEQ.

In January 2002 the South African Broadcasting Corporation purchased three complete AEQ Commentary Systems and three COURSE codec systems to be used at the 2003 World Cup Cricket tournament hosted in South Africa during February 2003. The S.A.B.C. was contracted by the host broadcasting company for the 2003 World Cup Cricket to provide the commentary positions at all the venues. S.A.B.C.'s RPS Remote, responsible for the technical operations of remote broadcasts for the S.A.B.C.'s radio services, will also be using the commentary system for the multitude of sports events that is broadcasted regularly on the various language services. During the same period the S.A.B.C. also purchased approx. 25 AEQ EAGLE codecs and a number AEQ TH-02EX MkII digital telephone hybrids. These units were used at the 2002 World Summit for Sustainable Development, hosted in South Africa in August last year from various venues across South Africa. The AEQ EAGLEs were again used by the S.A.B.C. at the African Union Summit, held in Maputo, Mozambique in July 2003.



## FIFA World Cup, Japan and Korea, June, 2002.



Services Rendered: Equipment Supply and Maintenance.

Equipment Supply: Design and Delivery of over 830 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the 10 Venues on the Japanese side at the JAPAN AND KOREA FIFA WORLD CUP.

210 AEQ Ranger E1/T1 Multiplexer Systems, effectively comprising of a total number of 850 multi channel AudioCodecs for a total of some 6000 bi-directional High Quality Audio Circuits, was supplied by AEQ. These Systems handled transmissions on the National side (all 20 Venues to IBC1 (Seoul) and IBC2 (Yokohama) and Vice-versa). The Contracts were awarded by KoreaTelecom for the Korean Side of Operations and by Japan Telecom on the Japanese side, both carriers being the official carriers for the Event.

Also this was the first time in History that such specific Audio Encoding/Decoding-Multiplexing Equipment was used for the Transmission of the Commentary Circuits, as this had until this event been done either through ISDN AudioCodecs or through standard 4W lines provided by the PTT's assigned as carriers. The difficulty on this specific occasion was residing in the fact that on the Korean Side the E1 protocols prevails and on the Japanese side the Systems had to operate on T1. The solutions given by both operators in order to inter-link the two systems in IBC1 in Seoul was considered as optimum since the Audio Encoding Standards were kept intact through the AEQ Multiplexers.

On the international Side Supplementary contracts was awarded to AEQ for AudioCodecs the for EBU Associates and were distributed throughout the World among the EBU Members and other Broadcasters.



## **FIFA Under 18 WorldCup, Mali, June 2002.**

Services Rendered: Equipment Supply through EuMovil pertaining to MediaPro Group.

Equipment Supply: Delivery of 45 MPAC-02 ISDN AudioCodecs and Commentary Mixer for the Installation at the Commentary Positions and Transmission of the Commentary Audio Circuits from the Different Venues in Mali (Africa).

This was the first time in History that an Event of this type was covered integrally through the Use of ISDN Codecs/Mixers of this Type.

## **SALT LAKE CITY WINTER OLYMPICS, USA, 2002**

Equipment supply: AEQ DCS 10 Digital Commentator Consoles. A total of 450 Commentary Units were deployed at the 13 Olympic Venues.

For the transmission of program signals and coordination signals when required, as well as the respective return audio to the International Broadcasting Center, 50 pairs of AEQ Ranger Multiplexers were used. Each one allowed between 14 and 62 two-way audio signals to be sent (depending on the quality requested) through E1 or T1- type high capacity digital circuits.

The Commentary Switching Center in the International Broadcasting Center, the nerve center where the circuits coming from the venues were received and supervised, was also supplied by AEQ. There, circuit distribution frames were installed connected to more than one hundred 48x2-circuit patch panels, AEQ DA 16 T audio distributors, AEQ IN 02 intercoms, AEQ SSR 10 line identifiers, audio quality monitors and meters and video monitors. From there, signals were controlled and re-routed between the venues, the temporary studios for each television or radio station installed at the International Broadcasting Center, and via cable or satellite to the broadcasters' permanent studios in each country. Through it, hundreds of circuits were set up and controlled.

A technological innovation was the implementation of the new Switching Center for the European Broadcasting Union EBU at the International Broadcasting Center to replace an old mechanical relay matrix that had been in service since Montreal 1976, serving the main European radio and television networks and those of other countries.

EBU chose a 400x400-circuit AEQ Impact Caddy audio matrix with digital technology. Its exclusive software application incorporates a booking management system that implemented from Salt Lake City, in real time, the necessary switching between the circuits from the venues and the international circuits destined for each broadcaster, and following the production of the multilateral television signal distributed to all of Europe through the EUROVISION network.

To send the audio to EBU members and associates between Salt Lake City and the program production centers in each European country, AEQ Course multiple audiocodecs were used, valid for point-to-point lines with V35 or ISDN interfaces, located next to the EBU Switching Center at the International Broadcasting Center. Their lines were paired up with those of other AEQ Course codecs, or even with those of other manufacturers, deployed at each member's or associate's stations.

This was the first time that the complete commentator audio circuitry for the main broadcasters in the world, from the origination point at the Olympic venues to each radio or television station, was done with AEQ equipment.



## Digital Switching Facilities for EBU Operations Group, 2001.



Services Rendered: Design, Installation and Maintenance.

Equipment Supply: 400x400 (4Wire) Digital Summing and Distribution Switching Matrix AEQ IMPACT, including Gain Control for all Output – ports, with Auto-ranging and Auto-redundant Power supply, 90 – 250 V AC 50-60 Hz.

20 (twenty) Modules AEQ CADDY, A/D D/A Multiple Converters: 24 Mono Analogue Inputs to 12 Stereo Digital Outputs and 12 Stereo Digital Inputs to 24 Analogue Outputs.

Unlimited Member Client Software License.

1 (one) Master Control and “[E@sy](#)” Server License and the required Adaptations to the Specific need of EBU.

This Digital Audio Routing System replaces the now obsolete Router System from Ghilmetti and Sandar Electronics, and that serves EBU Operations Group for their Unilateral Transmissions from all Major Sporting events throughout the World.

The first time the system was used was during the Salt Lake Winter Olympics 2002.

**United Nations Framework Convention on Climate Change, Session No. 7, Marrakech, Morocco, 2001.**

Services Rendered: Operational Assistance and emplacement.

Equipment Supply: Delivery of 20 MPAC-02 ISDN AudioCodecs and Commentary Mixer for the Installation at the Commentary Positions and Transmission of the Commentary Audio Circuits from the Convention Centre in Marrakech, Morocco.

Delivery of the Software Recording and Automation System Mar4Win with Multi-Track Recording/editing Facilities for the real-time editing of the Audio signal, Simultaneous Translation and Logging.

**Mediterranean Athletic Games, Tunis, 2001.**

Services Rendered: Operation and Maintenance.

Equipment Supply: Design and Delivery of 160 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the Venues at the Mediterranean Athletic Games, Tunis, 2001.

Delivery of our equipment was accomplished through Thomson Broadcast systems and Alfacam of Belgium, our main contractors.

The Complete Equipment Delivery was accomplished to Thomson Broadcast Systems and Alfacam of Belgium as the Main Contractors.

**World Championship Athletics, Edmonton, 2001.**

Services Rendered: Operational assistance and Maintenance.

Equipment Supply: Delivery of the EBU (European Broadcasting Union) AudioCodec Systems for the Commentary Audio Circuits. A total of 7 Complete AEQ COURSE Multi-Codec Systems were supplied, equalling to 140 4W Circuits interconnected to EBU's DATA Multiplexer for the international Contribution.

Furthermore, AEQ Delivered to the EBU members in 18 Countries, some 50 AEQ ACD-5001 Dual Channel Multiformat AudioCodecs in order to receive correctly the Generated signals in Edmonton.

## FINA World Championships, Fukuoka, Japan, 2001.



Services Rendered: Maintenance, and Instructions for operation.

Equipment Supply: Delivery of 60 MPAC-02 ISDN AudioCodecs and Commentary Mixer for the Installation at the Commentary Positions and Transmission of the Commentary Audio Circuits from the Different Venues in Fukuoka and its surroundings.

This was the first time in History that an Event of this type was covered integrally through the Use of ISDN Codecs/Mixers of this Type.

The Host Broadcaster TV Asahi jointly with the official Carrier Japan Telecom chose this equipment for its optimum performance, security in transmission and flexibility of operation.

Furthermore, AEQ Delivered to the EBU members in 18 Countries, some 50 AEQ ACD-5001 Dual Channel Multiformat AudioCodecs in order to receive correctly the Generated signals in Fukuoka.

## Handball World Championships, France, 2001.



Services Rendered: None.

Equipment Supply: Delivery of 20 MPAC-02 ISDN AudioCodecs and Commentary Mixer for the Installation at the Commentary Positions and Transmission of the Commentary Audio Circuits from the Different Venues in France for the World Championships in Handball.

This was the Second time in History that an Event of this type was covered integrally through the Use of ISDN Codecs/Mixers of this Type.

## **EBU Sports AudioCodec Facilities, 2001.**



Services Rendered: Design, Installation and Maintenance.

Equipment Supply: 33 AEQ COURSE Multi-Codec Systems, equalling to 330 Dual Line AudioCodecs or 660 4W circuits or Transmissions over ISDN Networks.

The AudioCodec System is fitted with a Universal Terminal Adapter allowing for the Connection to any Standard ISDN protocol (both ANSI and ETSI S or U interface) available in the World.

Furthermore, it is equipped with V.35 Ports allowing for data transmissions of up to 256 KBPS. Per Codec. This Equipment forms part of the long term equipment policy of EBU Operations, that allows for expansions and flexibility in operation whenever needed for a Sport Event anywhere in the World.

## **BBC - General Election Campaign Coverage, 2001.**

Services Rendered: None.

Equipment Supply: Delivery of 20 MPAC-02 ISDN AudioCodecs and Commentary Mixer for the Integer coverage of the British General Elections in June 2001.

This was the first time in History that BBC covered integrally a General Election through the use of ISDN Codecs/Mixers of this Type.



## **G-8 SUMMIT, GENOVA, ITALY, 2001**



Equipment Supply: Delivery of 30 AEQ ACD-5001, Dual Channel Multiformat ISDN AudioCodec for the International Transmissions from Genoa.

All equipment was delivered to the Main Contractor and Host Broadcaster for the Event, Ellettronica Industriale, Milano, Italy.

## **UEFA Champions League Final “SAN SIRO” MILANO, 2001.**

Equipment Supply: Delivery of 30 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the UEFA Champions League Final “SAN SIRO” MILANO, 2001.

The International Transmissions were integrally carried out through the AEQ ACD-5001, Dual Channel Multiformat ISDN AudioCodec. All equipment was delivered to the Main Contractor and Host Broadcaster for the Event, Grupo Ellettronica Industriale, Milano, Italy.

## Sydney Summer Olympics 2000.



Services Rendered: Design and Maintenance.

Equipment Supply: Design and Delivery of over 900 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the Venues at the Sydney Summer Olympics.

Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC. The commentary Switching held the capacity of an equivalent of over 5000 4W circuits.

For the first time in History and for an event of this size, the Commentary Audio was integrally generated by a Digital Commentary System.

Over 120 AEQ Ranger 2 Mb. Multiplexer Systems supplied by AEQ handled transmissions on the National side (Venues to IBC and Vice-versa). Sydney Broadcasting Organisation, the Host Broadcaster, and TELSTRA, the Official Carrier, Jointly made the selection of AEQ over its competitors.

Also this was the first time in History that such specific Audio Encoding/Decoding-Multiplexing Equipment was used for the Transmission of the Commentary Circuits, since this event been done either through ISDN AudioCodecs or through standard 4W lines provided by the PTT's assigned as carriers.

Transmissions on the International Side for the European Broadcasting Union were integrally carried out through ISDN AudioCodecs.

The ACD-5001 was also the choice made by TELESTRA, the EBU Operations Group and SOBO as the Host Broadcaster.

Furthermore, on the international Side Supplementary contracts were awarded to AEQ for the same type of equipment from Different Broadcasting Unions and were distributed throughout the World among the EBU Members and other Broadcasters that contracted this service from EBU and other associations.

## UEFA Euro-Cup, Belgium/The Netherlands, 2000.



Services Rendered: Design, Installation, Operation, Maintenance and de-rigging.

Equipment Supply: Design, Delivery, Installation and Operation of 180 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the 8 different Stadiums for the UEFA Euro-Cup in The Netherlands and Belgium.

The Delivery, Installation and Operation of 180 Dual Channel AudioCodecs with intercom facilities for the 8 different Stadiums for the UEFA Euro-Cup in The Netherlands and Belgium.

The Delivery of all the National side AudioCodecs for interconnection of the for the 8 different Stadiums for the UEFA Euro-Cup in The Netherlands and Belgium and the International Broadcast Centre located in Amsterdam, the Netherlands.

The design and delivery of all the interconnections and cables for Compound Area and TOC of all the 8 different Stadiums for the UEFA Euro-Cup in The Netherlands and Belgium.

All the equipment and interconnection cables relative to Stadiums, TOC and Compounds were dismantled after each Match, to be transported to the next venue or Stadium on schedule, installed and operated the next day.

**IBERO-AMERICAN SUMMIT, HAVANA, CUBA, June 2002.**

Services Rendered: Equipment Supply.

Equipment Supply: Delivery of 5 MPAC-02 and 5 AEQ TLE-02D ISDN AudioCodecs and Commentary Mixer for the coverage of the Summit through NERA Satphone Systems (Inmarsat). The operation was accomplished by RTVE of Spain..

This was the first time in History that an Event of this type was covered integrally through the Use of ISDN Codecs/Mixers in combination with Inmarsat Communications Systems from NERA of Norway.



## **ICE HOCKEY WORLD CHAMPIONSHIPS, ST. PETERSBURG, RUSSIA, 2000.**



Services Rendered: None.

Equipment Supply: Delivery of 40 MPAC-02 ISDN AudioCodecs and Commentary Mixer for the Installation at the Commentary Positions and Transmission of the Commentary Audio Circuits from the Different Venues in St. Petersburg, Russia and its surroundings.

This was the first time in History that an Event of this type was covered integrally through the Use of ISDN Codecs/Mixers of this Type.

## **Eurovision Song Contest, Stockholm 2000.**

Services Rendered: None.

Equipment Supply: Delivery of 40 ACD-5001 ISDN AudioCodecs for the Transmission of the Commentary Audio Circuits to the EBU Members that participated in the event.

## **NBA ALL-STARS, LOS ANGELES, 2000.**

Services Rendered: None.

Equipment Supply: Delivery of 50 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the NBA All-Stars in Los Angeles, 2000.

**AEQ Digital Commentary System Facilities for Elettronica Industriale, Milano, Italy, 1999.**



Services Rendered: System Installation for self-contained Commentary Facilities.

Equipment Supply: Delivery of the Digital Commentary System DCS-10 and the CAT-5 Structured Cabling.

**AEQ Digital Commentary System Facilities for Media-Set, Switzerland, 1999.**

Services Rendered: System Installation for self-contained Commentary Facilities.

Equipment Supply: Delivery of the Digital Commentary System DCS-10 and the CAT-5 Structured Cabling.

**AEQ Digital Commentary System Facilities for Radio and Television Slovenia, Ljubliana, 1999.**

Services Rendered: System Installation for self-contained Commentary Facilities.

Equipment Supply: Delivery of the Digital Commentary System DCS-10 and the CAT-5 Structured Cabling.

### **FIFA World Cup sub-18, Nigeria 1999.**

Services Rendered: Design, Installation, Operation and Maintenance.

Equipment Supply: Design and Delivery of 120 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the Venues at the FIFA World Cup sub-18 in Nigeria.

Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC. The commentary Switching held the capacity of an equivalent of over 500 4W circuits. For the first time in History and for an event in Africa of this size, the Commentary Audio was integrally generated by a Digital Commentary System.

AEQ equipment was delivered through the main contractor, Thomson Broadcast Systems.

### **FIS Skiing World Cup, Vail, Colorado (EEUU) 1999.**

Services Rendered: Operation and Maintenance.

Equipment Supply: Design and Delivery of 120 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the Venues at the FIS alpine skiing World Cup in Vail/Beaver Creek, USA.

Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC. The commentary Switching held the capacity of an equivalent of over 500 4W circuits. For the first time in History and for a FIS event of this size, the Commentary Audio was integrally generated by a Digital Commentary System.

Transmissions on the International Side were integrally carried out through ISDN AudioCodecs. The Choice jointly by EBU Sports and BELL, the International Carrier was the ACD-5001.

On the international Side Supplementary contracts was awarded to AEQ for the same type of equipment from EBU Sports (European Broadcasting Union) and were distributed throughout the World among the EBU Members and other Broadcasters that contracted this service from EBU Sports.

## Eurovision Song Contest, Israel 1999.



Services Rendered: Design, Installation and Operation.

Equipment Supply: Design and Delivery of 60 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the Venues in Tel-Aviv, Israel.

Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC. The commentary Switching held the capacity of an equivalent of over 150 4W circuits. For the first time in History and for this EBU event, the Commentary Audio was integrally generated by a Digital Commentary System.

Transmissions on the International Side were integrally carried out through ISDN AudioCodecs. The Choice jointly by Israeli Broadcasting Authorities (IBA) and EBU was the ACD-5001.

On the international Side Supplementary contracts was awarded to AEQ for the same type of equipment from EBU Sports (European Broadcasting Union) and were distributed throughout Europe among the EBU Members and other Broadcasters that contracted this service from EBU.



## IAAF World Championship Athletics, Seville 1999.



Services Rendered: Installation, Maintenance and Operation.

Equipment Supply: Design and Delivery of 80 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the Seville Athletics Stadium.

Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC. The commentary Switching held the capacity of an equivalent of over 200 4W circuits.

For the first time in History and for an event of this size, the Commentary Audio was integrally generated by a Digital Commentary System.

Transmissions on the International Side were integrally carried out through ISDN AudioCodecs. The Choice jointly by Radio Televisión Española (RTVE) and EBU was the ACD-5001.

On the international Side Supplementary contracts was awarded to AEQ for the same type of equipment from EBU Sports (European Broadcasting Union) and were distributed throughout Europe among the EBU Members and other Broadcasters that contracted this service from EBU Operations.

## **San Marino GP F1, Imola 1999.**



Services Rendered: Maintenance and Operation.

Equipment Supply: Design and Delivery of 60 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the San Marino Grand Prix Formula 1 at the Imola Race Course in Italy.

This was the first time that Radio Televisione Italiana (RAI) deployed the AEQ DCS-10 Digital Commentary System for an event in Italy of this calibre and also the First Time in History that a Digital Commentary System was used for such an event.

## **Italy GP F1 Monza, 1999.**

Services Rendered: Maintenance and Operation.

Equipment Supply: Design and Delivery of 60 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the Italian Grand Prix Formula 1 at the Monza RaceCourse in Italy.

This was the second time that Radio Televisione Italiana deployed the AEQ DCS-10 Digital Commentary System for an event in Italy of this calibre. This was the last time that RAI required assistance from AEQ and from this moment and to date, RAI solely runs the operation and maintenance of their Commentary Facilities.

### **Cycling World Championship, Italy 1999.**

Services Rendered: None.

Equipment Supply: Delivery of 50 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the Cycling World Championship, Italy 1999.

AEQ also delivered 20 ACD-5001 ISDN AudioCodecs for the Transmission of the Commentary Audio Circuits to the different Broadcasters that participated in the event.

### **Commonwealth Games, Kuala Lumpur '98.**

Services Rendered: Design, Installation, Operation and Maintenance.

Equipment Supply: Design and Delivery of 120 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the Venues at the KL Commonwealth Games.

Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC. The commentary Switching held the capacity of an equivalent of over 500 4W circuits.

For the first time in History and for this specific event, the Commentary Audio was integrally generated by a Digital Commentary System.

### **17th European Championship in Athletics, Budapest 1998.**

Services Rendered: Maintenance and Operation.

Equipment Supply: Design and Delivery of 75 Commentary Positions of the AEQ DCS-10 Digital Commentary System for the Budapest Athletics Stadium.

Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC. The commentary Switching held the capacity of an equivalent of over 200 4W circuits.

For the first time in History and for an event of this size, the Commentary Audio was integrally generated by a Digital Commentary System.

On the international Side Supplementary contracts was awarded to AEQ for AudioCodecs for EBU Sports (European Broadcasting Union) and were distributed throughout the World among the EBU Members and other Broadcasters that contracted this service from EBU Sports.

## **AEQ Digital Commentary System Facilities for RAI, 1998.**

Services Rendered: System Installation for self-contained Commentary Facilities.

Equipment Supply: Delivery of the Digital Commentary System DCS-10 and the CAT-5 Structured Cabling.

## **FIFA World Cup, France'98.**

Services Rendered: Design and Maintenance.

Equipment Supply: Design and Delivery of over 800 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the 10 Venues at the FRANCE FIFA WORLD CUP.

Design and delivery of the Audio Distribution Equipment, Monitoring and 4W intercommunication Equipment for Commentary Switching Centre at the IBC.

The commentary Switching held the capacity of an equivalent of over 5000 4W circuits. For the first time in History and for an event of this size, the Commentary Audio was integrally generated by a Digital Commentary System.

On the international Side Supplementary contracts was awarded to AEQ for AudioCodecs for EBU Sports (European Broadcasting Union) and were distributed throughout the World among the EBU Members and other Broadcasters that contracted this service from EBU Sports.



AEQ also supplied Line Equalisation Equipment in order to adopt all the National Lines from France Telecom to nominal levels within the International Broadcast Centre (IBC) and back to Telecom Nominal Levels on the return Path.

## Nagano'98 Winter Olympics, Japan.



Services Rendered: Design, Installation and Maintenance.

Equipment Supply: Design and Delivery of over 750 Commentary Positions of the AEQ DCS-10 Digital Commentary System for all the Venues at the Nagano Winter Olympics.

Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC.

The commentary Switching held the capacity of an equivalent of over 4500 4W circuits. For the first time in History and for an event of this size, the Commentary Audio was integrally generated by a Digital Commentary System.

Transmissions on the International Side were integrally carried out through ISDN AudioCodecs. The Choice jointly by KDD as the International Carrier and Matsushita/Panasonic as main contractor was the ACD-3001.

On the international Side Supplementary contracts was awarded to AEQ for the same type of equipment from EBU Sports (European Broadcasting Union) and were distributed throughout the World among the EBU Members and other Broadcasters that contracted this service from EBU Sports.

AEQ also supplied Line Equalisation Equipment in order to adopt all the National Lines from NTT to nominal levels within the International Broadcast Centre (IBC) and back to Telecom Nominal Levels on the return Path.



## **Atlanta Olympic Games, USA Atlanta'96**

Services Rendered: Maintenance.

Equipment Supply: Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC.

Once again, and for an event of this size, the Commentary Audio transmissions on the National Side were integrally carried out through ISDN AudioCodecs.

AEQ delivered over 600 Units of the AEQ ACD-3000/3001 for the circuits belonging to the National Side.

On the International Side Supplementary contracts was awarded to AEQ for the same type of equipment from EBU Sports (European Broadcasting Union) and were distributed throughout the World among the EBU Members and other Broadcasters that contracted this service from EBU Sports.

## **Pan-American Games, Mar del Plata'95.**

Services Rendered: Maintenance.

Equipment Supply: For the first time in History and for an event of this size in Latin America, the Commentary Audio transmissions on the National Side were integrally carried out through ISDN AudioCodecs. The Choice was close to 200 Units of the AEQ ACD-3000/3001 that won the Equipment evaluation performed by TYSSA (Telefónica y Sistemas in Argentina).

## FIFA World Cup, USA-94.



Services Rendered: Maintenance.

Equipment Supply: Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC.

For the first time in History and for an event of this size, the Commentary Audio transmissions on the National Side were integrally carried out through ISDN AudioCodecs.

The Choice was close to 700 Units of the AEQ ACD-3000/3001 that won the Equipment evaluation performed by AT&T.

On the international Side Supplementary contracts was awarded to AEQ for the same type of equipment from EBU Sports (European Broadcasting Union) and were distributed throughout the World among the EBU Members and other Broadcasters that contracted this service from EBU Sports.

## **Winter Olympics, LILLEHAMMER '94, Norway.**

Services Rendered: Maintenance.

Equipment Supply: Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC.

## **Barcelona 92".**

Services Rendered: Installation and Maintenance.

Equipment Supply: Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC.



## **Seville "WORLD EXPO 92".**

Services Rendered: Installation and Maintenance.

Equipment Supply: 4W intercommunication Equipment and Sound Re-enforcement and Acoustics.



**Winter Olympics ALBERTVILLE '92, France.**

Services Rendered: Maintenance.

Equipment Supply: Design and delivery of the Commentary Switching Centre and 4W intercommunication Equipment for Commentary Switching Centre at IBC.

**WORLD CUP ITALY 1990.**

Services Rendered: Maintenance.

Equipment Supply: 4W intercommunication Equipment for Commentary Switching Centre at IBC.

**OLYMPIC GAMES SEOUL 1988.**

Services Rendered: None

Equipment Supply: 4W intercommunication Equipment for the International Broadcasting Centre.