No.

BASIC DESIGN STUDY REPORT
ON THE PROJECT
FOR
THE IMPROVEMENT OF PROGRAM PRODUCTION EQUIPMENT
OF THE NATIONAL TV AND RADIO BROADCASTING CORPORATION
IN
THE KYRGYZ REPUBLIC

JANUARY 2005

JAPAN INTERNATIONAL COOPERATION AGENCY
YACHIYO ENGINEERING CO., LTD.

GM
JR
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PREFACE

In response to a request from the Government of the Kyrgyz Republic, the Government of Japan decided to conduct a basic design study on the Project for the Improvement of Program Production Equipment of the National TV and Radio Broadcasting Corporation in the Kyrgyz Republic and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Kyrgyz a study team from July 5 to July 28, 2004.

The team held discussions with the officials concerned of the Government of Kyrgyz, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Kyrgyz in order to discuss a draft basic design, and as this result, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Kyrgyz Republic for their close cooperation extended to the teams.

January, 2005

Seiji Kojima

Vice-President

Japan International Cooperation Agency

January, 2005

LETTER OF TRANSMITTAL

We are pleased to submit to you the basic design study report on the Project for the Improvement of Program Production Equipment of the National TV and Radio Broadcasting Corporation in the Kyrgyz Republic.

This study was conducted by Yachiyo Engineering Co., Ltd., under a contract to JICA, during the period from June, 2004 to January, 2005. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Kyrgyz and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

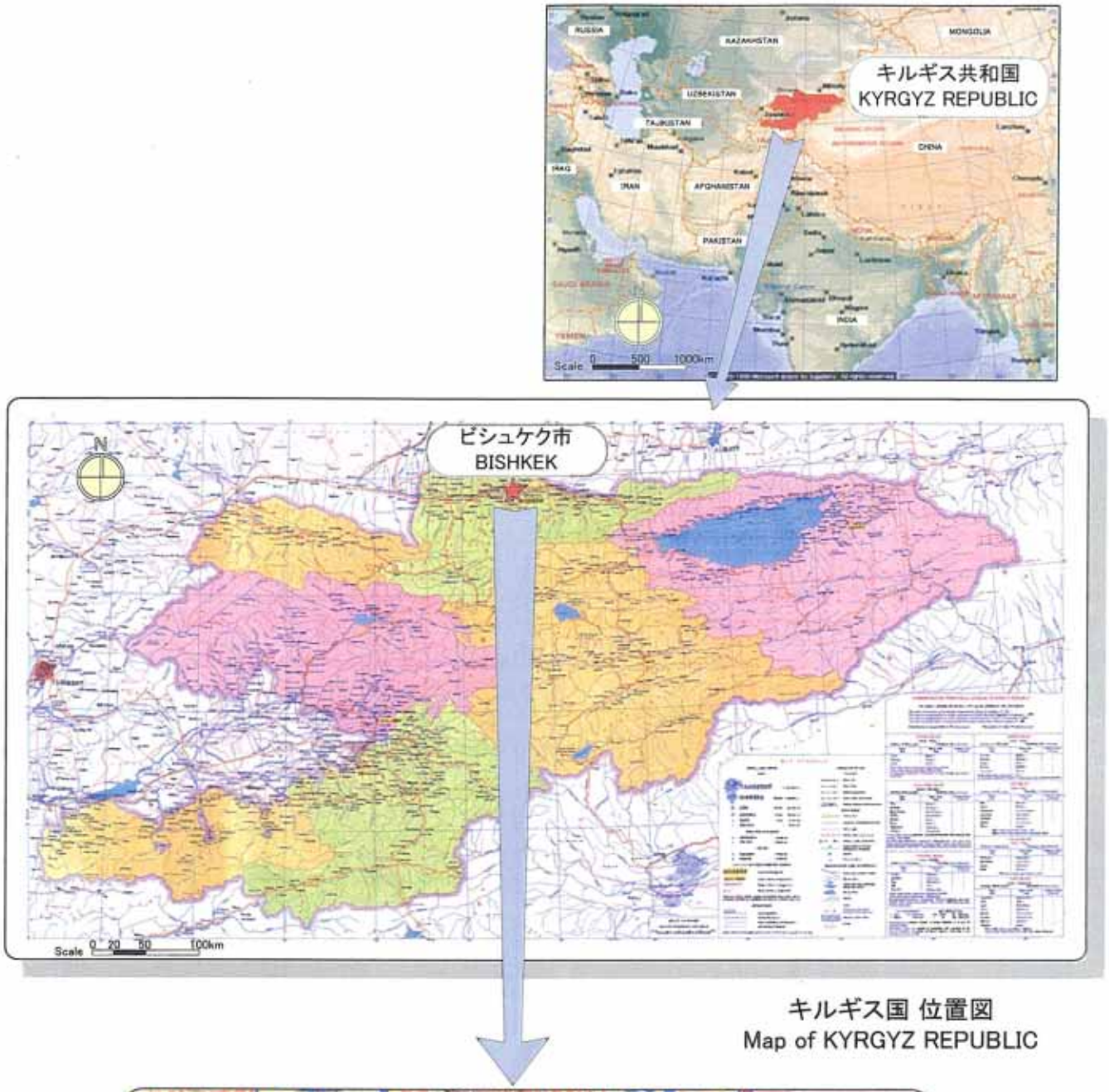
Very truly yours,

Kiyofusa Tanaka

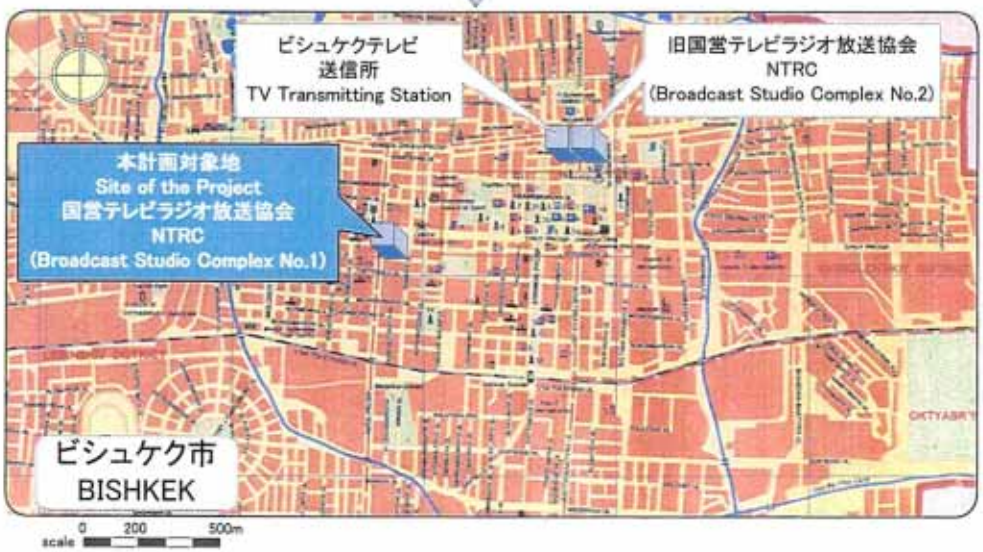
Project Manager,

Basic Design Study Team on the Project for the Improvement of Program Production Equipment of the National TV and Radio Broadcasting Corporation in the Kyrgyz Republic

Yachiyo Engineering Co., Ltd.



キルギス国 位置図
Map of KYRGYZ REPUBLIC



本計画対象地
Site of the Project

LIST OF FIGURES AND TABLES

ABBREVIATIONS

AES	Audio Engineering Society
AVR	Auto Voltage Regulator
CCD	Charge Coupled Device
CCIR	Comité Consultatif International des Radio-Communications
CCU	Camera Control Unit
CD	Compact Disk
CD-RW	Compact Disk Rewritable
DR	Director
DVD-RW	Digital Video Disk Rewritable
EBU	Europe Broadcasting Union
ENG	Electric News Gathering
E/N	Exchange of Notes
FPU	Field Pick-up Unit
IEC	International Electrotechnical Commission
ISO	International Organization for Standards
ITU	International Telecommunication Union
JCS	Japanese Electrical Wire and Cable Maker's Association Standards
JEAC	Japan Electric Association Code
JEC	Japanese Electrotechnical Committee
JEM	Standards of Japan Electrical Manufacturer's Association
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standards
LD	Lighting Director
MD	Mini Disk
MOF	Ministry of Finance
NTRC	National TV and Radio Broadcasting Corporation
NTSC	National Television System Committee
OJT	On the Job Training
PAL	Phase Alternative Line
PM	Picture Monitor
SECAM	Sequential Coulter Am moiré
SMPTE	Society of Motion Picture and Television Engineers
STL	Studio Transmitter Link
UHF	Ultra High Frequency
UNDP	United Nations Development Program
UPS	Uninterrupted Power Supply
VE	Video Engineer

SUMMARY

SUMMARY

The Kyrgyz Republic (hereinafter referred to as "Kyrgyzstan") is located between 39° 11″ and 43° 16″ north latitude and 69° 15″ and 80° 18″ east longitude and is an inland country which shares its boundaries with China, the Republic of Kazakhstan, the Republic of Uzbekistan, and the Republic of Tajikistan. Its territory is 199,900m^2 which is nearly half the size of Japan. Kyrgyzstan has a population of approximately 5.08 million. However, since most of its territory is covered by the Tianshan mountain range which extends east to west, most residents live at 1,800m above sea level. Despite independence from the former USSR in 1991, an economic slump due to deterioration in trade associated with price liberalization has resulted in a gross national income (GNI) per capita of 290 dollars, making it one of the world's most impoverished nations.

The aim of the Comprehensive Development Framework (2003 to 2004), which is a national development plan in Kyrgyzstan, is to create social stability in accordance with the principles of freedom and human dignity for the Kyrgyz people, eradication of poverty based on the concept of a stable economy, stable living, and a more dominant presence in the global community. Consequently, the Government of Kyrgyzstan is rushing to create a nation with the goal of achieving social order through guaranteed material distribution.

Prior to independence, the National TV and Radio Broadcasting Corporation (hereinafter referred to as the "NTRC") provided broadcasting through a branch station of Radio Moscow, until after independence when it was reorganized as the NTRC. Although approximately 60% of the population in Kyrgyzstan is Kyrgyz, it is a diversified ethnic society comprised of peoples of Russian and Uzbek origin. Although the official language is Russian, Kyrgyz is utilized on a daily basis and is the only language understood by local residents. Consequently, Kyrgyz is regarded as the national language. In the above-mentioned comprehensive development framework, since simultaneous television broadcasting of large amounts of information plays an important role in the sharing of information in Kyrgyzstan, as a public broadcaster the NTRC broadcasts nationwide primarily in the Kyrgyz language.

However, despite partial upgrading of recording equipment installed by the former USSR in the 1990s, it is currently impossible to obtain parts for most equipment such as consoles and monitors. Such broadcasting equipment has reached its utilization limit and program production has become hindered despite the viability of national broadcasting. Urgent upgrading of broadcasting equipment is fundamental to the continuity of public broadcasting.

Kyrgyzstan has requested a wide range of assistance to improve its infrastructure from the broadcasting sector to the global community. In 1995, at Kyrgyzstan's request, Japan implemented the

Study on the Project for Improvement of National Radio and TV Broadcasting Network through a development study by the Japan International Cooperation Agency. Since then, although Kyrgyzstan has received aid from other donor nations based on the Study for a long period of time, the contents of aid have been mostly limited to the procurement of equipment for studios and editing rooms. Aid it has received has been in the form of equipment of various models and manufacturers, so that broadcasting modes and recording formats are incompatible, resulting in lower efficiency during program production.

In order to improve the situation, the Government of Kyrgyzstan made a request for Japanese grant aid to upgrade and expand equipment used for TV program production at the NTRC. The Japan International Cooperation Agency (JICA), presently an independent administrative institution, carried out a preliminary study entitled the Project for Improvement of Program Production Equipment of the National TV and Radio Broadcasting Corporation in the Kyrgyz Republic between January and March 2004. Based on a report by the study team, the JICA dispatched a basic design study team to Kyrgyzstan from July 3 to 29, 2004, confirming the requested contents and project site survey, and collected related materials. After returning to Japan, the necessity of the project, its social and economic effect and relevance were examined based on the field survey, and an optimum plan and draft basic design were compiled. Based on this, the JICA again dispatched a study team to Kyrgyzstan from October 15 to November 2, 2004 in order to explain a draft of the basic design.

The Project will promote a reduction in repair cost due to the renewal of equipment at the NTRC and improve efficiency in program production. Accordingly, the number of educational and cultural programs independently produced in the Kyrgyz language and the number of broadcasting hours should be increased by reducing the maintenance cost or unit cost of program production.

The primary objective of the Project is to improve the efficiency of programming by integrating TV programs currently being produced at two new and one existing broadcasting stations in the city due to a shortage in equipment, and to upgrade deteriorated broadcasting equipment so that broadcasting at the NTRC can continue through the unification of recording equipment formats and digitalization of equipment used in program production. Secondly, in order to meet racial diversity, the Project aim is to provide equipment feasible to increasing the number of programs produced at studios by adding the function of “dubbing” to editing equipment or through a system configuration that will alleviate the operational burden at studios. In addition, equipment capable of effectively utilizing VTR tapes for materials and existing analogue equipment owned by the NTRC should also be provided.

A TV station is comprised of a studio where programs are recorded, an editing room where production is carried out, and a master control room where programs are broadcast. Since TV programs come in various forms, diversified techniques are adopted for each program production. TV programs are

classified as studio programs which are dramas or musical shows recorded on a set, relay programs which are recorded outdoors, and reports and news programs which should be easy-to-understand by viewers and where speed is a top priority. Diversified program composition inevitably provides a broad range of information to the general public and promotes democratic participation. In order to produce such programs, the TV station is comprised of two types of studios, a news studio and program production studio.

An outline of the basic design based on the results of a field survey and discussions between the basic design study team and the Kyrgyzstan side is described in the following table.

Outline of Basic Design

Item		System	Quantity
Procurement & Installation of Equipment	1	C-600-1 TV Studio System	1 set
	2	C-120 TV Studio System (including Studio Lighting System)	1 set
	3	Master Control System	1 set
	4	Format Conversion System	1 set
	5	ENG System	8 sets
	6	Video Non Linear Editing System	3 sets
	7	A/B Roll Editing System	2 sets
	8	1:1 Editing System	2 sets
Procurement of Equipment	9	Maintenance Equipment and Tools	1 set
	10	Consumables	1 set

In implementing the Project through the grant aid scheme of the Government of Japan, the total cost is estimated to be approximately ¥682 million (approximately ¥681 million borne by the Japanese side and approximately ¥1.74 million borne by the Kyrgyzstan side). The major undertakings on the Kyrgyzstan side will be interior work for editing room. The construction period for the Project including the implementation design and installation work is expected to be approximately 12.5 months.

The competent agency of the Project implementation in the recipient country is the Ministry of Finance of the Kyrgyz Republic and the implementing body is the National TV and Radio Broadcasting Corporation (NTRC). Since the total budget at the NTRC is approximately 120 million SOM (approximately ¥0.3 billion), the repair cost in the TV production sector under the Project is estimated to be approximately 1 million SOM (approximately ¥2.5 million). No problems in operations and maintenance are anticipated.

Since it will be possible for more 1.3 million people in Kyrgyzstan nationwide to watch TV broadcasting by the NTRC, broad-ranging benefits are anticipated. Accordingly, the following direct effects from implementation of the Project can be expected.

1) Continuity of TV Broadcasting

By installing the latest broadcasting equipment through the project, equipment functions which are impossible to repair will be recovered so that the continuity of TV broadcasting can be possible.

2) Increase in Number of Programs Produced

TV programs on education and health produced in Kyrgyz are an important source of information for rural residents, especially for those who do not understand Russian. It will be possible to expand programs independently produced in the Kyrgyz language by improving the capability of program production through the Project. The NTRC plans to produce programs in order to improve education and everyday life by collaborating with the Ministry of Education and the Ministry of Health. In addition, it plans to produce programs on Japan including Japanese ODA activities.

Accordingly, the NTRC has scheduled an increase in the number of programs independently produced in the Kyrgyz language from the current 46 hours per week to over 51 hours per week to begin five years after the application for equipment.

3) Securing Real-time News and Reports

Under the Project, it will be easy to produce programs on social or cultural issues in rural areas by effectively utilizing ENG equipment. In addition, it will be possible to provide live coverage of natural disasters, accidents and other incidents or social events to residents in affected areas.

The following indirect effects can be also expected.

In addition to the above-mentioned areas, natural science programming produced in the Kyrgyz language or health and medical information for the prevention of infectious diseases will increase through the program production efficiency. As a result, for those interested in information programs, this will also contribute to better awareness among the Kyrgyzstan people, including for those who do not understand Russian.

Since the above-mentioned effects are anticipated through the Project, Japanese grant aid is judged to be appropriate. Even in the operation and maintenance of the Project, no particular problems in its implementation are expected because the Kyrgyzstan side already has an adequate system from the personnel and financial aspects.

In order for the effects of the Project to be manifested and maintained, in the best interests of its people the Kyrgyzstan side should produce programming such as educational programs. By formulating a plan to reduce the unit cost of program production, advertising charges should be increased and equipment depreciated annually through surplus money. Moreover, funds for upgrading of equipment anticipated in the future should also be prepared.

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1. Members of the Basic Design Study Team
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CHAPTER 1

BACKGROUND OF THE PROJECT

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BACKGROUND OF THE PROJECT

(1) Necessity of the Project

As mentioned earlier, the NTRC was a branch station of the Radio Moscow during the former USSR. However, after the Kyrgyzstan obtained its independence, it became a state-operated broadcasting station and was reorganized as the NTRC in 2000. The NTRC plays an important roll as the sole station broadcasting Kyrgyzstan programs nationwide.

In 1995 Japan carried out a developmental survey entitled the "Study on the Project for Improvement of the National Radio and TV Broadcasting Network" (hereinafter referred to as the "Development Study") and proposed a master plan (M/P) to improve and strengthen broadcasting services in Kyrgyzstan. Based on this plan, in 2002 Kyrgyzstan introduced the Plan for Modernization of the Radio and TV Broadcasting Network (hereinafter referred to as the "Modernization Plan").

Although the NRTC has been efforts for the improvements in accordance with the Modernization plan, majority of the equipment at the said station were installed during the former USSR, which are remarkably deteriorated and unusable. It is hindered to continuously provide programs independently produced, uninterrupted and stable broadcasting and prompt news production.

(2) Outline of the Request

The outline of the Project is shown in Table 1.2-1.

Table 1.2-1 Outline of the Request

< Competent and Implementing Agencies >
Competent Agency : Ministry of Finance of the Kyrgyz Republic
Implementing Body : National TV and Radio Broadcasting Corporation (NTRC)

< Japanese side: At the request of the Kyrgyzstan side >
Procurement and installation of the following equipment (all items not specifically mentioned are items for TR station)

(1) Master control room equipment
(2) 600 m^2 studio [C-600-1] equipment
(3) 120 m^2 studio [C-129] equipment
(4) Non linear editing system
(5) A/B roll editing system
(6) Audio program editing studio (for ratio station)
(7) ENG
(8) Measuring instruments
(9) Spare parts
(10) Implementation of OJT

< Kyrgyzstan side>

(1) Security of electricity, broadcasting station building and transmitting facilities
(2) Removal of existing analogue equipment
(3) Building-related construction such as interior work for editing rooms
(4) Provision of counterparts related to technology transfer (OJT)

CHAPTER 2

CONTENTS OF THE PROJECT

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CONTENTS OF THE PROJECT

2.1 Basic Concept of the Project

(1) Overall Goal and Project Purpose

Prior to Russia's independence from the former USSR, NTRC was a subsidiary of Radio Moscow. However, in 1991 it was reorganized as the NTRC when the Kyrgyzstan gained its independence. Therefore, with a history of more than 40 years, the NTRC is currently the only organization which broadcasts nationwide mainly in the Kyrgyzstan language from 7:00 am to midnight.

Unfortunately, despite partial upgrading of recording equipment installed by the former USSR in the 1990s, most of the broadcasting equipment such as switches and monitors are more than 15 years old, and so it is impossible to obtain parts at the present time. The equipment has reached its limit of application. Therefore, under these circumstances and through government support, in 2002 the NTRC formulated a modernization plan with the aim of improving the Kyrgyzstan media, which has fallen behind compared to neighboring nations such as the Republic of Kazakhstan. In addition, since the NTRC's technical development strategy, which is affected by the modernization plan, is based on a Japanese development project implemented in 1995, this will contribute to improving the quality and quantity of all media, including television and radio. The NTRC began to modernize broadcasting by procuring steps to improve satellite transmission to remote areas and by coping with the media diversification. In addition, Internet services for the radio broadcasting through the realization of internet server are also being provided.

Although television broadcasting by the national network is possible, the shortage of broadcasting equipment remains a hindrance to program production. Therefore, in order to continue public broadcasting early upgrading is unavoidable. Much of the system is supplemented by less durable consumer-level products. In addition, although most of the main components are Japanese-manufactured, they were dispersed through small-scale aid schemes. Compatibility remains a problem due to dissimilarities between systems —VTR format, for example— which creates inefficiency thus hindering program production.

The aim of the project is to improve the function of TV broadcasting equipment and to unify the systems in accordance with the CCIR-B method (PAL-B) currently utilized in

the broadcasting building and diffused globally. Equipment viable to the efficient production of programming will be selected based on the latest digital technology after considering program exchanges with various neighboring counties.

The Kyrgyzstan side should make greater efforts to produce programs that contribute to impartiality, and help to improve people's standard of living by being sufficiently aware of its social responsibility toward public broadcasting through the utilization of upgraded equipment.

Studio broadcasting equipment under the project should fulfill the functions of existing equipment. The scope and contents of equipment to be procured under the project are shown in Table 2.1-1.

Table 2.1-1 Contents of Equipment to be Procured Under the Project

Item	Quantity
1 C-600-1 TV Studio System	1 lot
2 C-120 TV Studio System (Including Studio Lighting System)	1 lot
3 Master Control System	1 lot
4 Format Conversion System	1 lot
5 Field Recording (ENG) System	8 sets
6 Video Non-Linier Editing System (with Audio Equipment)	3 sets
7 A/B Roll Editing System	2 sets
8 1:1 Editing System	2 sets
9 Measuring Equipment and Tools	1 lot
10 Consumable Parts	1 lot

(2) Outline of the Project

The schematic diagram in Fig. 2.1-1 demonstrates the overall configuration of the existing NTRC and contents of the plan.

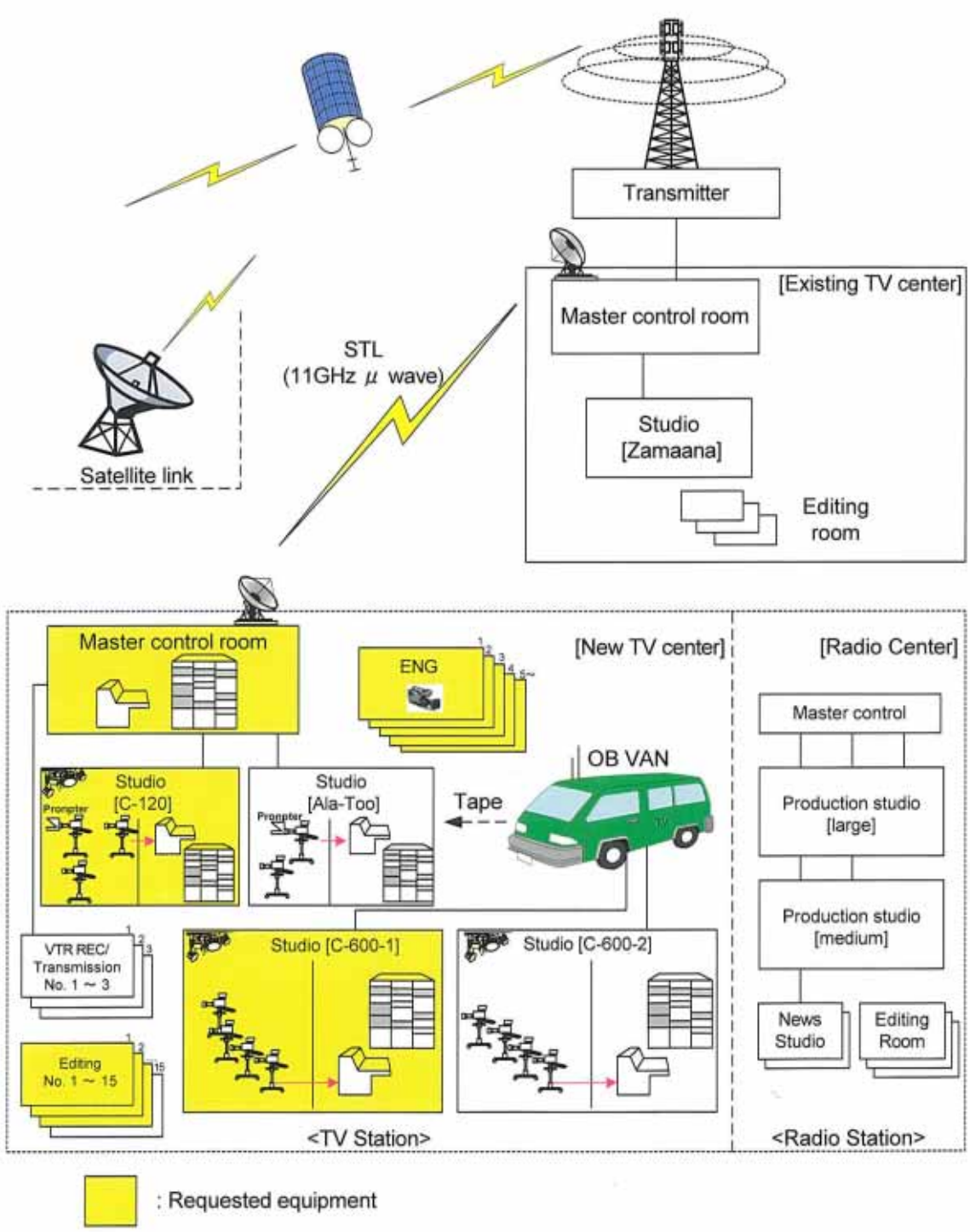


Fig. 2.1-1 Configuration of the Existing System and Equipment Requested

2.2 Basic Design of the Requested Japanese Assistance

2.2.1 Design Policy

2.2.1.1 Basic Concept

Views on the design of the Project are stated below.

(1) Purpose of Updating Equipment

The Project plans equipment based on the digital system which is expected to improve editing operations or operability for the purpose of increasing the number of programs produced independently and broadcasting hours by reducing the unit cost of program production or maintenance due to repairing parts, and by improving efficiency through the updating of equipment at the NTRC.

1) Continue the current level of TV program production such as news, education and culture by updating broadcasting equipment at the NTRC television station with the aim of improving daily life.

2) Improve the efficiency of program production by integrating TV programs produced at 2 broadcasting stations in the city due to a shortage of present equipment into the new studio center.

3) Improve the efficiency of program production by unifying formats under the Project since current TV programs are diversified and range from broadcasting quality to home/consumer quality, in addition to 2-inch VTRs utilized or the present ½-inch sized equipment.

4) Improve quality of recording through the digitalization of program production equipment.

5) Arrange equipment in a feasible manner to promote an increase in the number of TV programs at studios by moving the program transmission functions to the higher quality master control system.

6) Add the function of “dubbing” to local language editing equipment to meet the diversified racial composition.

7) Arrange equipment capable of effectively utilizing old-style VTR tapes and existing analogue equipment owned by the NTRC.

(2) Scope of Assistance

1) TV Studio Configuration

A TV station is comprised of a studio where a program is recorded, an editing room where production is carried out and a master control room where a program is broadcast. Since TV programs have various forms, diversified techniques are adopted for each program production. TV programs are classified as studio programs in which dramas or music are recorded by assembling a set, relay programs which are recorded outdoors, and reports and news programs which should be easy-to-understand by viewers and where speed is a top priority. Diversified program composition inevitably provides a broad range of information to the general public and promotes democratic participation. In order to produce such programs, the TV station should have the following two types of studios.

① Program Production Studio (C-600-1 is suitable) ── By assembling various sets on the studio floor, cameras and microphones will be installed. The sub-control room will be designed mainly to create sound effects, video effects and lighting effects, etc. Consequently, this will be a fairly large-sized studio＋sub-control room (with an emphasis on performance effects).

② News Studio (C-120 is suitable) ── In order to transmit prompt and easy-to-understanding information to viewers, broadcasting equipment which transmits character data through a telop, illustrations utilizing computer graphics and titles, or outside communications circuits will be provided in the sub-control room. In addition, equipment such as a prompter (script reading device used while watching a camera) which improves the announcing function will be installed in the studio. Although this is essentially a small-sized studio, the overall composition will be a small-sized＋sub-control room (with an emphasis on function to aid understanding).

When integrating the functions of both studios, equipment in the sub-control room will be complicated and become expensive. In order to maintain the current program formation, it will be necessary to operate the program production studio at least 14 hours per day and the news studio 18 hours per day. Accordingly, separate plans should be made for the program production studio and the news studio.

2) Maintenance of Program Formation

At the present time, the NTRC conducts broadcasting from 7:00 am to 24:00 p.m. midnight. Program formation mainly includes a news program "Zamaana" in the morning and an evening news program "Ala-Too". Both programs provide important information for daily life or enlighten viewers on gender issues or social problems by conveying domestic and foreign news to people through live broadcasts.

Although these programs are recorded and broadcasted under the same program names of "Studio Zamaana" and "Studio Ala-Too", the two studios are not expected to last only for much longer due to the time required to supply spare parts. In particular, the Studio Zamaana, located at the existing studio center, has more than 40 years old, and most of equipment has stopped functioning. As a result, programs are being produced using temporary consumer-grade equipment. In addition, due to the deterioration in power lines and building condition, the facilities should be transferred to the building where the new studio center is located.

The daily timetable for Studio Zamaana and Studio Ala-Too are shown below.

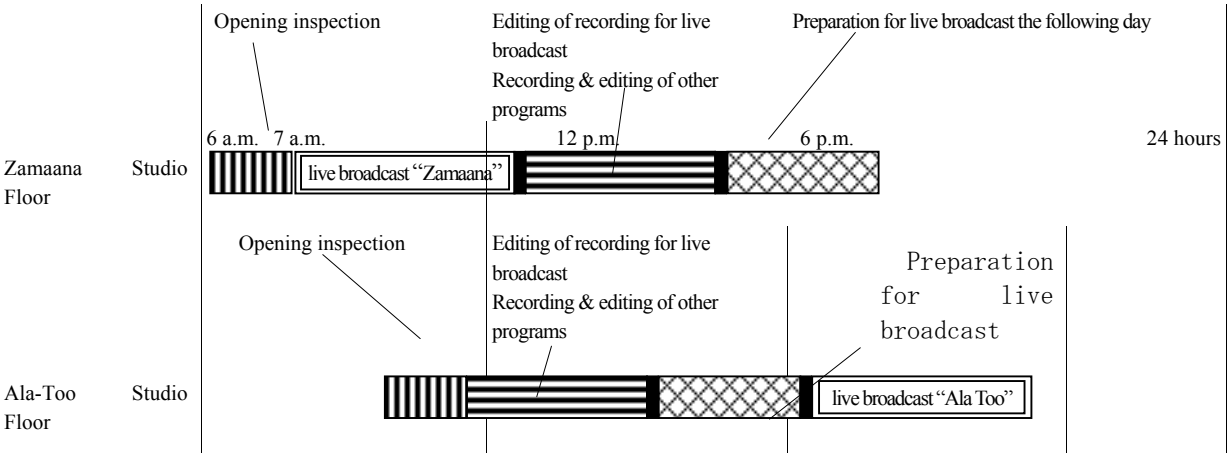


Fig. 2.2-1 Timetable of the Zammana and Ala-Too Studio Floors

In addition, due to a shortage of equipment the OB Van owned by the NTRC cannot conduct live broadcasts. Since TV news programs differ from newspapers in that newsflashes are important, the NTRC conducts live broadcasts in the morning and afternoon by editing camera reports (ENG camera) in the sub-control room located next to the studio. Although special news programs, movies and educational programs are produced between live broadcasts, such programming is produced

almost entirely using home/consumer equipment which is prone to trouble during the studio's idle time or in other editing rooms.

As mentioned earlier, it is difficult to utilize both studios currently in service on a continual basis. If only C-600-1 receives assistance, it will be difficult to maintain the current program formation. Therefore, both the C-600-1 studio and C-120 studio will be subject to assistance.

(3) Switching to Digital Technology

Since broadcasting equipment such as VTRs and cameras are made with electronic parts, it is possible to convert and store images or sounds into electronic data and process it at high speed due to technological developments in microprocessors. In addition, since software for processing hardware or images in parts has become universal, lower-pricing is now a reality while reliability has improved. Consequently, broadcasting equipment capable of converting pictures or sound into electronic data which used to be available only on high-quality broadcasting equipment is now widely applied. So a limited number of parts for existing analogue broadcasting equipment are currently being manufactured.

Operation of digital equipment is essentially the same as analogue. However, since both digital hardware and software technologies for converting analogue images or sound to data have progressed significantly, easy recording and processing is possible with minimal loss in quality. At the same time, thanks to digitalization, technologies and special effects impossible with analogue equipment are now a reality. On the other hand, the upgrading of all analogue equipment to digital is unrealistic due to the heavy cost involved. Therefore, existing analogue equipment should be utilized effectively to minimize cost. Furthermore, program producers and engineers capable of operating various types of digital equipment are required.

In the Project, considering the planned use of some analogue equipment for transmission, the input system to the audio control console will be capable of selecting either analogue or digital signal input. Special attention will be paid to ensuring a high quality of broadcasting even though a combined system of analogue and digital signals is used. Fig. 2.2-2 is flowchart of VTR (analogue and digital) at the NTRC television station after implementation of the Project.

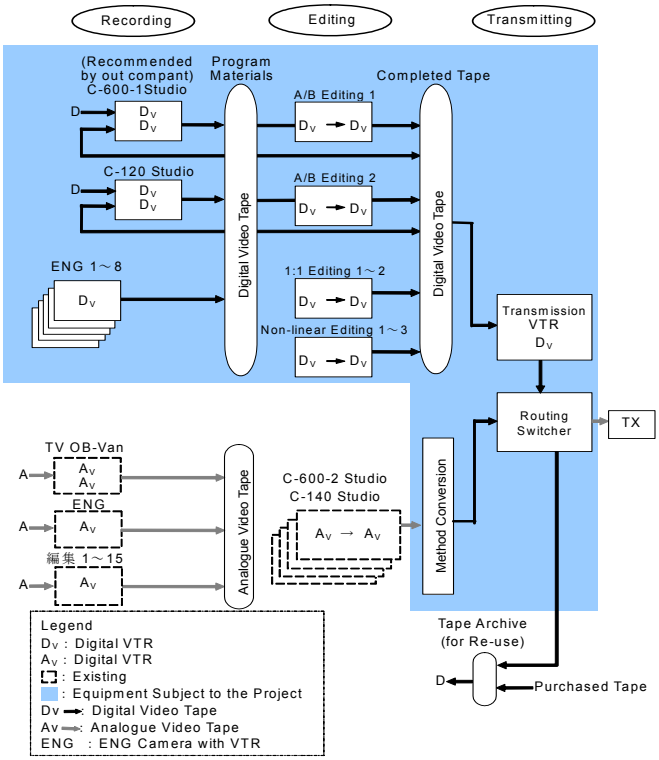


Fig. 2.2-2 Flowchart of VTR Tape (Analogue & Digital)
After Implementation of the Project

(4) Coping with Diversified Media

In keeping with the development of recent digital technologies, media used for recording pictures and sound have shifted from tape to optical disk or memory disks. To address this situation, the Project will also select media for newly introduced equipment after considering the latest trend in technologies.

Most of the current recording equipment utilized by the NTRC television station is the same ½-inch analogue video cassette tape often utilized by Japanese TV stations. During the selection of recording equipment, compatibility with stored recorded tapes and methods used by neighboring countries should be taken into account.

(5) Equipment Grade

Different categories of broadcasting equipment reflecting the purpose and location of use" are used, i.e. "home/consumer use", "professional use" or "broadcasting station use". Equipment for "broadcast station use" is quite expensive due to its high reliability and redundancy for the purpose of ensuring continual operation and to keep trouble to a minimum. However, some Japanese broadcasting stations utilize equipment for "professional use" because of its auxiliary nature. The grade of equipment to be provided under the Project will be either "professional use" or "broadcast station use". Although equipment for "home/consumer use" is inexpensive, it is not considered an option for the main equipment since its durability level is lower than equipment in the other two categories.

(6) Procurement Method and Work Schedule

The Project site is inland, so most of the equipment to be procured from Japan will be transported overland by railway via Kazakhstan, Siberia and China. Considering the transportation period, transportation cost and freight loading procedures necessary when transporting from Japan through Central Asia (Kazakhstan, Uzbekistan, Tajikistan and Kyrgyzstan), the most suitable route is through China. The transportation route is shown in Fig. 2.2-3. Based on this route, the required transportation period is approximately 40 days.

＜Transportation Route＞

1) Marine transportation : Japan (Yokohama) ⇨ China (Lienyunkang Port)
2) Land transportation (railway) : China(Lienyunkang Port)⇨Kazakhstan (Druzhba) ⇨ Kyrgyzstan（Bishkek）
3) Land transportation (truck) : Kyrgyzstan（Bishkek）⇨ Project site (NTRC)

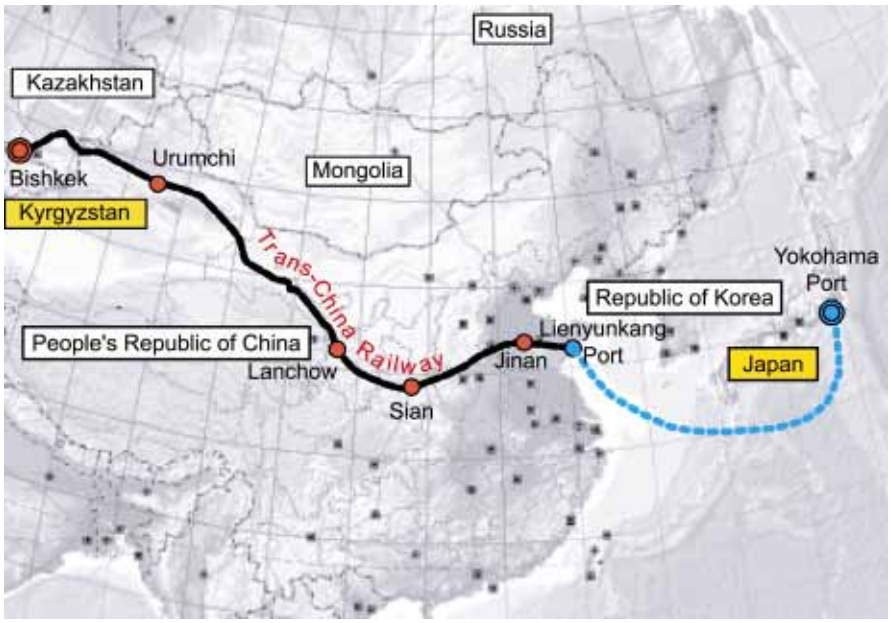


Fig. 2.2-3 Transportation Route

2.2.1.2 Outline of the Project

(1) Outline of the Project

Generally speaking, the Project will improve the functions of existing equipment used for studio broadcasting. The Project aim is to revitalize public information services such as production information by promoting continuity of Kyrgyzstan TV broadcasting and efficiency in the number of program productions through the renewal of equipment and improvement in equipment performance. Minimum quantities were calculated as follows based on the current program formation tables.

(2) Calculation of Planned Quantities

For renewal of old broadcasting equipment and facilities at the NTRC TV station, the requested assistance and scale were established within a minimum scope while taking the current conditions of the station into consideration (state of equipment, feasible scope for broadcasting, maintenance system, budget, technical operation level, upgrading plan, and actual results of facilities and equipment), the current state of broadcasting, the co-existing balance and compatibility between present equipment (analogue) and new equipment (digital) based on the competency to produce programs. With respect to the establishment of the requested assistance and scale necessary for studios and editing equipment under the Project, from the viewpoint of program production, continuity of broadcasting business and the beneficial effects which are the objectives of the equipment request, collective upgrading of the TV broadcasting equipment in the studios

and master control room at the NTRC is reasonable. The broadcasting equipment is comprised of a collective system. Therefore, if some part of the system breaks down, it hinders the continuity of broadcasting, for example, through the interruption of sound or images. If the broadcasting equipment is upgraded under the Project, stable broadcasting can be maintained. At the same time, the efficiency of program production through digitalization will be improved. This is also feasible for NTRC's future plan to increase production of educational programs and continual unbiased news reporting.

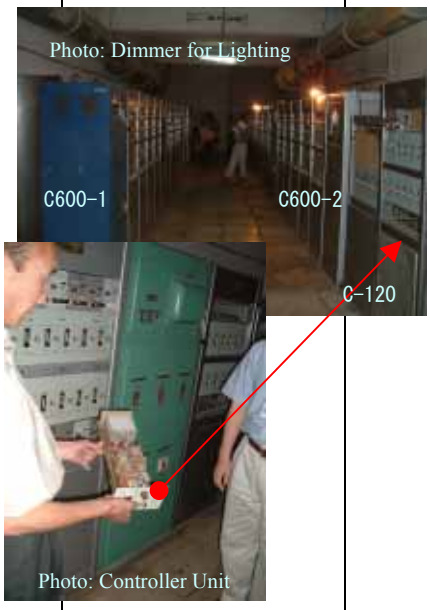
The scope of each requested system is as follows. As mentioned earlier, if only the C-600-1 studio and the editing system are completed, although it is possible to renew equipment or digitalize some program productions, the news studio needed for a broadcasting station cannot be upgraded, VTR formatting cannot be unified and so the efficiency of program production cannot be improved. Therefore, to display the minimum effects the C-120 studio is also necessary.

Table 2.2-1 Scope of Assistance

No.	System Name	Quantity	Description
1	Field Recording (ENG) System	8 sets	With regards to the studios that produce programs at the NTRC TV station, if the Project is realized, it will be possible to utilize 4 studios. However, field recording is essential to diversified programs. All existing ENG cameras are products procured by the NTRC and have built-in VTR mechanisms from the 1990s. Although there are 13 camera units which can be presently utilized, none are for professional use and tape size varies, so they are inefficient. The Team recognizes that 8 units of ENG cameras are needed. The breakdown is shown below. a. For local news reporting : 3 units b. For news reporting in Bishkek : 2 units c. For education and PR programs : 3 units In addition to cultural programs and special news reports, utilization of ENG is anticipated when preparing CMs. However, the above-mentioned 8 units are expected to be sufficient. Based on the above rationale, a minimum quantity of 8 new sets seems reasonable.

No.	System Name	Quantity	Description
2	Non-Linear Editing system	3 sets	A non-linear editing system is generally utilized in "cut editing" of program materials involving cutting and pasting of only necessary recorded images. The required number of units for the system is based on operating hours (62 hours per day) from the NTRC program formation tables. For example, a daily operating time of 10 hours means 6.2 units of editing through the 1:1 editing system. Such editing includes a 1:1 cut editing system utilizing 2 VTR units. Due to the simple operation of the 1:1 cut editing system many broadcasting stations utilize the system even today. Since the non-linear editing process can be displayed on a computer, from the viewpoint of efficiency of the operations, the efficiency of non-linear editing was estimated to be 1.7 times of the 1:1 editing system. From this calculation, 3.7 unit systems are necessary based on the number of the operating hours. In addition, this type of cut editing system is frequently used in visual editing through ENG cameras (8 sets) utilized for news reporting. However, news programs are often required to provide prompt information, during disasters for example. So it should be possible to produce other programs in the idle time between news program productions. For the above-mentioned reasons, 2 sets were judged to be the minimum quantity.
3	A/B Roll Linear Editing System	2 sets	With respect to the A/B roll linear editing system, the estimated operating time based on the program formation tables is 47 hours per day. If the daily operation time is 10 hours, 47 hours/10 hours = 4.7 sets are needed. As mentioned earlier, the Project will enable the master control system to forward programs so that it will be possible to effectively utilize VTRs in the sub-control room during the off time of each studio. Consequently, by effectively utilizing the equipment in each studio, editing work for 1 unit of A/B roll linear editing becomes possible, thus reducing the need by 1 set from 4.7 sets. In addition, so that some sound effect equipment can be added to the program production function of the non-linear system and to maintain the balance between economy and overall editing operations, the 1:1 cut editing system will be added. For the above-mentioned reasons, 2 sets of A/B roll linear editing systems are considered to be the minimum quantity. Two sets of 1/1 cut editing system are judged to be supplementary during a shortage. Kyrgyzstan is a multi-lingual nation with each region utilizing its own tribal language. In addition, according to the NTRC, very few people understand Russian, the most common language outside Bishkek, the nation's capital. Although the NTRC maintains a nationwide TV broadcasting network, for various reasons, it is necessary to "dub" contents of a program with the language of each tribe. A system called post production is necessary for this type of program editing. However, with the A/B roll linear editing system and announcement booths created at the cost of other countries, simple dubbing work and insertion of comments to add functions is possible. Therefore, some operations during post production are possible.

No.	System Name	Quantity	Description
4	1:1 Cut Editing System	2 sets	In addition, although the 1:1 cut editing system is frequently utilized in visual editing through ENG cameras (8 sets under the Project) utilized in news reporting, news programs are often requested to provide up-to-date information on disasters, etc. It is expected that other programs can be produced during the off-time of news program production. For the above-mentioned reasons, the quantity described earlier was judged to be the minimum.
5	C-120 Studio System	1 set	With respect to the C-120 studio system, the operating time is calculated to be 18 hours based on the program formation tables. The C-120 studio system has entered a renewal period so that upgrading is now appropriate. The Project plans to upgrade the system through digitalization, so 1 set of the C-120 studio system is reasonable. With respect to consideration in the case of excluding C-120 from the Project, as mentioned earlier, when considering cost effectiveness, at least the introduction of the C-120 studio system is necessary. At the present time, the NTRC has the "Ala-too studio" aided by Denmark at the new TV center and the "Zamaana studio" in the old existing TV center. Both studios are comprised of broadcasting equipment for home/consumer use, especially at the Zamaana studio where the equipment is more than 40 years old. Therefore, due to the deterioration of power supply cables and building condition renewal is appropriate. Aside from news broadcasts the Zamaana studio undertakes the responsibility of cultural broadcasting. On behalf of the Zamaana studio, it is necessary to renew the C-120 studio and the C-600-1 studio under the Project.
6	Lighting System for the above system	1 set	The lighting systems in said studios are described as follows. The lighting systems of C-600-1 and C-120 to be scheduled under the Project and C-600-2 which is not subject were manufactured by the former USSR. Since electric bulbs are manufactured at a plant in Russia even now, they appear to be frequently utilized in CIS. Therefore, they should be easily obtainable. In addition, elevating equipment used to rise and lower lighting is electromotive. Although the size of the equipment is large, improvement is possible through self-supporting efforts. Therefore it is possible to utilize these. However, the production of dimmers on the 4th floor of the building is suspended and 3 controlling units are utilized in the studios; so these should be replaced in the future. Accordingly, the Project includes the lighting system in the C-120 studio, which is frequently utilized and thought to have a lower cost impact if the lighting system in the C-600-1 studio is turned off. Since the dimmer unit in the C-120 studio is common to lighting equipment from other studios, its effective utilization is possible by upgrading the lighting equipment currently utilized in C-120, thus making it possible to prolong the life of the entire TV station.



No.	System Name	Quantity	Description
7	C-600-1 TV Studio System	1 set	With respect to the C-600-1, operating time is calculated to be 14 hours based on the program formation tables. When taking studio rehearsal or the adjustment of time for performers and cast into account, although it is possible to extend the utilization time, it is possible to deal with this by shifting working hours, etc. The C-600-1 studio system has exceeded its renewal period. In addition, as mentioned earlier, utilization of the Zamaana studio has become limited, so the NTRC is strongly hoping for renewal. Due to the above-mentioned circumstances, the renewal of the C-600-1 studio system is regarded to be reasonable.
8	Lighting System for the above system	Not included	As described earlier, except for the lighting controller, the NTRC can maintain the system. Consequently, if upgrading of the C-120 is realized, a longer period of maintenance is possible if parts from the lighting controller in the old C-120 are utilized.
9	Master Control System	1 set	Presently at the NTRC, each studio forwards data to the transmitter. The Project will promote the efficiency of program production and also clarify partial responsibility between program production and transmission work by reducing the burden of studio operations and introduce a master control room of higher-ranking operations capable of forwarding broadcasting data from master control, a system generally applied in today's broadcasting stations. The existing master control system has exceeded its life expectancy. Since upgrading of the systems through digitalization is planned under the Project, upgrading of 1 master control system is reasonable.
10	Format Conversion System	1 set	Since it is necessary to convert the existing diversified VTR formats into digital format and to convert SECAM and NTSC into the PAL system (although the broadcasting system in Kyrgyzstan adopts a SECAM system, signals up to the master control room apply the PAL system), 1 set is judged to be the minimum appropriate quantity.
11	Audio Production Studio Facilities	Not included	Although this is radio station equipment, it is difficult to display the effects of improving the master control room with only the studio's cooperation. In addition, the degree of importance is judged to be low based on the business scale.
12	Measuring Equipment and Tools	1 set	Since the NTRC possesses the minimum number of measuring instruments for analogue equipment, they investigate the cause of trouble or carry out repairs. If the Project is implemented, regarding the equipment necessary for operating and maintaining digital equipment, 1 set is judged to be the minimum appropriate amount of measuring instruments for digital equipment corresponding with the planned broadcasting facilities.
13	Consumables	1 set	As for the minimum quantity of the following parts and goods, 1 set is judged to be appropriate. ・ Items necessary to run video and audio tapes. ・ With respect to training necessary for replacement of parts which is strongly requested by the NTRC, it is desirable to implement technical guidance at the supplier's plant. With respect to the handling of daily equipment inspections, although the implementation of OJT is planned, necessary materials and spare parts for training will be included in a training kit.

(3) Configuration of Broadcasting Equipment

Included in the Project is the upgrading of broadcasting equipment mainly for the two studios and master control system. Taking compatibility with existing analogue equipment and that of neighboring countries into consideration, equipment cost will be a major factor in the configuration. The outline of the TV broadcasting equipment under the Project is shown in Table 2.2-2.

The 600m^2〔C-600-1〕studio layout (draft), 120m^2〔C-120〕studio layout (draft), composition (draft) of each system and ENG equipment are shown in Fig. 2.2-4, Fig. 2.2-5, Fig. 2.2-6 and 2.2-7 and Fig. 2.2-8 respectively.

Table 2.2-2 Outline of TV Broadcasting Equipment under the Project

Room Name		Application	Major Equipment
A. Master Control Room		To switch on and off and to monitor broadcasts	a. Video/Audio console b. Video monitor shelf (to monitor incoming and outgoing pictures with a small clock) c. Audio monitor speaker d. Delivery VTR (local, net, distribution) e. Video logo generator/inserter f. Automatic level controller g. Equipment rack (installation of video switcher, audio switcher and auxiliary equipment) h. Room to room intercom system
B. 600 ㎡ Studio [C-600-1]	Program production studio floor	To produce live or recorded quiz shows, talk shows and dramas	a. Color camera (x 4) b. Color monitor for floor monitor, speaker (with Jeep box) c. Intercom system for the floor director d. Various types of microphones, stands e. On-air indication light (manual control)
	Program production studio sub-control room	To house production consoles for studio and auxiliary equipment	a. Digital video switcher (with digital effecter) b. Digital audio mixer console c. Video monitor console (CCU control and others) d. Video monitor shelf e. Audio monitor speaker f. VTR for REC/PB (dual method) g. Auxiliary audio equipment (CD, etc.) h. Equipment rack i. Character generator j. Intercom system k. On-air indication light (manual control)

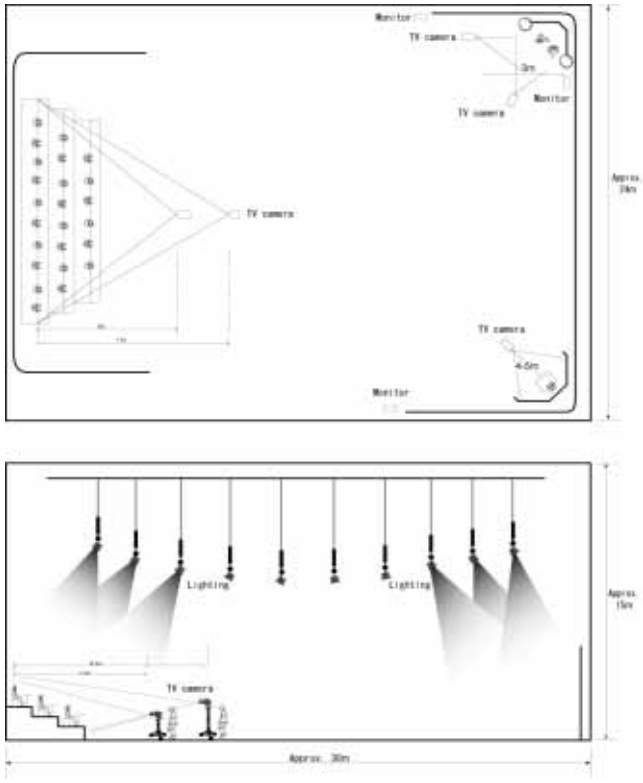


Fig. 2.2-4 600m^2 [C-600-1] Studio Layout

Room Name		Application	Major Equipment
C. 120m^2 Studio [C-120]	News Production Studio Floor	To produce live broadcasts such as news	a. Color camera (x 3, one with prompter function) b. Lighting equipment c. Color monitor and speaker for floor monitor (with Jeep box) d. Intercom system for the floor director e. Various types of microphones, stands f. On-air indication light (manual control)
	News Studio Sub-control Room	To house production consoles for studio and auxiliary equipment	a. Digital video switcher (with digital effecter) b. Digital audio mixer console c. Lighting console and dimmer rack d. Video monitor console (CCU control)) e. Video monitor shelf f. Audio monitor speaker g. VTR for REC/PB (dual method) h. Auxiliary audio equipment (CD, etc.) i. Character generator j. Room to room intercom system k. On-air indication light (manual control)

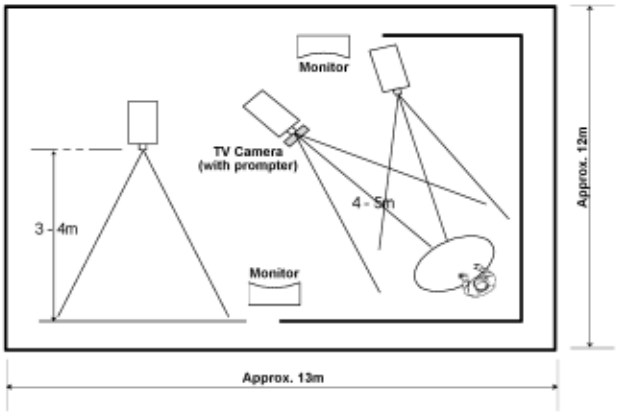


Fig. 2.2-5 120m^2〔C-120〕Studio Layout

D. Editing Room	D-1 A/B Roll System	To conduct A/B editing	a. Editing controller b. Digital video switcher (with digital effecter) c. Telop processor d. Digital audio mixer e. Auxiliary audio equipment (CD, etc.) f. Digital video player/recorder g. Video and audio monitor
	D-2 Video Non-linear Editing System	For editing and adding special effects to recorded programs	a. Non-linear editing station b. Digital voice mixer c. Auxiliary audio equipment d. Digital video player/recorder (multi-channel method) e. Video and audio monitor
	D-3 1:1 Cut Editing System	To conduct 1:1 editing	a. Editing controller b. Digital video player/recorder c. Video and voice monitor
	D-4 Format Conversion System	To convert video formats	a. Matrix SW b. Video and audio signal distribution amplifier c. VTR (player): existing analogue d. VTR (recorder): digital e. Video and voice monitor
E. News Program Production Equipment	Field Recording (ENG) System	To conduct ENG	a. ENG camera b. Lighting equipment c. Portable mixer (4CH, battery-powered) d. Interview microphones e. Outdoor monitor f. Battery g. Headphone

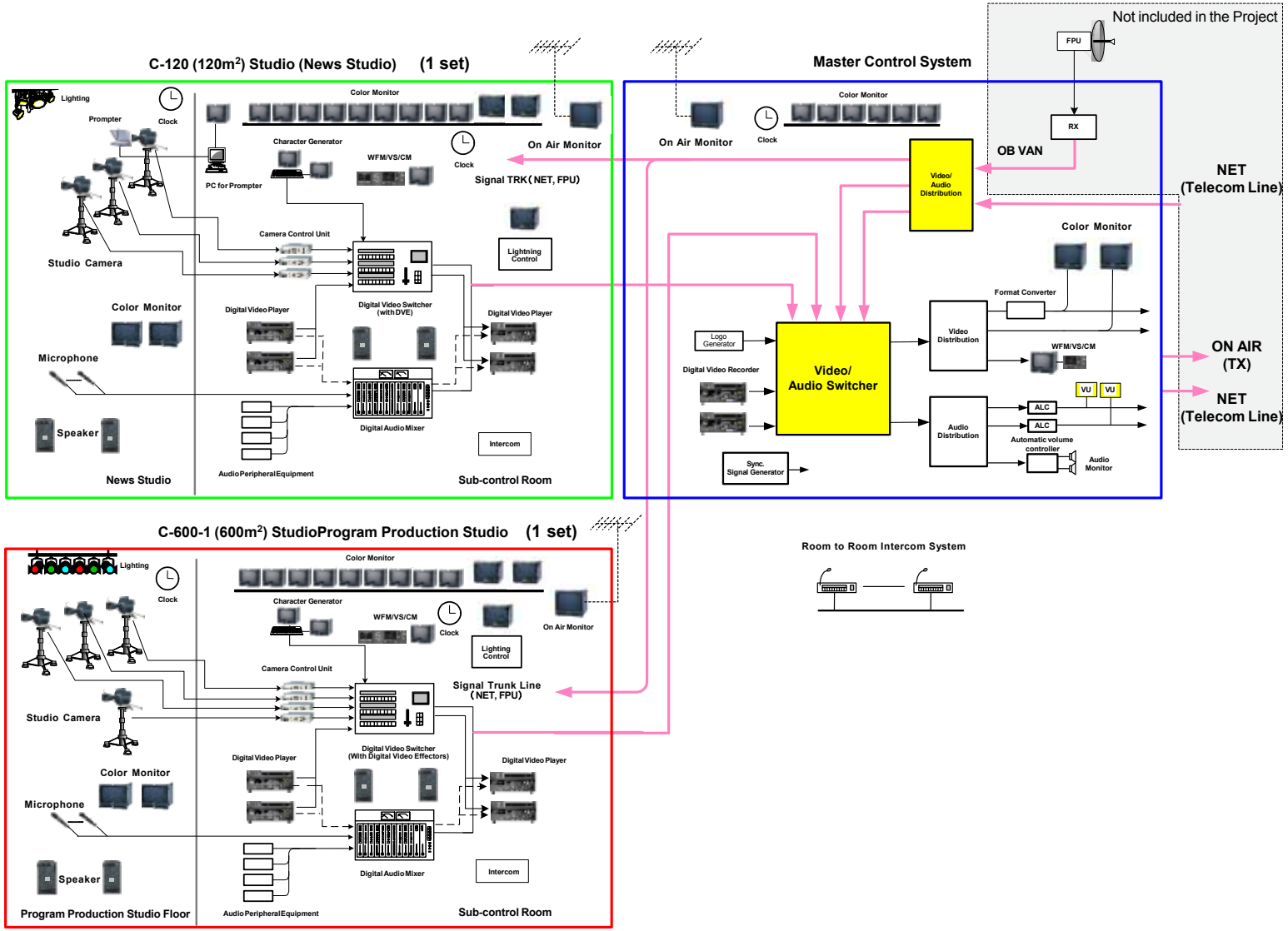


Fig. 2.2-6 Master Control Room, 120m^2 Studio & 600m^2 Studio Systems

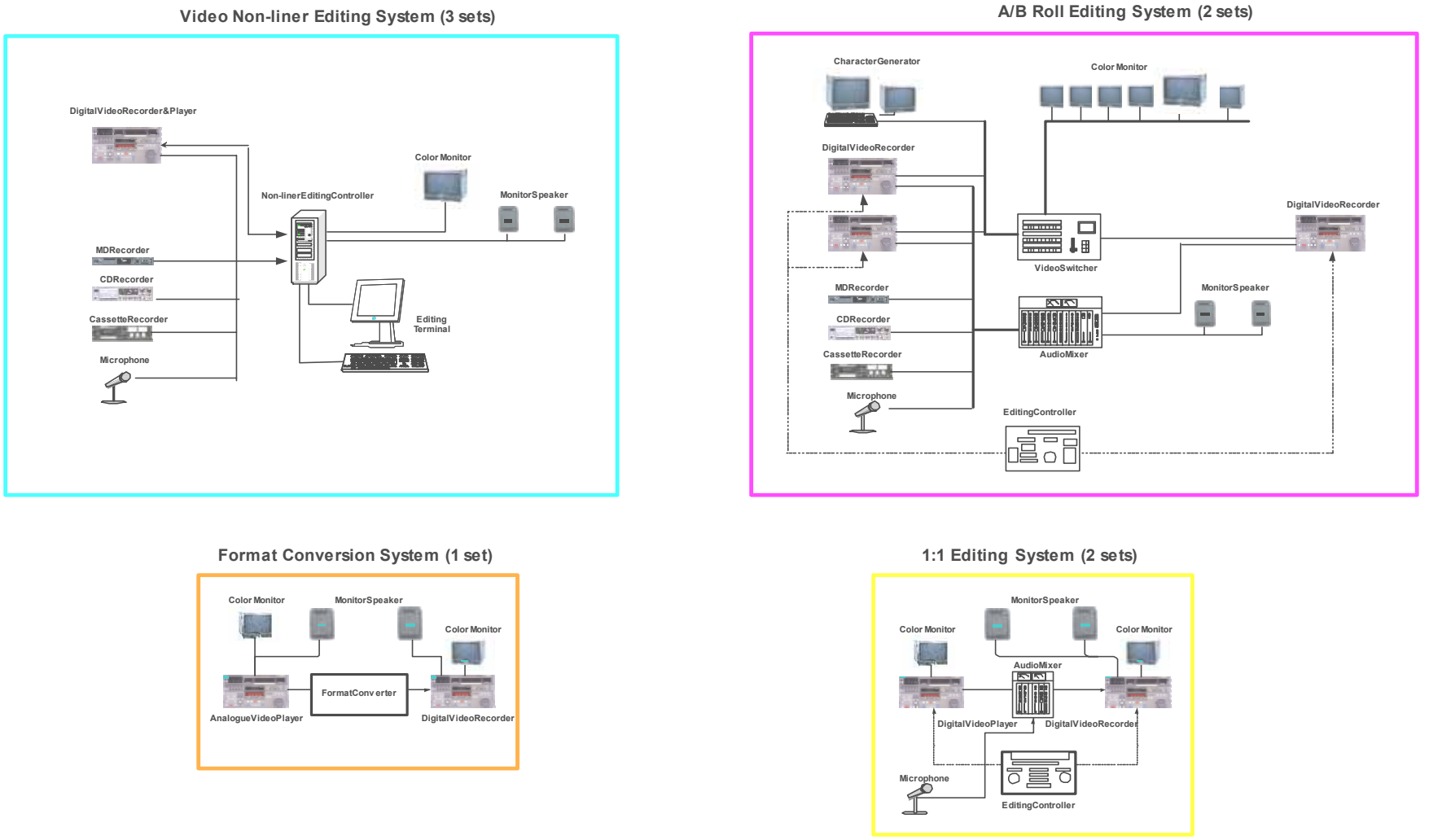


Fig. 2.2-7 Editing Room System

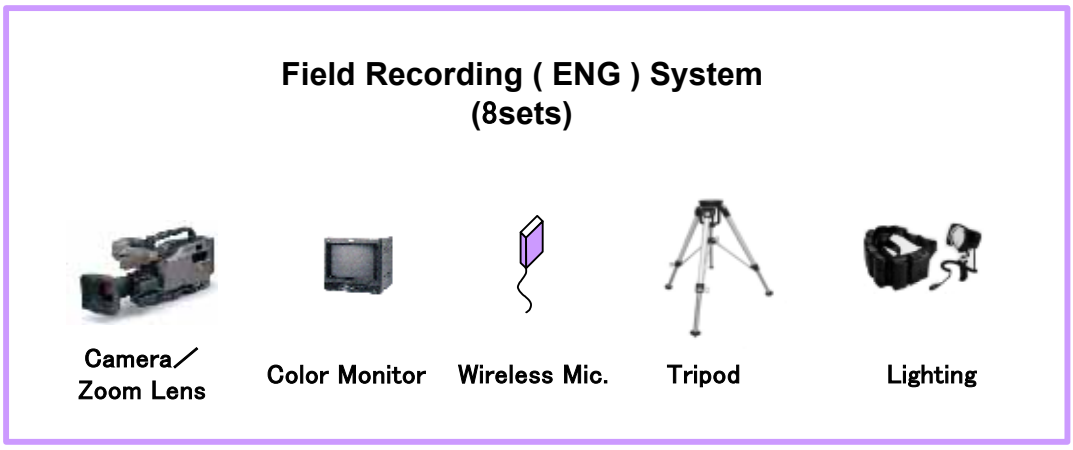


Fig. 2.2-8 Field Recording (ENG) System

(4) Installation of Equipment and Existing Facilities and Equipment

With respect to equipment layout, by basically taking the upgrading of existing equipment into account, existing equipment will be removed by the Kyrgyzstan side and then the new equipment will be installed. However, with respect to editing equipment, analogue equipment is regarded to be utilized for the time being under the present condition at the rural broadcasting station (in Osh City) in Kyrgyzstan, if the Kyrgyzstan side transfers the existing editing equipment, consideration should be sufficiently taken.

2.2.1.3 Layout of Broadcasting Equipment

With respect to equipment layout, by basically taking the upgrading of existing equipment into account, existing equipment will be removed and replaced. The equipment layout is shown in Fig. 2.2-9.

Fig. 2.2-9 NTRC Studio Plan (Underground 1st Floor, 1st Floor, 2nd Floor, 3rd Floor)

2.2.1.4 Power Supply, Air-conditioning System

(1) Power Supply System

1) Power Supply Conditions within the NTRC Building

Although the frequency of the power supply and voltage for commercial use in Bishkek fluctuates less, the quality of power supply utilized in the broadcasting equipment is important. Therefore, the voltage quality of the low-voltage power supply within the NTRC building was measured under the following conditions.

① Measuring Period / Location

Line 1 & 2 : From July 15 (11:33)to 16 (10:30), 2004 at C-600-1 Studio
* At the present time, AVR in Line 2 is not connected due to trouble; AVR in Line 1 is shared.

Line 3 : From July 16 (11:33) to 17 (08:55), 2004 at Master Control Room

Line 4 : From July 12 (13:46)to 12 (23:55), 2004 at Editing Room

② Nominal Voltage: 220 to 225V (Single phase, 2 wires)

Although the rated voltage for the power supply for commercial use within the city is 220V, in due consideration of voltage drops caused by constant load from the broadcasting equipment in the NTRC building, the above-mentioned lines are set between 220 and 225V through an automatic voltage regulator. In addition, the broadcasting equipment to be procured by the Japanese side under the Project should be operated within a voltage range of ±10% (192V to 242V) of the rated voltage (220V).

③ Measuring Results: Refer to Figs 2.2-10 to 2.2-12.

As a result of the measurements, voltages from Line 1, 2 and 4 are confirmed to travel within the permissible range as shown in the above-mentioned ②. The power supply quality does not appear to be hinderer in any way when utilizing broadcasting equipment thanks to the automatic voltage regulator (AVR).

However, with respect to the voltage in Line-3, depending on the time zone, the voltage value exceeds the permissible range in the above-mentioned ②. Although it is possible to utilize the said line for general electrical products with

AVR specifications, there is a fear that it may hinder the utilization of digital broadcasting equipment to be procured under the Project.

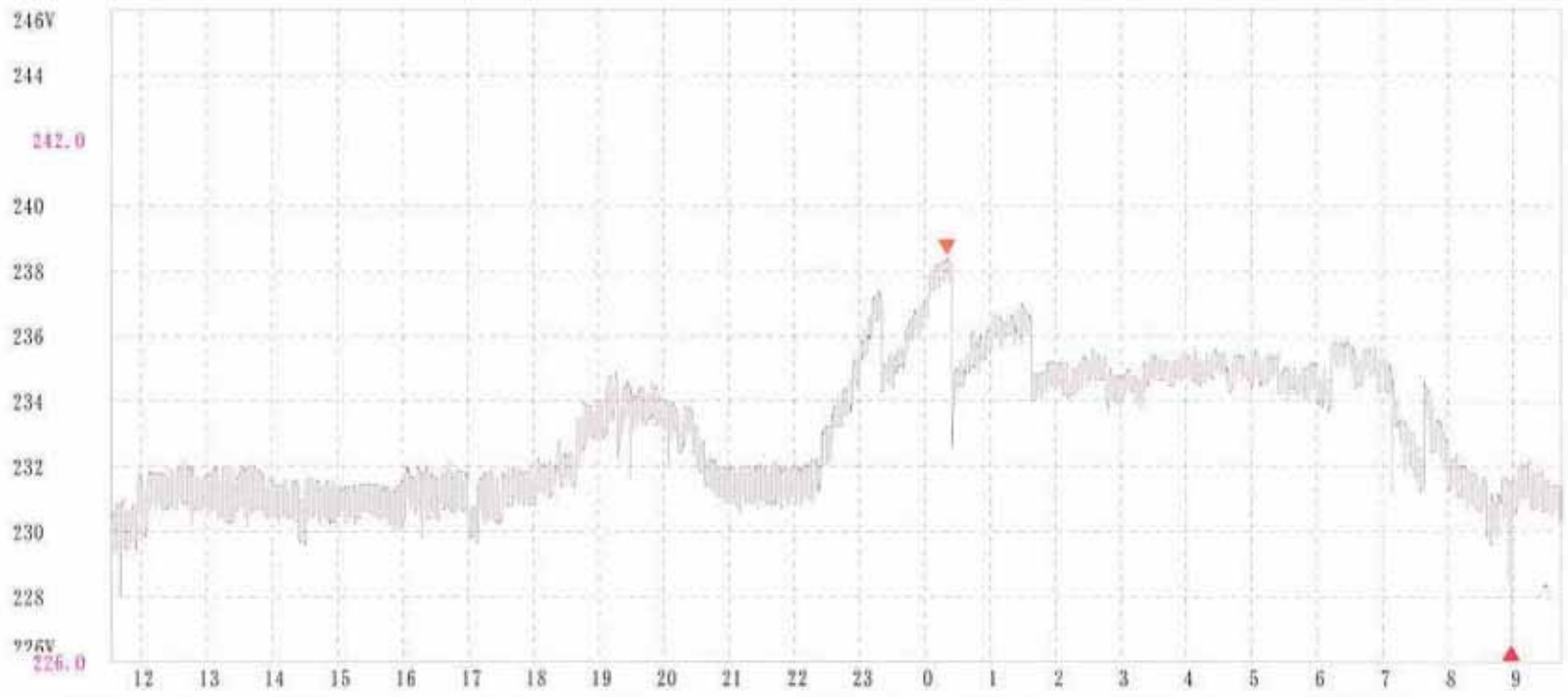
2) Power Supply System

Due to the above-mentioned conditions, the necessary volume of AVR will be added to broadcasting equipment installed in the master control room, C-120 studio and sub-control room, the location of the power supply.

Single phase three wires
ID:02076068

Date Name: ID:02076068
Period: 23hours [Maximum Value/ Minimum Value]

Comment MRC640L1
Period: 2004/07/15 11:33~2004/07/16 10:30



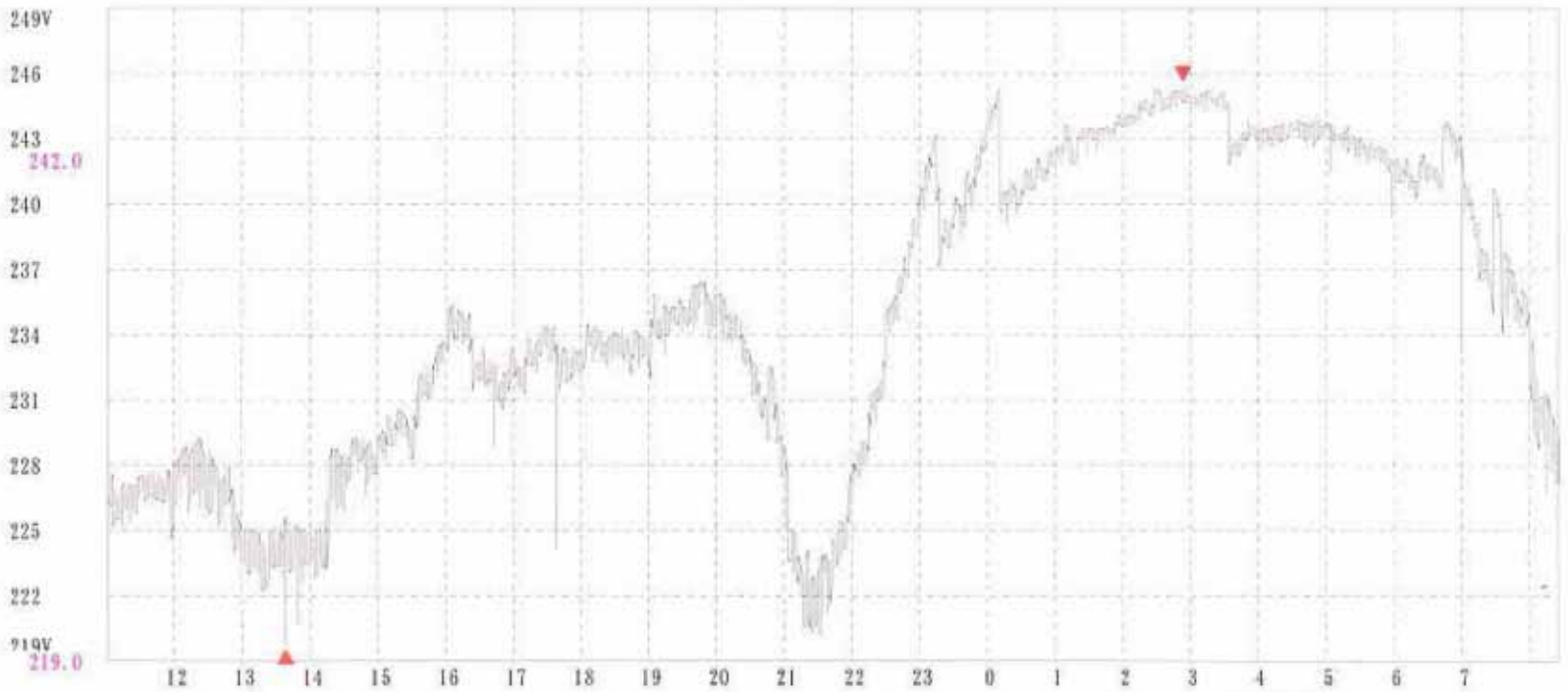
Maximum Value	07/16 00:19 238.4V	Minimum Value	07/16 08:55 226.6V

Fig. 2.2-10 Results of Voltage Measuring at the NTRC TV Station (Lines 1 & 2)

Single phase three wires
ID:02076068

Date Name: ID:02076068
Period: 22hours [Maximum Value/ Minimum Value]

Comment MRC640L1
Period: 2004/07/20 11:02~2004/07/21 09:09



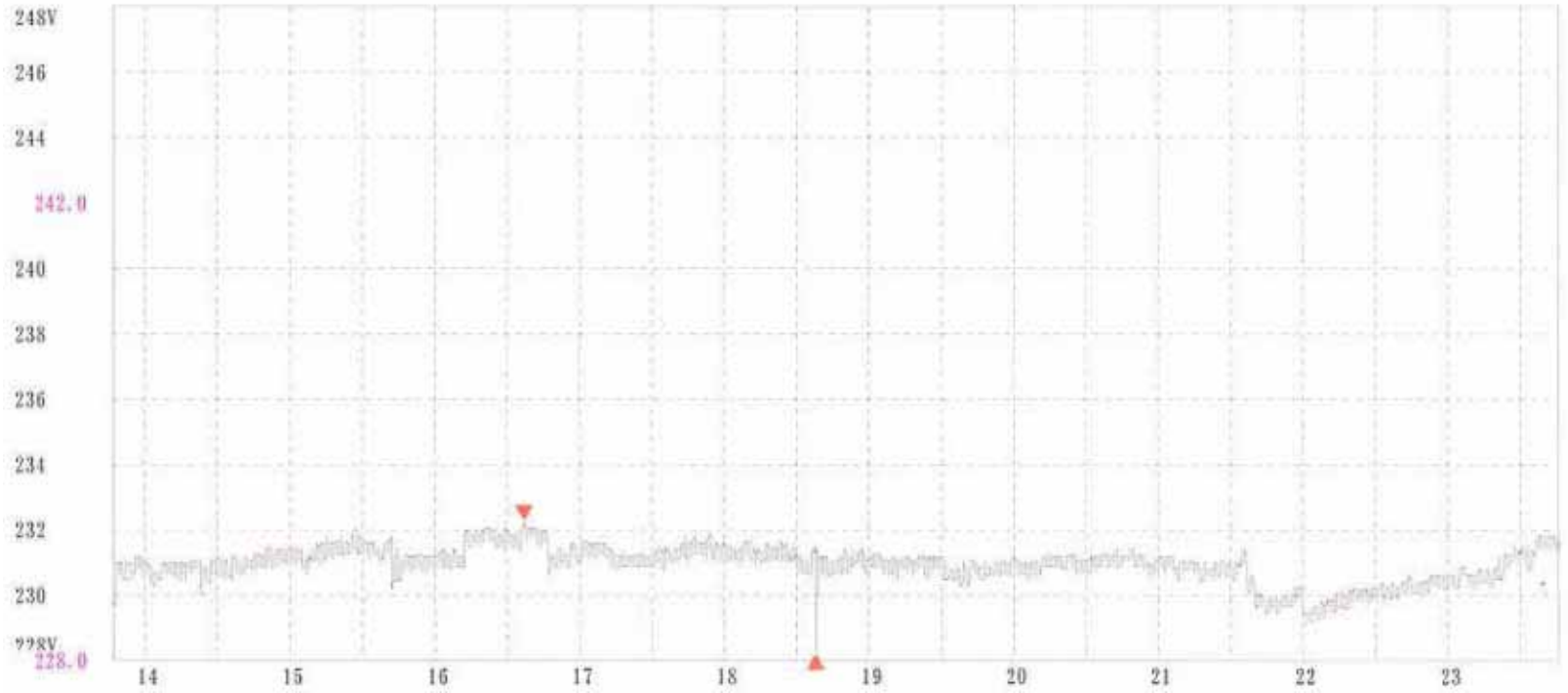
Maximum Value	07/21 02:55 245.5V	Minimum Value	07/20 13:39 219.7V

Fig. 2.2-11 Results of Voltage Measuring at the NTRC TV Station (Lines 3)

Single phase three wires
ID:02076068

Date Name: ID:02076068
Period: 10hours [Maximum Value/ Minimum Value]

Comment MRC640L1
Period: 2004/07/12 13:46~2004/07/12 23:55



Maximum Value	07/12 23:55 232.2V	Minimum Value	07/12 18:38 228.3V

Fig. 2.2-12 Results of Voltage Measuring at the NTRC TV Station (Line 4)

(2) Air-conditioning System

1) Air Conditioning

Since broadcasting equipment are precision devices, in order to prevent the occurrence of condensation due to a rapid change in room temperature and humidity, it is necessary to provide appropriate air conditioning. In order to confirm the capability and effects of performance of the existing air-conditioning system (central system), changes in temperature and humidity inside and outside the room were measured under the following conditions utilizing a digital measuring instrument to record over an extended period of time.

① Measuring Period

Case ① : From July 9 (9:56) up to 10 (17:26), 2004
Case ② : From July 12 (9:58) up to 14 (8:58), 2004

② Measuring Locations

Case ① : C-600-1 studio floor, C-600-1 sub-control room,
C-600-2 studio floor, C-600-2 sub-control room and outside
Case ② : C-120 studio floor, C-120 sub-control room,
master control room, editing room and outside

③ Measuring Results: Refer to Figs 2.2-13 and 2.2-14.

As a result, the temperatures measured at each location were 20°C and 30°C. These temperature values did not fluctuate abruptly or rise over a period of time due to heat associated with broadcasting equipment.

In addition, the humidity measured at each location changed sharply every 2 or 3 hours. Such changes in humidity were probably due to the following factors:

- Intermittent rain, temperature dropped temporarily and humidity rose at the same time.
- The existing air conditioning system was operated only during studio on-air time, so the temperature fell and humidity rose during operation.
- Due to the number of doors in each room, doors left open when carrying sets in and out of studios, or maintenance related matters by NTRC personnel, etc., warm air entered and humidity rose temporarily.

Despite the transition in humidity observed at the above-mentioned locations, the temperature in each room remained fairly constant and there was no interference with dew point temperature in either case. Therefore, there was no influence or damage to broadcasting equipment from condensation.

2) Air Conditioning System

As described above, it was confirmed that the existing air conditioning system within the NTRC building functioned appropriately without special hindrance to application and operation of the existing broadcasting equipment. It is unnecessary to renew the central air conditioning system under the Project. However, NTRC personnel should continue to carry out periodical maintenance of the existing air conditioning system and try to avoid excessive opening and closing of doors, etc.

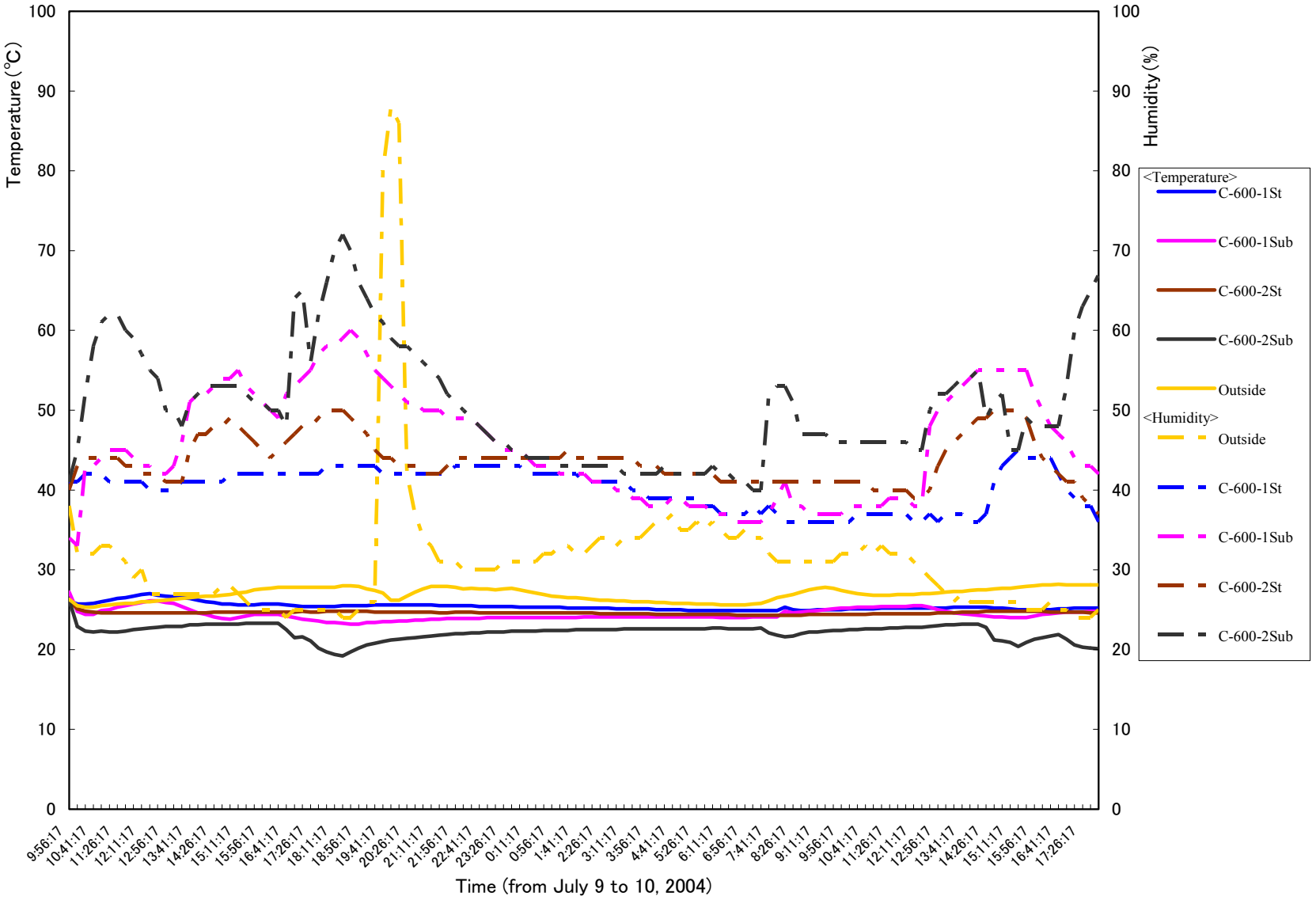


Fig. 2.2-13 Results of Atmospheric Measuring (Case ①)

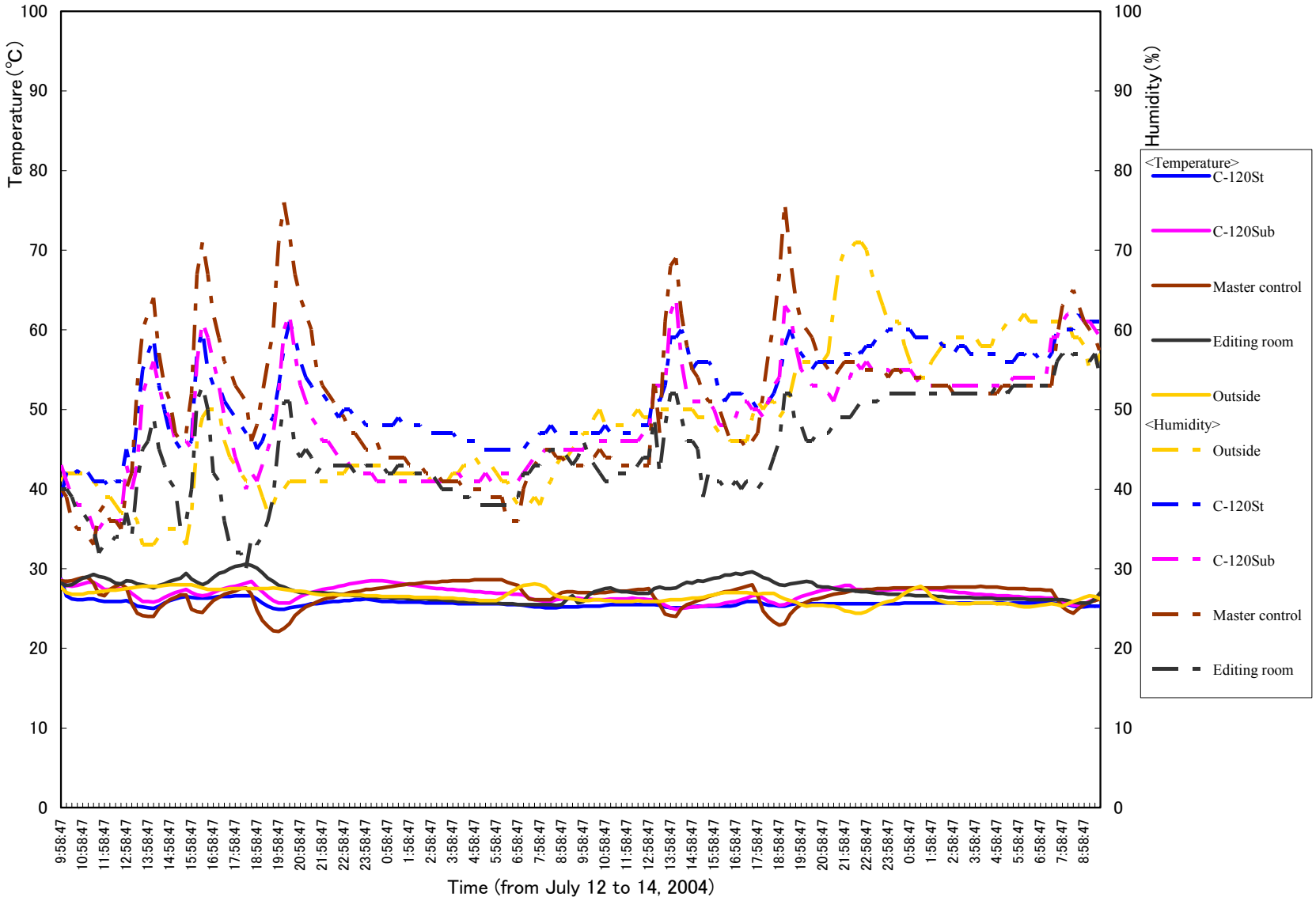


Fig. 2.2-14　Results of Atmospheric Measuring（Case ②）

2.2.2 Basic Design Drawings

The equipment list, layout diagrams and equipment block diagrams of the broadcasting equipment subject to the Project are shown.

Table 2.2-3 Equipment List

<Layout Diagrams>

3.4.1: Layout of 600㎡ Studio Control Room
3.4.2: Layout of 120㎡ Studio Control Room
3.4.3: Layout of TV Master Control Room
3.4.4: Layout of Format Conversion Room
3.4.5: Layout of Video Non-liner Editing Room
3.4.6: Layout of A/B Roll Editing Room-1
3.4.7: Layout of 1:1 Editing Room

<Equipment Block Diagrams>

3.2.1: Schematic Diagram of Video/Audio Signal Flow
3.2.2: Schematic Diagram of Video/Audio Sync & TRK Line

Sy-1 Block Diagram of C-600-1 Studio Video System
Sy-2 Block Diagram of C-600-1 Studio Audio System
Sy-3 Block Diagram of C-600-1 Studio Intercom System
Sy-4 Block Diagram of C-120 Studio Video System
Sy-5 Block Diagram of C-120 Studio Audio System
Sy-6 Block Diagram of C-120 Studio Intercom System
Sy-7 Block Diagram of Master Video System
Sy-8 Block Diagram of Master Audio System
Sy-9 Block Diagram of Format Conversion System
Sy-10 Block Diagram of Video Non-Liner Editing System
Sy-11 Block Diagram of A/B Roll Editing System
Sy-12 Block Diagram of 1:1 Editing System

Table 2.2-3 Equipment List

No.		Description	Q'ty	
1.		**C-600-1 TV studio System**	**1**	**lot**
	1.1	Digital Color Camera	1	lot
	(1)	3-Chips CCD Camera	4	sets
	(2)	Tripod Attachment	4	sets
	(3)	Camera Adaptor	4	sets
	(4)	5"B/W View Finder	4	sets
	(5)	21x Zoom Lens	4	sets
	(6)	Lens Remote Controller	4	sets
	(7)	Camera Control Unit	4	sets
	(8)	Camera Remote Control Panel	4	sets
	(9)	Pedestal	4	sets
	(10)	Camhead (with Pan Bar)	4	sets
	(11)	Script Holder	4	sets
	(12)	Camera Cable		
		a) CCU to Camera CN Plate (Studio)	4	sets
		b) Camera CN Plate to Camera	4	sets
	(13)	Camera CN Plate (for Studio)	1	set
	(14)	Test Chart Set	1	set
	(15)	Test Chart Stand	1	set
	1.2	Digital VTR System	1	lot
	(1)	Digital VTR（PB/REC）	2	sets
	(2)	Digital VTR（PB）	2	sets
	(3)	Video Monitor (Rack Mount Type)	4	sets
	(4)	Audio Monitor Speaker (Rack Mount Type)	4	sets
	(5)	Remote Control Unit	4	sets
	(6)	Rack Mount Kit	4	sets
	1.3	Digital Video System	1	lot
	(1)	Digital Production Switcher	1	set
	(2)	Effecter (2D, 3D)	1	set
	(3)	Analogue to Digital Converter	1	set
	(4)	Digital to Analogue Converter	1	set
	(5)	VDA, DDA, VJ, Patch cable	1	lot
	(6)	Rack	1	lot
	(7)	Console	1	lot
		a) for DR, SW'er	1	set
		b) for VE	1	set
	(8)	Video Monitor Switcher	1	lot
		a) Video Monitor Switcher shelf	1	set
		b) Select Panel for VE	1	pc
		c) Select Panel for LD	1	pc
	1.4	Character Generator	1	lot
	(1)	Character Generator	1	set
	(2)	14 inch Color Monitor	1	set
	(3)	17 inch Multi-scan Display	1	set

No.		Description	Q'ty	
	(4)	Table	1	set
	(5)	Take Switch Panel	1	set
	(6)	UPS	1	set
	1.5	Digital Audio System	1	lot
	(1)	Audio Mixer (with Backup Power Supply)	1	set
	(2)	Analogue to Digital Converter	1	set
	(3)	Digital to Analogue Converter	1	set
	(4)	Compact Disk Player (CD-RW)	2	sets
	(5)	Audio Cassette Tape Recorder	1	set
	(6)	Mini Disk Player	1	set
	(7)	Audio Monitor Speaker (Rack Mount Type)	2	sets
	(8)	Audio Effector	1	set
	(9)	Telephone Hybrid (2ch)	1	set
	(10)	Effector Wagon	1	set
	(11)	ADA, DDA, AJ, Patch cable	1	lot
	(12)	Rack	1	lot
	(13)	Operating Table	1	lot
	(14)	Audio Sync Generator	1	set
	1.6	Microphone	1	lot
	(1)	Lavaliere Microphone	4	sets
	(2)	Dynamic Microphone	4	sets
	(3)	Condenser Microphone (for Music, Vocal)	8	sets
	(4)	Wireless Michrophone		
		a) Hand type UHF Wireless Mic.	2	sets
		b) Pocket type UHF Wireless Mic. (with Lavaliere Mic.)	2	sets
		c) UHF Synthesizer Tuner (with Anttena)	1	set
	(5)	Gun Michirophone	1	set
	1.7	Microphone Stand	1	lot
	(1)	Boom Stand (large size)	1	set
	(2)	Floor Stand	6	sets
	(3)	Table Stand	6	sets
	1.8	Microphone Cable	1	lot
	(1)	Mic Cable: 20m	10	sets
	(2)	Mic Cable: 10m	10	sets
	(3)	Mic Cable: 5m	10	sets
	(4)	8pairs MIC Multi Cable 25m (with CN box, Reel)	1	set
	1.9	Microphone Connector Plate	1	lot
	1.10	Video Sync System	1	lot
	(1)	Sync. Signal Generator	1	set
	(2)	Video Distribution Amplifier	1	set
	1.11	Monitoring System (A/V)	1	lot
	(1)	14-inch Video Monitor	18	sets
	(2)	20-inch Video Monitor	5	sets
	(3)	29-inch Studio Floor Monitor (with Stand)	2	sets
	(4)	Waveform Monitor		
		a) Analogue	1	set
		b) Digital	1	set

No.		Description	Q'ty	
	(5)	Vector Scope	1	set
	(6)	Monitor Speaker/Amp. for Mixer (Stereo)	1	set
	(7)	Monitor Speaker for VE&DR (Stereo)	2	sets
	(8)	Audition Monitor Speaker (Stereo)	1	set
	(9)	Studio Monitor Speaker/Amp (Stereo with Stand)	2	sets
	(10)	Studio Talk back Speaker/Amp.(Stereo)	2	sets
	(11)	Studio Fold back Speaker/Amp.(Stereo)	1	set
	(12)	14-inch Master Video Monitor	1	set
	(13)	Air Monitor	1	set
	(14)	Monitor Shelf	2	sets
	(15)	A/V Monitor CN Panel	1	lot
	(16)	Stereo Headphone	1	set
	1.12	Intercom System	1	lot
	(1)	Studio Intercommunication	1	lot
	(2)	Head set, Microphone	1	lot
	1.13	On-Air Light and Tally System	1	lot
	(1)	OA Tally Logic	1	set
	(2)	OA Tally Light for PM	1	lot
	(3)	OA Tally Light for Floor, Entrance	1	lot
2.		**C-120 TV studio System**	**1**	**lot**
	2.1	Digital Color Camera	1	lot
	(1)	3-Chips CCD Camera	3	sets
	(2)	Tripod Attachment	3	sets
	(3)	Camera Adaptor	3	sets
	(4)	5"B/W View Finder	3	sets
	(5)	17x Zoom Lens	3	sets
	(6)	Lens Remote Controller	3	sets
	(7)	Camera Control Unit	3	sets
	(8)	Camera Remote Control Panel	3	sets
	(9)	Pedestal	2	sets
	(10)	Pedestal (for Prompter Camera)	1	set
	(11)	Camhead (with Pan Bar)	3	sets
	(12)	Script Holder	3	sets
	(13)	Prompter System	1	set
	(14)	Camera Cable		
		a) CCU to Camera CN Plate (Studio)	3	sets
		b) Camera CN Plate to Camera	3	sets
	(15)	Camera CN Plate (for Studio)	1	set
	(16)	Test Chart Set	1	set
	(17)	Test Chart Stand	1	set
	2.2	Digital VTR System	1	lot
	(1)	Digital VTR（PB/REC）	2	sets
	(2)	Digital VTR（PB）	2	sets
	(3)	Video Monitor (Rack Mount Type)	4	sets
	(4)	Audio Monitor Speaker (Rack Mount Type)	4	sets
	(5)	Remote Control Unit	4	sets

No.		Description	Q'ty	
	(6)	Rack Mount Kit	4	sets
	2.3	Digital Video System	1	lot
	(1)	Digital Production Switcher	1	set
	(2)	Effecter (2D, 3D)	1	set
	(3)	Analogue to Digital Converter	1	set
	(4)	Digital to Analogue Converter	1	set
	(5)	VDA, DDA, VJ, Patch cable,	1	lot
	(6)	Rack	1	lot
	(7)	Console	1	lot
	(8)	Video Monitor Switcher		
		a) Video Monitor Switcher shelf	1	set
		b) Select Panel for VE	1	pc
		c) Select Panel for LD	1	pc
	2.4	Character Generator	1	lot
	(1)	Character Generator	1	set
	(2)	14 inch Color Monitor	1	set
	(3)	17 inch Multi-scan Display	1	set
	(4)	Table	1	set
	(5)	Take Switch Panel	1	set
	(6)	UPS	1	set
	2.5	Digital Audio System	1	lot
	(1)	Audio Mixer (with Backup Power Supply)	1	set
	(2)	Analogue to Digital Converter	1	set
	(3)	Digital to Analogue Converter	1	set
	(4)	Compact Disk Player (CD-RW)	2	sets
	(5)	Audio Cassette Tape Recorder	1	set
	(6)	Mini Disk Player	1	set
	(7)	Audio Monitor Speaker (Rack Mount Type)	2	sets
	(8)	Audio Effector	1	set
	(9)	Telephone Hybrid (2ch)	1	set
	(10)	Effector Wagon	1	set
	(11)	ADA, DDA, AJ, Patch cable	1	lot
	(12)	Rack	1	lot
	(13)	Operating Table	1	lot
	(14)	Audio Sync Generator	1	set
	2.6	Microphone	1	lot
	(1)	Lavaliere Microphone	4	sets
	(2)	Dynamic Microphone	4	sets
	(3)	Condenser Microphone (for Music, Vocal)	3	sets
	(4)	GUN Michrophpne	1	set
	2.7	Microphone Stand	1	lot
	(1)	Boom Stand (large size)	1	set
	(2)	Floor Stand	4	sets
	(3)	Table Stand	4	sets
	2.8	Microphone Cable	1	lot
	(1)	Mic Cable: 20m	5	sets
	(2)	Mic Cable: 10m	5	sets

No.		Description	Q'ty	
	(3)	Mic Cable: 5m	10	sets
	2.9	Microphone Connector Plate	1	lot
	2.10	ANN Cough Equipment	1	set
	2.11	Video Sync System	1	lot
	(1)	Sync. Signal Generator	1	set
	(2)	Video Distribution Amplifier	1	set
	2.12	Monitoring System (A/V)	1	lot
	(1)	9-inch Video Monitor (for News Desk)	2	sets
	(2)	14-inch Video Monitor	15	sets
	(3)	20-inch Video Monitor	4	sets
	(4)	29-inch Studio Floor Monitor (with Stand)	2	sets
	(5)	42-inch Plasma Video monitor (with Sand)	2	sets
	(6)	Waveform Monitor		
		a) Analogue	1	set
		b) Digital	1	set
	(7)	Vector Scope	1	set
	(8)	Monitor Speaker/Amp. for Mixer (Stereo)	1	set
	(9)	Monitor Speaker for DR (Stereo)	1	set
	(10)	Audition Monitor Speaker (Stereo)	1	set
	(11)	Studio Monitor Speaker/Amp (Stereo,Wall mount type)	1	set
	(12)	Studio Talk back Speaker/Amp.	2	sets
	(13)	14-inch Master Video Monitor	1	set
	(14)	Air Monitor	1	set
	(15)	Monitor Shelf	1	set
	(16)	A/V Monitor CN Panel	1	lot
	(17)	Stereo Headphone	1	set
	2.13	Intercom System	1	lot
	(1)	Studio Intercommunication	1	lot
	(2)	Head set, Microphone	1	lot
	2.14	On-Air Light and Tally System	1	lot
	(1)	OA Tally Logic	1	set
	(2)	OA Tally Light for PM	1	lot
	(3)	OA Tally Light for Floor, Entrance	1	lot
	2.15	Studio Lighting System	1	lot
	(1)	Lighting Control System		
		a) Main Switch Board, 3-phase 4-wire 220V 50Hz	1	pc
		b) Dimmer Unit Rack with 220V 25Amp dimmer x 12	1	pc
	(2)	Control Console		
		a) Master Fader	1	pc
		b) Single Fader	12	pcs
		c) Spare Parts	1	pc
	(3)	Internal Wiring Materials between Main Switch Board	1	lot
		/Dimmer Unit Rack and Control Console		
	(4)	Lighting Equipment		
		a) 1kW Fresnel Lens Spotlight	20	pcs
		Head body with 4-leaf barndoor, Filter Holder,		
		spigot 5/8" inches clamp hanger, safety wire and		

No.		Description	Q'ty	
		1kW quartz halogen lamp		
		b) 1kW Flood Light	4	pcs
		Head body with 4-leaf barndoor, Filter Holder,		
		spigot 5/8" inches clamp hanger, safety wire and		
		500W quartz halogen lamp x 2		
		c) FL Light (3200°K)		
		Head body with45W or 55W FL Lamp x 6 pcs	12	pcs
		d) Pole Hanger (Telescope), 800mm - 2060mm length	20	pcs
		e) Stand with Castor	5	pcs
		f) Y Branch Cord with a Plug and 2 x Connectors	10	pcs
		h) Extension Cable, comprising;		set
		h-1) 5m length with plug and connector	5	pcs
		h-2) 10m length with plug and connector	5	pcs
		i) Floor Pocket 30Amp 2 ways	2	pcs
		j) Grid Pocket 30Amp 2 ways	10	pcs
		k) Color Filter x 300 sheets	1	pc
		l) Operation Bar	2	pcs
	(5)	Spare Lamp		
		a) 1kW Lamp for Fresnel Spotlight	60	pcs
		b) 500W Lamp for 1kW Flood Light	24	pcs
		c) 55W Fluorescent Lamp	216	pcs
	(6)	Cyclorama Curtain	1	set
3.		**Master Control System**	**1**	**lot**
	3.1	Digital Video Equipment	1	lot
	(1)	Digital Master Switcher	1	set
	(2)	Digital VTR		
		a) Digital VTR（PB/REC）	2	sets
		b) Video Monitor (Rack Mount Type)	2	sets
		c) Audio Monitor Speaker (Rack Mount Type)	2	sets
		d) Remote Control Unit	2	sets
		e) Rack Mount Kit	2	sets
	(3)	Logo Generator/Insertor		
		a) Logo Generator	2	sets
		b) Insertor	4	sets
	(4)	Test Signal Generator	1	set
	(5)	Frame Synchronizor	4	sets
	(6)	Video Monitor		
		a) 14-inch Video Monitor	17	sets
		b) 20-inch Video Monitor	4	sets
		c) 14-inch Video Monitor (SECAM)	2	sets
	(7)	Analogue to Digital Converter	1	lot
	(8)	Digital to Analogue Converter	1	lot
	(9)	VDA, DDA, VJ, Patch cable	1	lot
	(10)	Format Convertor (PAL→SECAM)	2	sets
	(11)	Waveform Monitor		
		a) Analogue	1	set

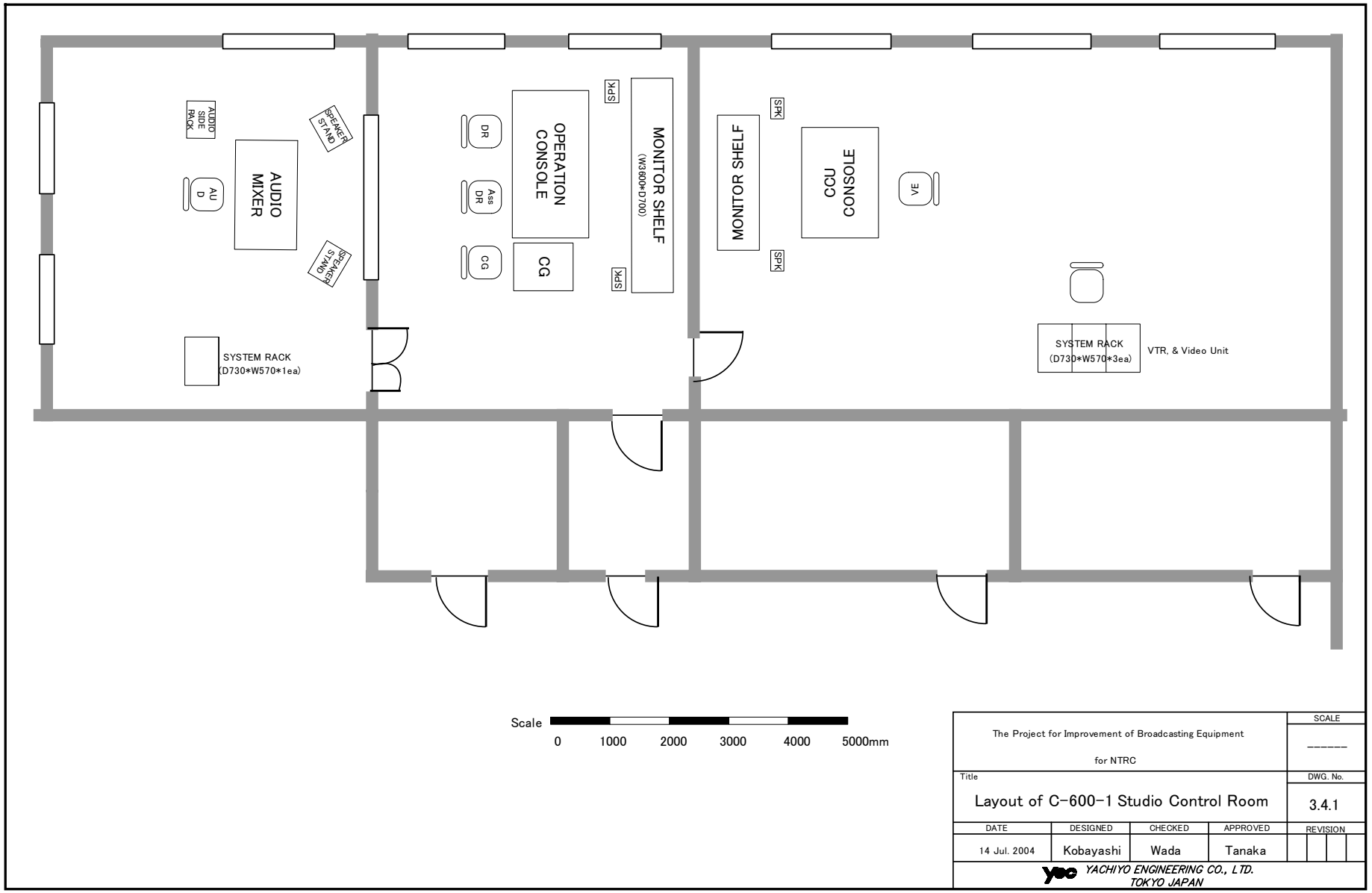
No.		Description	Q'ty	
		b) Digital	1	set
	(12)	Vector Scope	1	set
	(13)	14-inch Master Video Monitor	1	set
	(14)	Rack	1	lot
	3.2	Video Sync. System	1	lot
	(1)	Sync. Signal Generator (1)	1	set
	(2)	Sync. Signal Generator (2)	1	set
	(3)	Auto Change-over Unit	1	set
	(4)	Pulse Distribution Amplifier	1	set
	3.3	Digital Audio Equipment	1	lot
	(1)	Digital Master Switcher	1	set
	(2)	Test Signal Generator	1	set
	(3)	AGC	4	sets
	(4)	Audio Monitor	1	set
	(5)	Analogue to Digital Converter	1	lot
	(6)	Digital to Analogue Converter	1	lot
	(7)	ADA, DDA, AJ, Patch cable	1	lot
	(8)	Stereo Scope	1	set
	(9)	VU Meter Panel	1	set
	(10)	Rack	1	lot
	3.4	Audio Sync. System	1	set
	3.5	On-Air Tally System	1	lot
	(1)	OA Tally Logic	1	set
	(2)	OA Tally Light for PM	17	set
	3.6	Air Monitor	1	set
	3.7	Room to Room Intercom System	1	lot
	(1)	Terminal Station	1	lot
	3.8	Clock System	1	lot
	(1)	Master Clock	1	set
	(2)	Slave clock	14	sets
	3.9	Master Console	1	set
	3.10	Monitor Shelf	1	set
4.		**Format Conversion System**	**1**	**lot**
	4.1	Digital Video/Audio Matrix Switcher	1	set
	4.2	Digital VTR	1	lot
	(1)	Digital VTR -A	1	set
	(2)	Digital VTR -B	1	set
	(3)	Video Monitor (Rack Mount Type)	5	sets
	(4)	Audio Monitor Speaker (Rack Mount Type)	5	sets
	4.3	Format Convertor	1	set
	4.4	Video A/D, D/A	1	lot
	4.5	Audio A/D, D/A	1	lot
	4.6	Sync Signal Generator（Video/Audio）	1	set
	4.7	Video Monitor	1	set
	4.8	Audio Monitor (Speaker/VU)	1	set

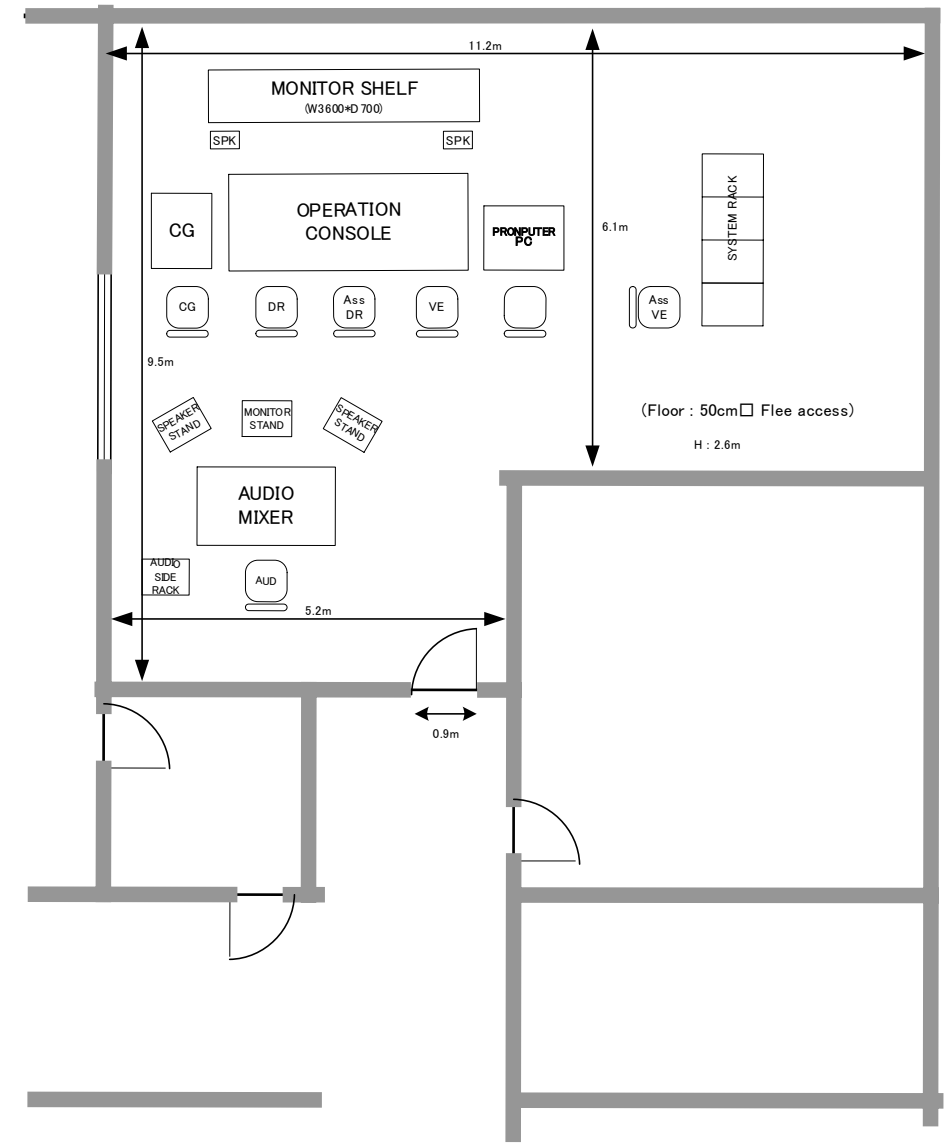
No.		Description	Q'ty	
	4.9	VJ, AJ, Patch cable	1	lot
	4.10	Rack	1	set
5.		**Field Recording (ENG) System**	**8**	**lots**
		(each comprising)		
	5.1	VTR camera equipment	1	lot
	(1)	Digital Portable Camcorder	1	set
	(2)	21xZoom Lens (with x2 extender)	1	set
	(3)	UV Filter	1	set
	(4)	Rechargeable battery pack	5	sets
	(5)	Battery charger (for 5ea battery pack)	1	set
	(6)	AC power adapter(with DC Power cord)	1	set
	(7)	Carrying case (for Camcorder)	1	set
	(8)	Tripod/Head/dolly (with portable case)	1	set
	(9)	Field Cover/Rain Jaket	1	set
	5.2	9 inch color monitor (with battery pack:2pcs, chger)	1	set
	5.3	UHF Synthesizer Transmitter	1	set
	5.4	UHF Synthesizer Tuner	1	set
	5.5	Microphone & Adaptor	1	lot
	(1)	Dynamic Microphone	1	set
	(2)	Gun Microphone	1	set
	(3)	Hand Grip	1	set
	(4)	Window-shield for Gun Mic.	1	set
	(5)	Fish Pole	1	set
	(6)	Lavaliere Microphone	1	set
	5.6	Connecting cable	1	lot
	(1)	Mic. Cable:10m	1	pc
	(2)	Mic. Cable: 5m	1	pc
	(3)	Mic. Cable: 3m	1	pc
	(4)	Mic. Cable:1.5m	1	pc
	5.7	Stereo Headphone	1	set
	5.8	Lighting equipment	1	lot
	(1)	Battery lighting set	1	set
	(2)	Spare Lamp	10	pc
	(3)	Cam light set	1	set
	(4)	Spare Lamp	10	pc
	5.9	VTR Tape	20	pcs
	5.10	Portable Audio Mixer	1	lot
	(1)	Portable Compact Mixer	1	set
	(2)	AC Power Adapter	1	set
	(3)	Battery Case	1	pc
	(4)	Re-chargeable Battery	4	pcs
	(5)	Battery Charger	1	pc
6.		**Video Non-Linear Editing System**	**3**	**lots**
		(each comprising)		
	6.1	Non-Liner Editing Station	1	set

No.		Description	Q'ty	
	(1)	CPU	1	set
	(2)	DVD R/W	1	set
	(3)	CD R/W	1	set
	6.2	Digital VTR (REC/PB)	1	set
	6.3	14 inch color monitor	2	set
	6.4	Editor	1	set
	6.5	Digital Audio Mixer	1	set
	6.6	MD Recorder/Player	1	set
	6.7	Compact Disk Player (CD-RW)	1	set
	6.8	Audio Cassette Tape Recorder	1	set
	6.10	Stereo Headphone	2	sets
	6.11	Dynamic microphone (with Stand)	1	set
	6.12	Operating Table (with Side Rack)	1	set
7.		**A/B roll Editing System**	**2**	**lots**
		(each comprising)		
	7.1	Digital VTR (PB)	2	sets
	7.2	Digital VTR (REC/PB)	1	set
	7.3	TBC Remote Control Unit	3	sets
	7.4	Editing Controller	1	set
	7.5	Character Generator	1	set
	(1)	Character Generator	1	set
	(2)	14 inch color monitor	1	set
	(3)	17 inch Multi-scan Display	1	set
	(4)	Operating Table	1	set
	(5)	UPS	1	set
	7.6	Digital Video Switcher/Effector	1	set
	7.7	Sync Signal Generator (Video/Audio)	1	set
	7.8	14 inch color monitor	3	sets
	7.9	9 inch color monitor	3	sets
	7.10	Waveform monitor	1	set
	7.11	Vector Scope	1	set
	7.12	Digital Audio Mixer	1	set
	7.13	MD Recorder/Player	1	set
	7.14	Compact Disk Player (CD-RW)	1	set
	7.15	Audio Cassette Tape Recorder	1	set
	7.16	Dynamic microphone with table stand (for ANN)	1	set
	7.17	Monitor Speaker (Stereo SPK with AMP)	1	set
	7.18	Stereo Headphone	2	sets
	7.19	Console	1	set
	7.20	Rack	1	set
8.		**1:1 Editing System**	**2**	**lots**
		(each comprising)		
	8.1	Digital VTR (PB)	1	set
	8.2	Digital VTR (REC/PB)	1	set
	8.3	Editing Controller	1	set

No.		Description	Q'ty	
	8.4	14 inch color monitor	3	set
	8.5	Audio Mixer	1	set
	8.6	Dynamic microphone with table stand (for ANN)	1	set
	8.7	Monitor Speaker (Stereo SPK with AMP)	1	set
	8.8	Stereo Headphone	2	set
	8.9	Operating Table	1	set
	8.10	Rack	1	set
9.		**Measuring Equipment and Tools**	**1**	**lot**
	9.1	Analogue Oscilloscope (500MHz)	1	set
	9.2	Video Analyzer	1	set
	9.3	Video Test Signal Generator	1	set
	9.4	Analogue Audio Analyzer	1	set
	9.5	Tool Kit	1	set
	9.6	Alignment Tape	1	set
	9.7	Training Kit		
	(1)	VTR Head Assembly	1	set
	(2)	VTR Pinch Roller	1	set
10.		**Consumable Parts**	**1**	**lot**
	10.1	Video Cassette Tape	2,000	pcs
	10.2	Audio Cassette Tape	200	pcs
	10.3	CD-RW	200	pcs
	10.4	MD	200	pcs

<Layout Diagrams>



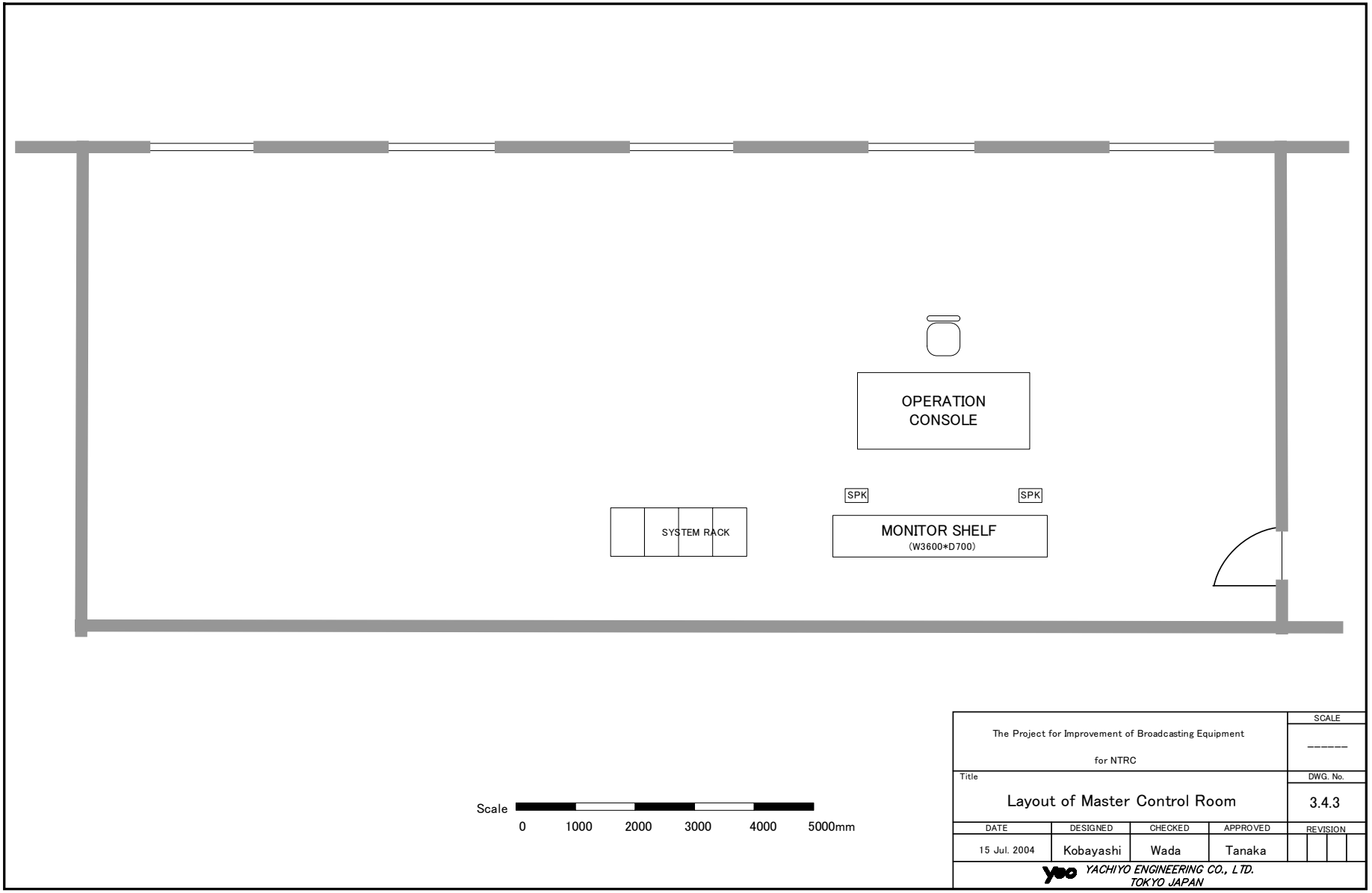


Scale

0 1000 2000 3000 4000 5000mm

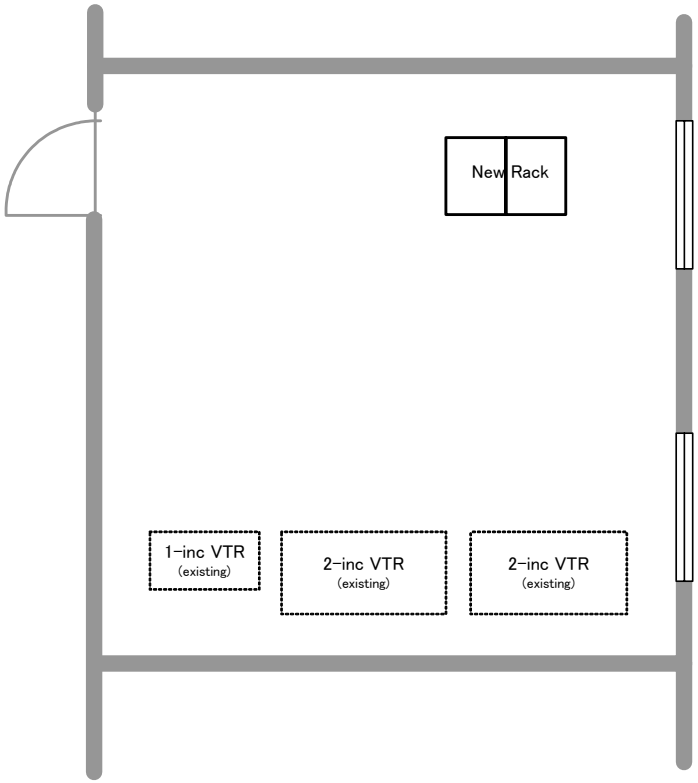
Title: The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: ------
Layout of C-120 Studio Control Room				DWG. No.: 3.4.2
DATE	DESIGNED	CHECKED	APPROVED	REVISION
14 Jul. 2004	Kobayashi	Wada	Tanaka	

YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN



The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: ------
Title: Layout of Master Control Room				DWG. No.: 3.4.3
DATE	DESIGNED	CHECKED	APPROVED	REVISION
15 Jul. 2004	Kobayashi	Wada	Tanaka	

YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN



Scale
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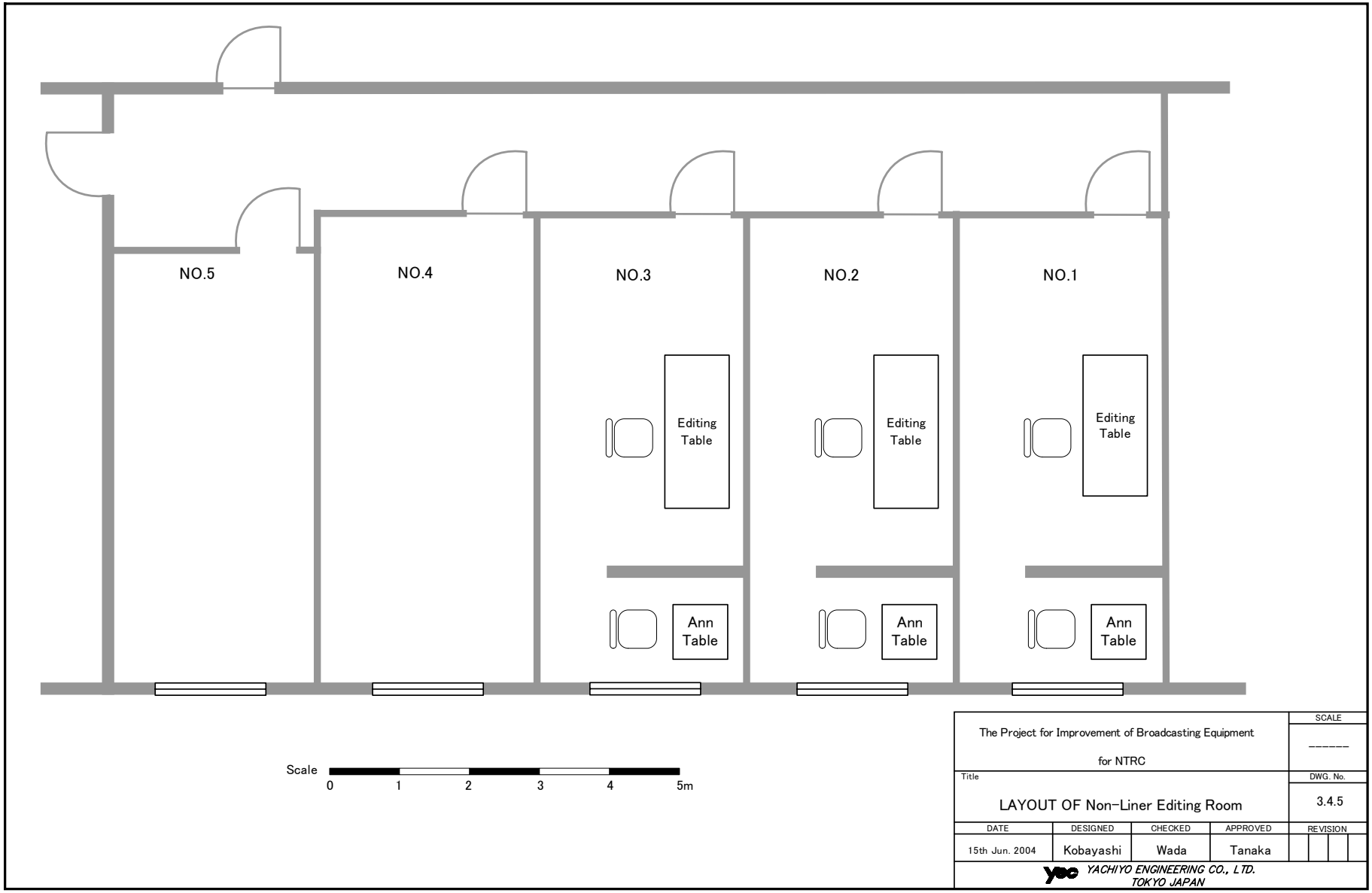
The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: -------
Title: LAYOUT OF Format Conversion Room				DWG. No.: 3.4.4
DATE	DESIGNED	CHECKED	APPROVED	REVISION
15th Jun. 2004	Kobayashi	Wada	Tanaka	

YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN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NO.2
NO.1
Editing Table
Editing Table
Editing Table
Ann Table
Ann Table
Ann Table
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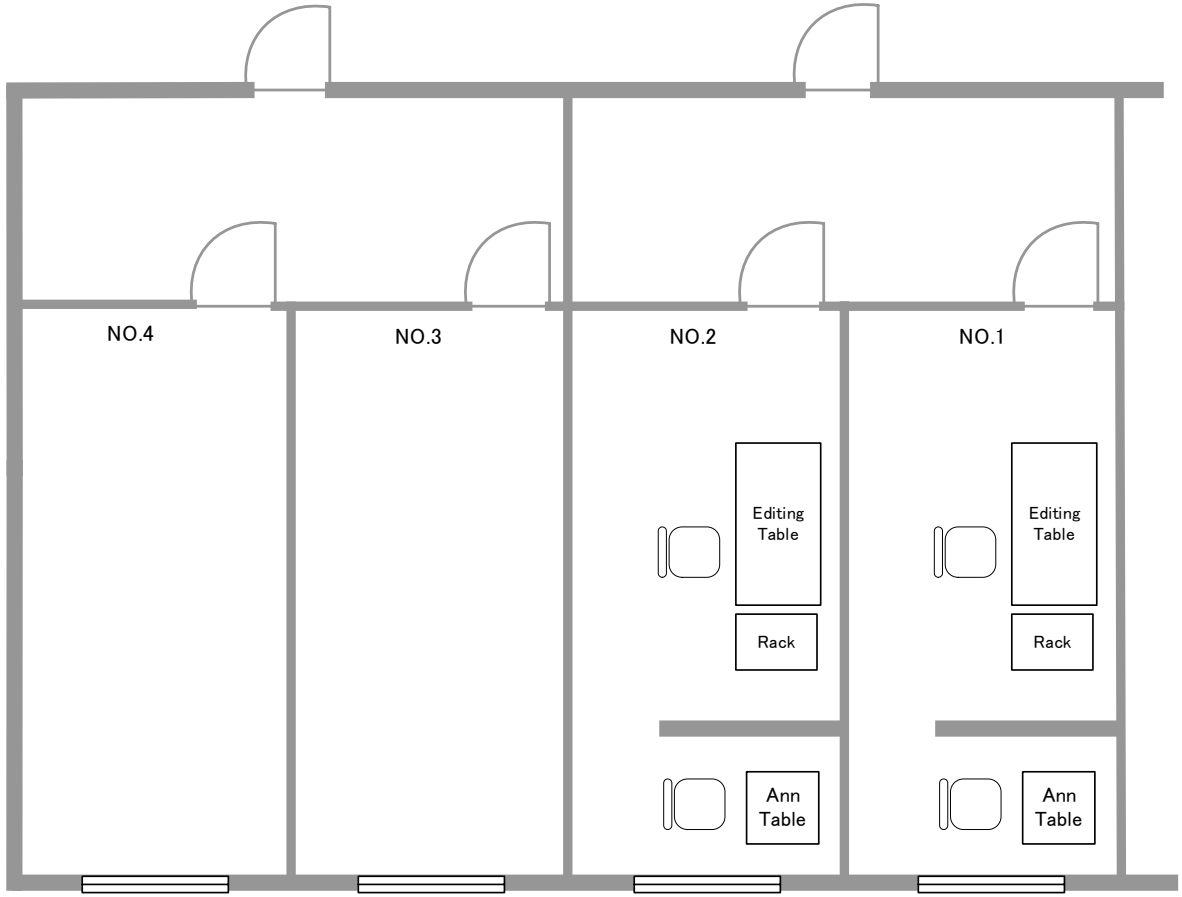
1
2
3
4
5m
The Project for Improvement of Broadcasting Equipment
for NTRC
SCALE

Title
LAYOUT OF Non-Liner Editing Room
DWG. No.
3.4.5
DATE
DESIGNED
CHECKED
APPROVED
REVISION
15th Jun. 2004
Kobayashi
Wada
Tanaka
YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN



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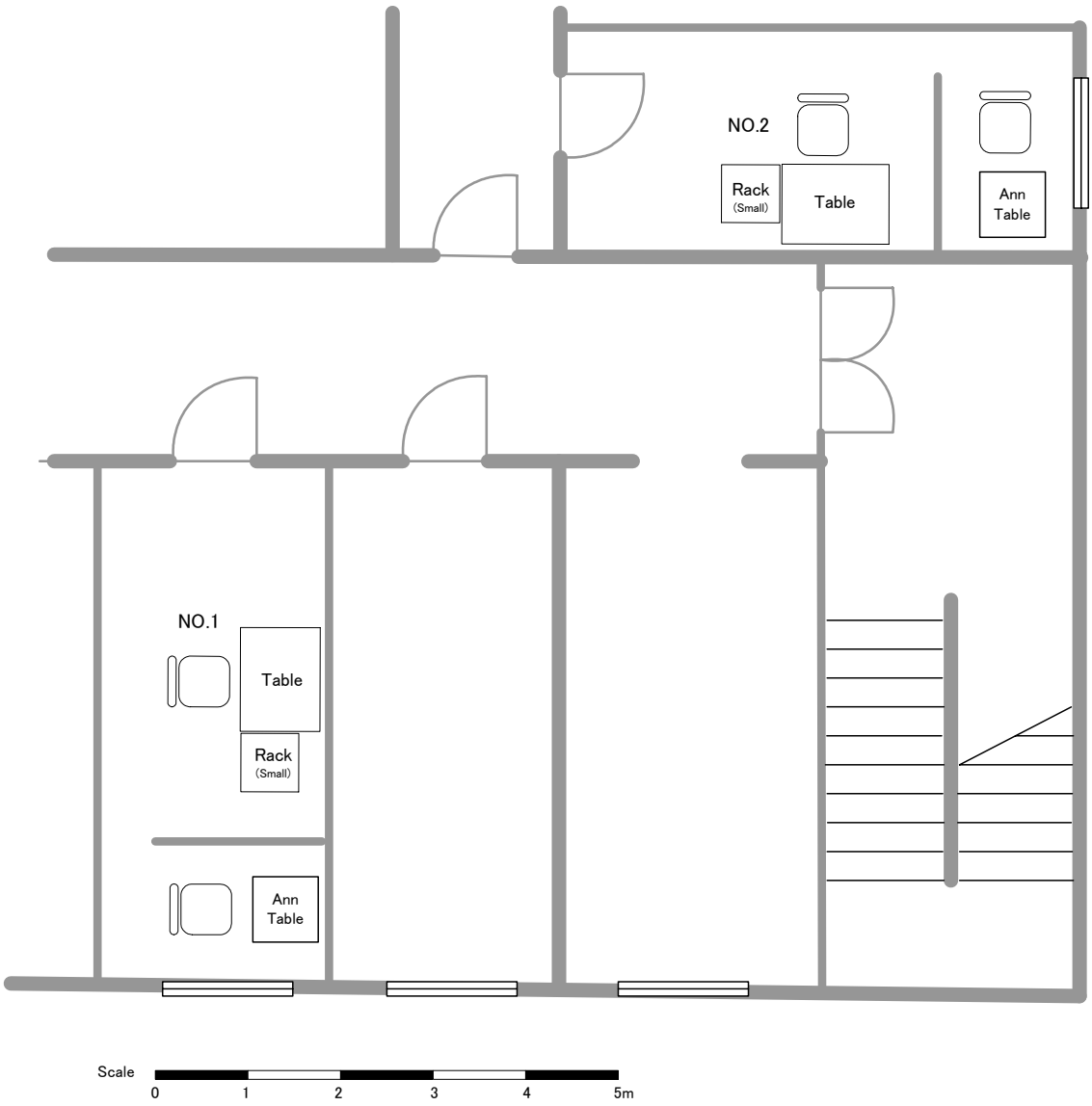
The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: -------
Title: LAYOUT OF A/B Roll Editing Room				DWG. No.: 3.4.6
DATE	DESIGNED	CHECKED	APPROVED	REVISION
15th Jun. 2004	Kobayashi	Wada	Tanaka	
YACHIYO ENGINEERING CO., LTD. TOKYO JAPAN				



The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: ------
Title: LAYOUT OF 1:1 Editing Room				DWG. No.: 3.4.7
DATE	DESIGNED	CHECKED	APPROVED	REVISION
15th Jul. 2004	Kobayashi	Wada	Tanaka	
YACHIYO ENGINEERING CO., LTD. TOKYO JAPAN				

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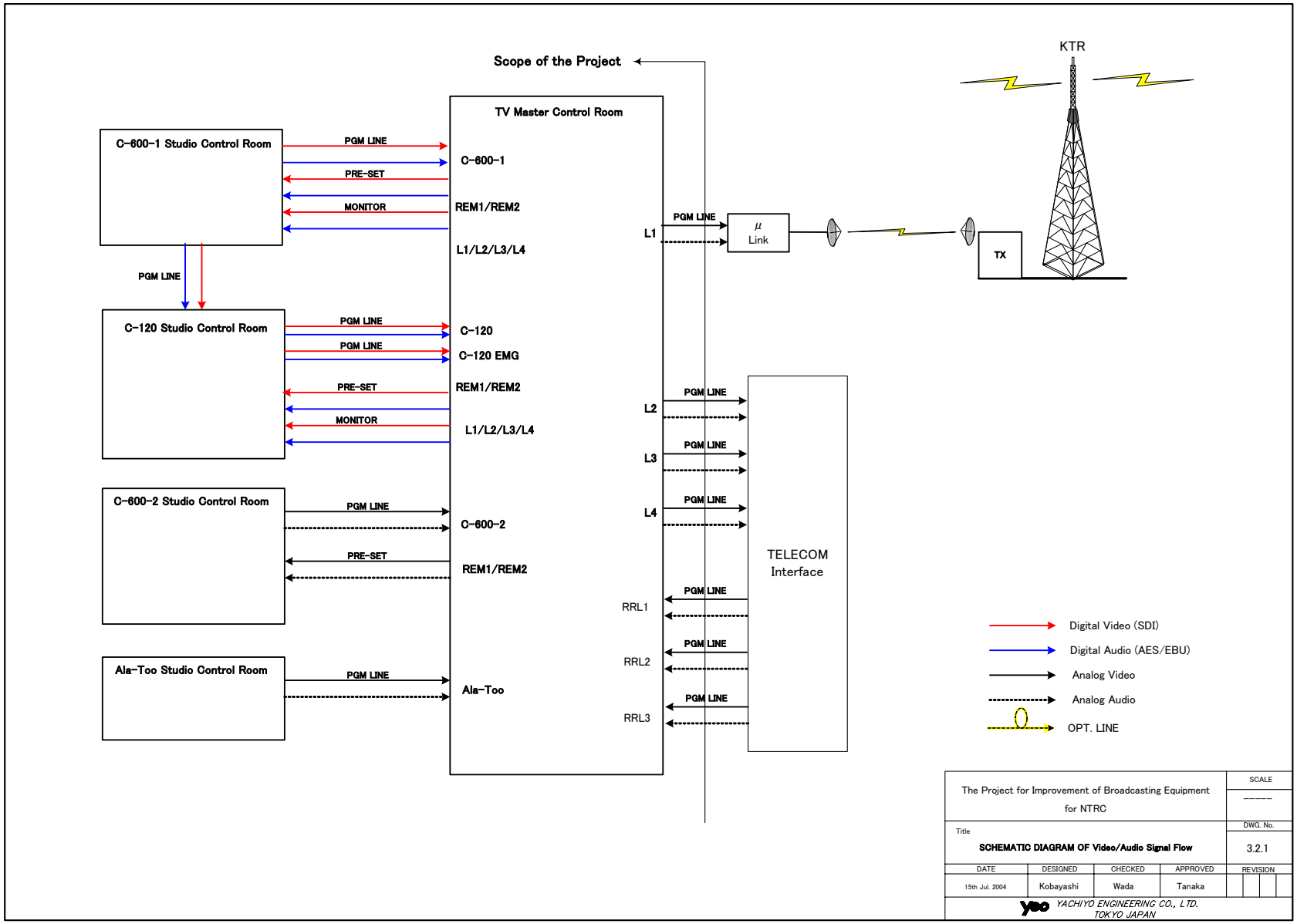
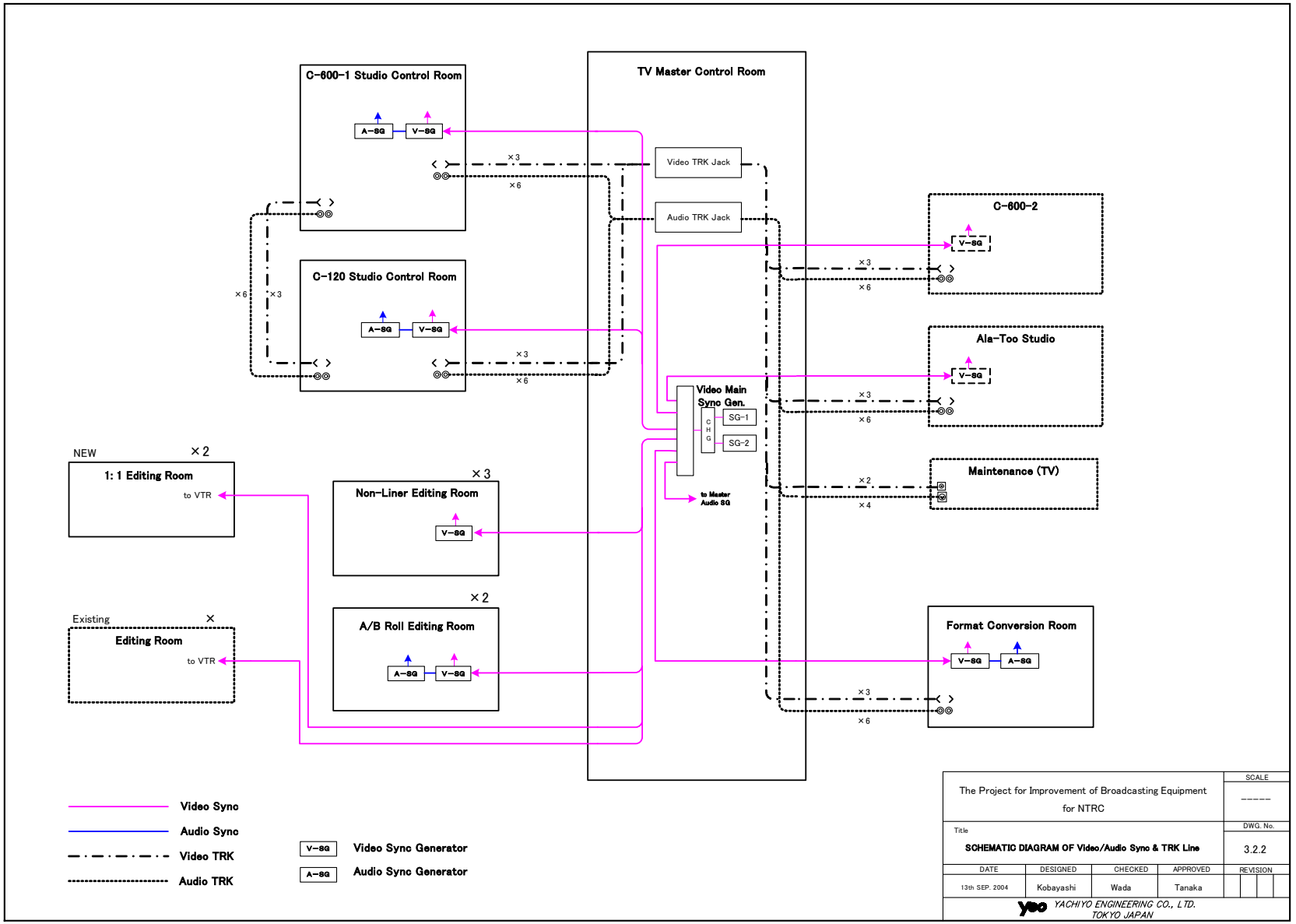
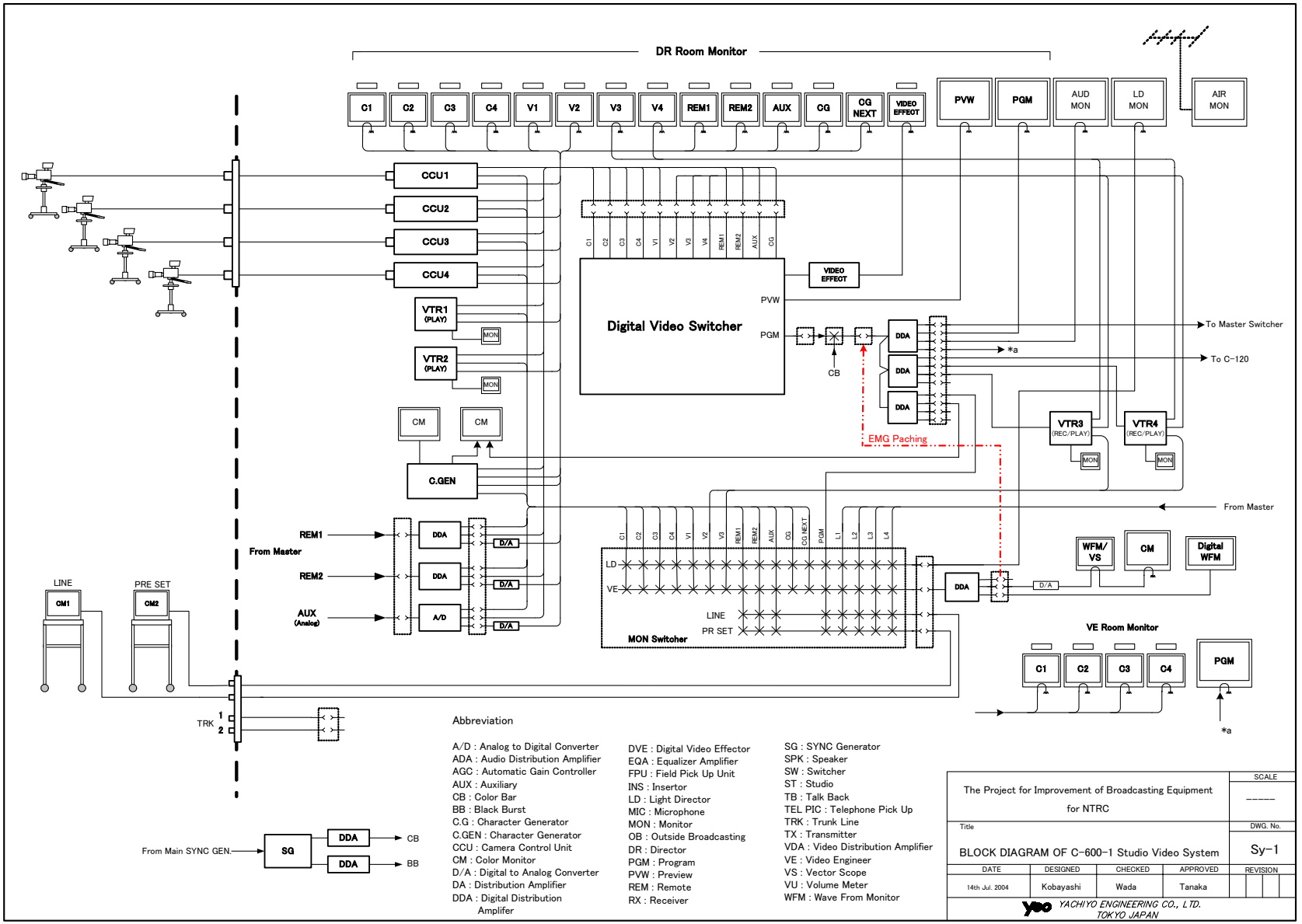



C-600-1 Studio Control Room
A-SG
V-SG
×3
×6
C-120 Studio Control Room
×6
×3
TV Master Control Room
Video TRK Jack
Audio TRK Jack
Video Main Sync Gen.
CHG
SG-1
SG-2
to Master Audio SG
C-600-2
Ala-Too Studio
Maintenance (TV)
×2
×4
NEW
×2
1: 1 Editing Room
to VTR
×3
Non-Liner Editing Room
×2
A/B Roll Editing Room
Existing
×
Editing Room
to VTR
Format Conversion Room
Video Sync
Audio Sync
Video TRK
Audio TRK
Video Sync Generator
Audio Sync Generator
The Project for Improvement of Broadcasting Equipment for NTRC
SCALE
Title
SCHEMATIC DIAGRAM OF Video/Audio Sync & TRK Line
DWG. No.
3.2.2
DATE
DESIGNED
CHECKED
APPROVED
REVISION
13th SEP. 2004
Kobayashi
Wada
Tanaka
YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN

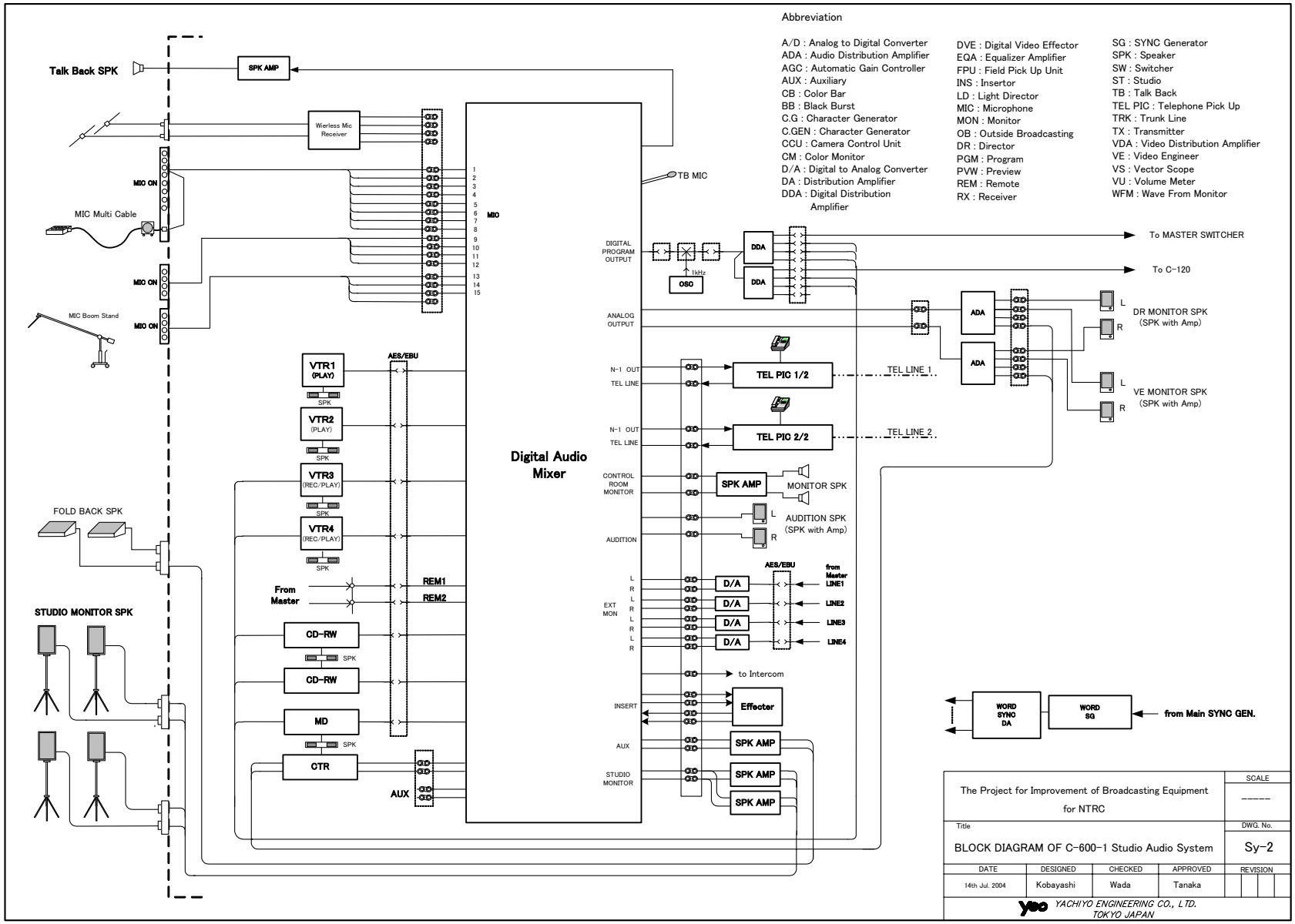


Abbreviation

A/D : Analog to Digital Converter
ADA : Audio Distribution Amplifier
AGC : Automatic Gain Controller
AUX : Auxiliary
CB : Color Bar
BB : Black Burst
C.G : Character Generator
C.GEN : Character Generator
CCU : Camera Control Unit
CM : Color Monitor
D/A : Digital to Analog Converter
DA : Distribution Amplifier
DDA : Digital Distribution Amplifer
DVE : Digital Video Effector
EQA : Equalizer Amplifier
FPU : Field Pick Up Unit
INS : Insertor
LD : Light Director
MIC : Microphone
MON : Monitor
OB : Outside Broadcasting
DR : Director
PGM : Program
PVW : Preview
REM : Remote
RX : Receiver
SG : SYNC Generator
SPK : Speaker
SW : Switcher
ST : Studio
TB : Talk Back
TEL PIC : Telephone Pick Up
TRK : Trunk Line
TX : Transmitter
VDA : Video Distribution Amplifier
VE : Video Engineer
VS : Vector Scope
VU : Volume Meter
WFM : Wave From Monitor

The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: ———
Title: BLOCK DIAGRAM OF C-600-1 Studio Video System				DWG. No.: Sy-1
DATE	DESIGNED	CHECKED	APPROVED	REVISION
14th Jul. 2004	Kobayashi	Wada	Tanaka	

YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN


Abbreviation
A/D : Analog to Digital Converter
ADA : Audio Distribution Amplifier
AGC : Automatic Gain Controller
AUX : Auxiliary
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BB : Black Burst
C.G : Character Generator
C.GEN : Character Generator
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PVW : Preview
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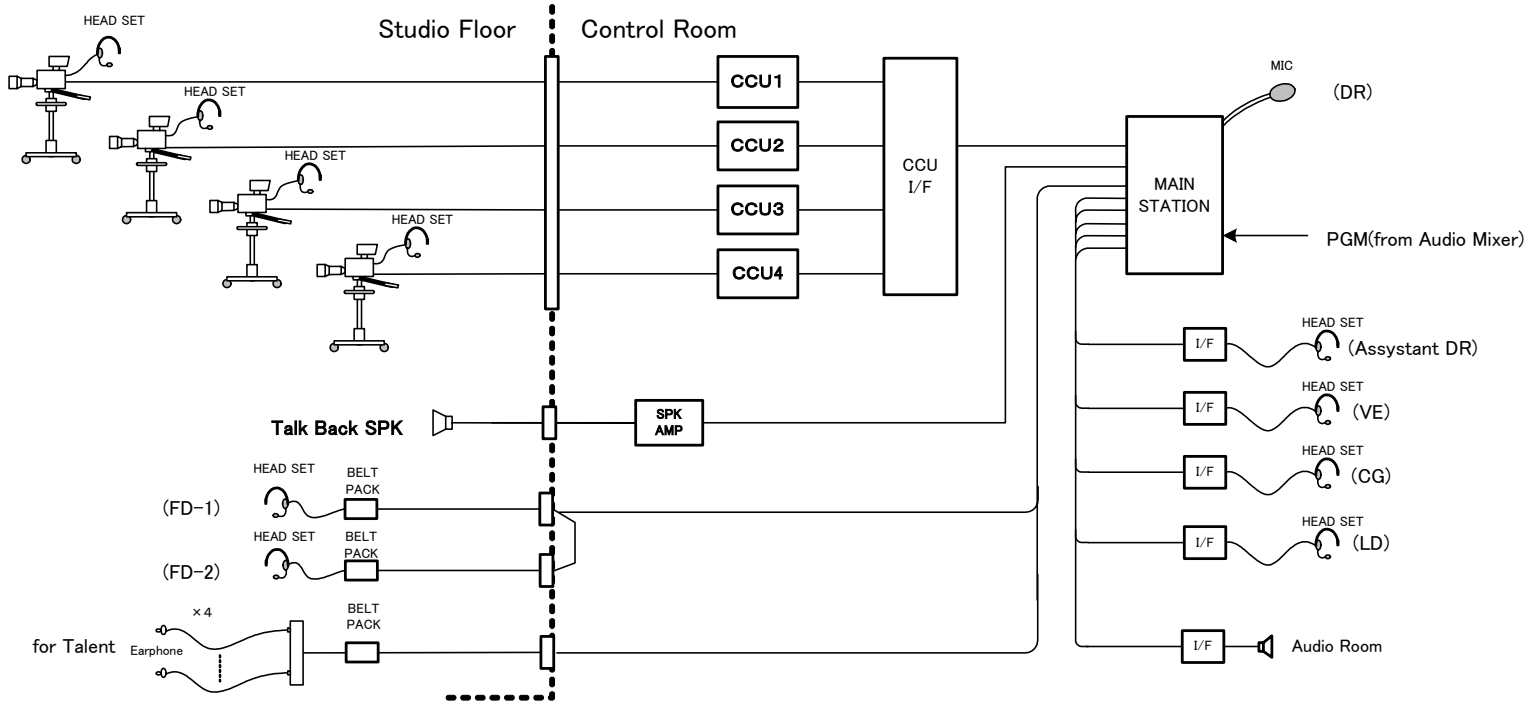
SG : SYNC Generator
SPK : Speaker
SW : Switcher
ST : Studio
TB : Talk Back
TEL PIC : Telephone Pick Up
TRK : Trunk Line
TX : Transmitter
VDA : Video Distribution Amplifier
VE : Video Engineer
VS : Vector Scope
VU : Volume Meter
WFM : Wave From Monitor
Talk Back SPK
SPK AMP
Wierless Mic Receiver
MIC ON
MIC Multi Cable
MIC ON
MIC Boom Stand
MIC ON
MIC
TB MIC
Digital Audio Mixer
DIGITAL PROGRAM OUTPUT
1kHz
OSC
DDA
DDA
To MASTER SWITCHER
To C-120
ANALOG OUTPUT
ADA
ADA
DR MONITOR SPK (SPK with Amp)
VE MONITOR SPK (SPK with Amp)
AES/EBU
VTR1 (PLAY)
SPK
VTR2 (PLAY)
SPK
VTR3 (REC/PLAY)
SPK
VTR4 (REC/PLAY)
SPK
N-1 OUT
TEL LINE
TEL PIC 1/2
TEL LINE 1
N-1 OUT
TEL LINE
TEL PIC 2/2
TEL LINE 2
CONTROL ROOM MONITOR
SPK AMP
MONITOR SPK
AUDITION
AUDITION SPK (SPK with Amp)
FOLD BACK SPK
STUDIO MONITOR SPK
From Master
REM1
REM2
CD-RW
SPK
CD-RW
MD
SPK
CTR
AUX
EXT MON
D/A
D/A
D/A
D/A
AES/EBU
from Master
LINE1
LINE2
LINE3
LINE4
to Intercom
INSERT
Effecter
AUX
SPK AMP
STUDIO MONITOR
SPK AMP
SPK AMP
WORD SYNC DA
WORD SG
from Main SYNC GEN.
The Project for Improvement of Broadcasting Equipment for NTRC
SCALE
Title
BLOCK DIAGRAM OF C-600-1 Studio Audio System
DWG. No.
Sy-2
DATE
DESIGNED
CHECKED
APPROVED
REVISION
14th Jul. 2004
Kobayashi
Wada
Tanaka
YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN



Abbreviation

A/D : Analog to Digital Converter
ADA : Audio Distribution Amplifier
ALC : Automatic Level Controller
C.G : Character Generator
C.GEN : Character Generator
CCU : Camera Control Unit
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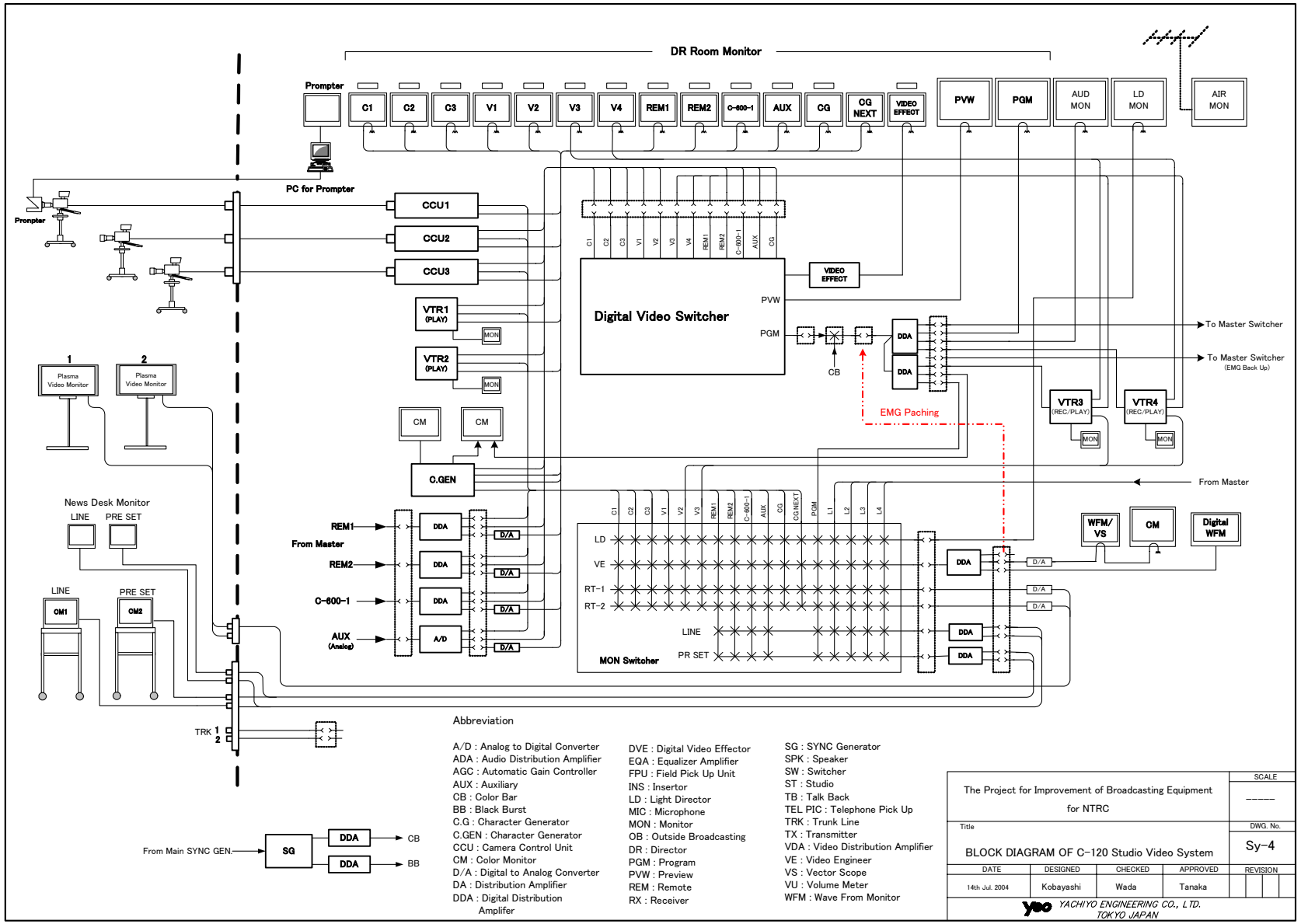
SPK : Speaker
SW : Switcher
TB : Talk Back
TEL PIC : Telephone Pick Up
TRK : Trunk Line
TX : Transmitter
VDA : Video Distribution Amplifier
VE : Video Engineer
VS : Vector Scope
VU : Volume Meter
WFM : Wave From Monitor

The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: ------
Title: BLOCK DIAGRAM OF C-600-1 Studio Intercom System				DWG. No.: Sy-3
DATE	DESIGNED	CHECKED	APPROVED	REVISION
14th Jul. 2004	Kobayashi	Wada	Tanaka	
YACHIYO ENGINEERING CO., LTD. TOKYO JAPAN				



Abbreviation

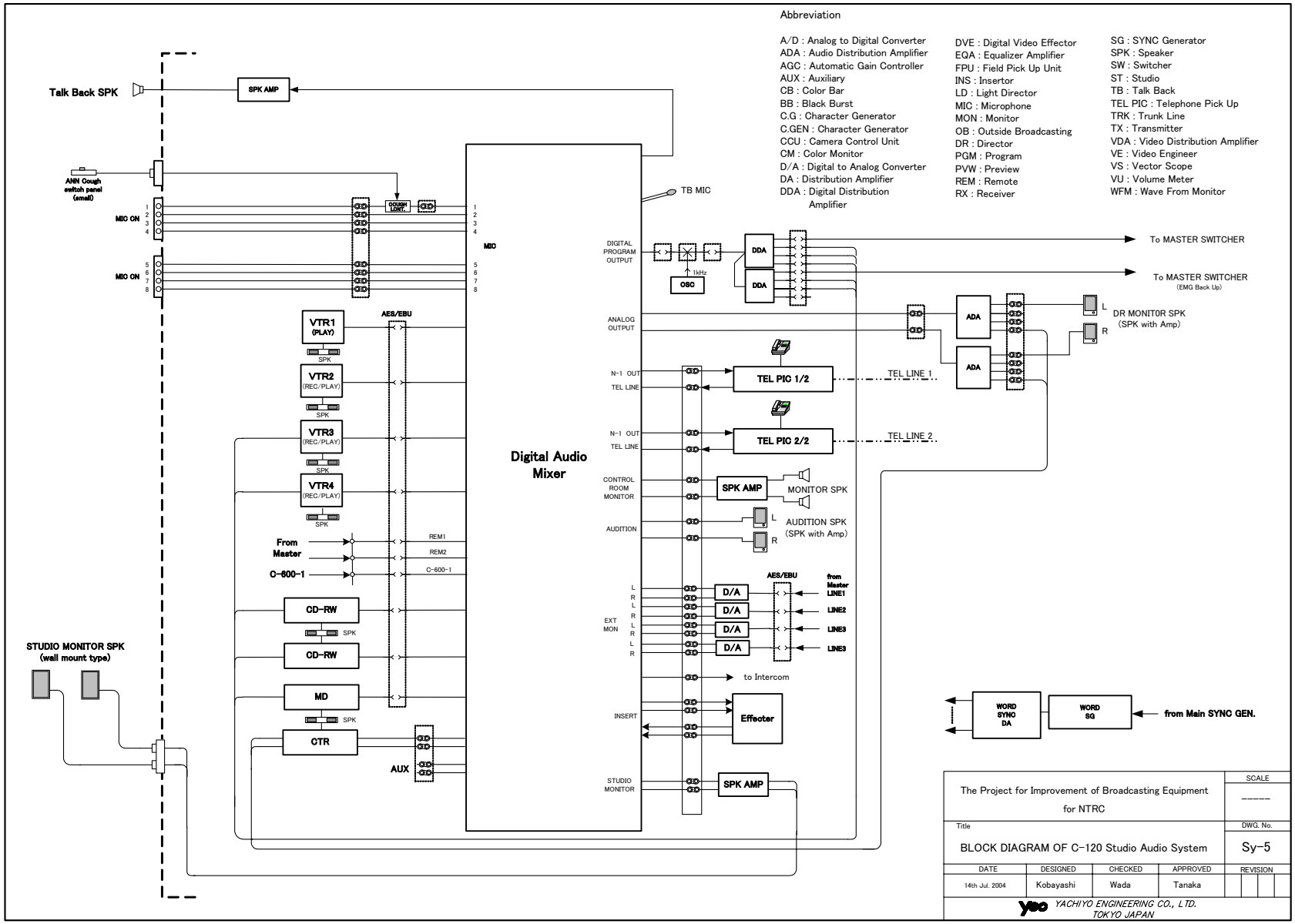
A/D : Analog to Digital Converter
ADA : Audio Distribution Amplifier
AGC : Automatic Gain Controller
AUX : Auxiliary
CB : Color Bar
BB : Black Burst
C.G : Character Generator
C.GEN : Character Generator
CCU : Camera Control Unit
CM : Color Monitor
D/A : Digital to Analog Converter
DA : Distribution Amplifier
DDA : Digital Distribution Amplifer

DVE : Digital Video Effector
EQA : Equalizer Amplifier
FPU : Field Pick Up Unit
INS : Insertor
LD : Light Director
MIC : Microphone
MON : Monitor
OB : Outside Broadcasting
DR : Director
PGM : Program
PVW : Preview
REM : Remote
RX : Receiver

SG : SYNC Generator
SPK : Speaker
SW : Switcher
ST : Studio
TB : Talk Back
TEL PIC : Telephone Pick Up
TRK : Trunk Line
TX : Transmitter
VDA : Video Distribution Amplifier
VE : Video Engineer
VS : Vector Scope
VU : Volume Meter
WFM : Wave From Monitor

The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: -----
Title: BLOCK DIAGRAM OF C-120 Studio Video System				DWG. No.: Sy-4
DATE	DESIGNED	CHECKED	APPROVED	REVISION
14th Jul. 2004	Kobayashi	Wada	Tanaka	

YACHIYO ENGINEERING CO., LTD. TOKYO JAPAN


Abbreviation
A/D : Analog to Digital Converter
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AGC : Automatic Gain Controller
AUX : Auxiliary
CB : Color Bar
BB : Black Burst
C.G : Character Generator
C.GEN : Character Generator
CCU : Camera Control Unit
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D/A : Digital to Analog Converter
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DDA : Digital Distribution Amplifier
DVE : Digital Video Effector
EQA : Equalizer Amplifier
FPU : Field Pick Up Unit
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OB : Outside Broadcasting
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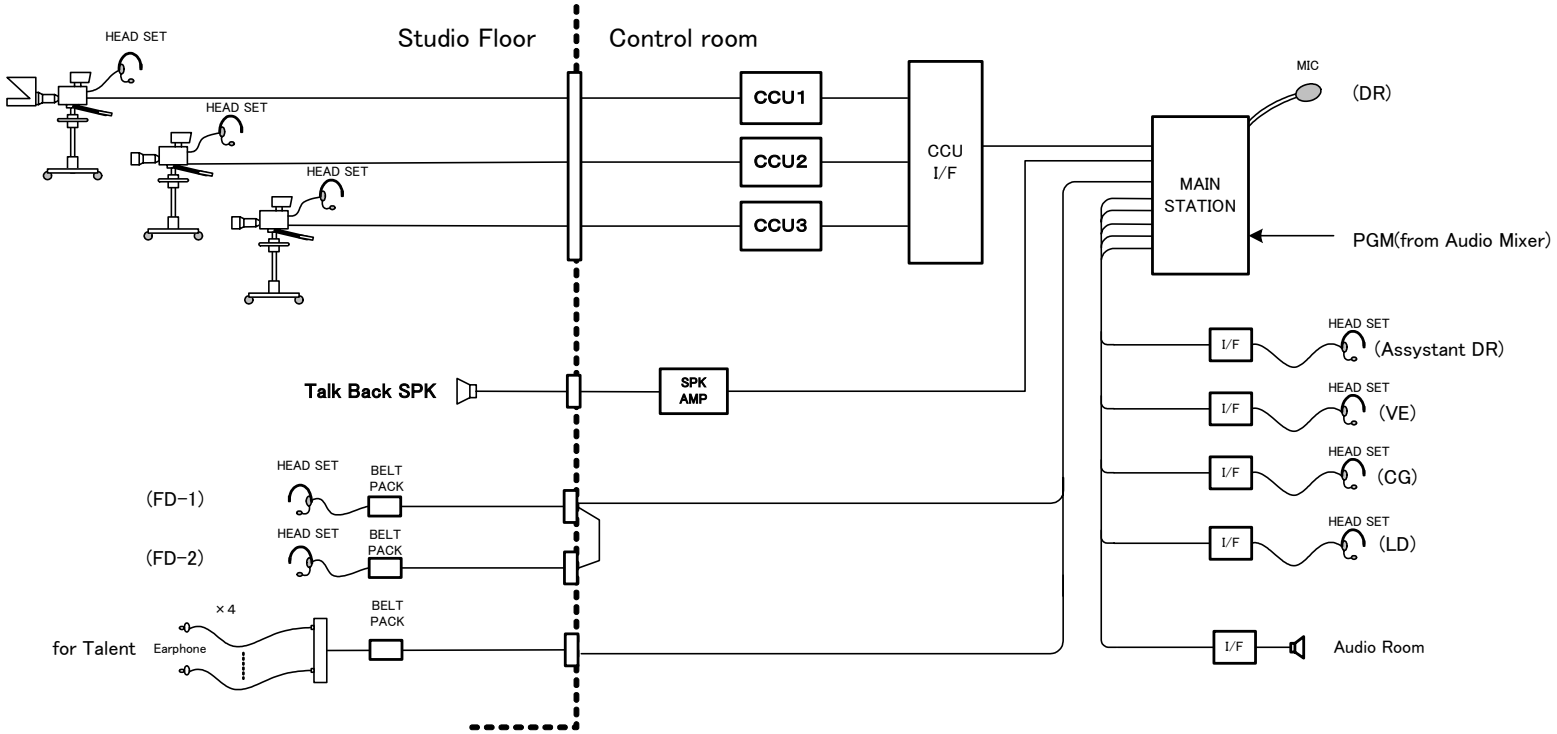
PGM : Program
PVW : Preview
REM : Remote
RX : Receiver
SG : SYNC Generator
SPK : Speaker
SW : Switcher
ST : Studio
TB : Talk Back
TEL PIC : Telephone Pick Up
TRK : Trunk Line
TX : Transmitter
VDA : Video Distribution Amplifier
VE : Video Engineer
VS : Vector Scope
VU : Volume Meter
WFM : Wave From Monitor
Talk Back SPK
SPK AMP
ANN Cough switch panel (small)
MIC ON
MIC ON
COUGH CONT.
MIC
TB MIC
Digital Audio Mixer
DIGITAL PROGRAM OUTPUT
1kHz
OSC
DDA
DDA
To MASTER SWITCHER
To MASTER SWITCHER (EMG Back Up)
ANALOG OUTPUT
ADA
ADA
L
R
DR MONITOR SPK (SPK with Amp)
VTR1 (PLAY)
VTR2 (REC/PLAY)
VTR3 (REC/PLAY)
VTR4 (REC/PLAY)
SPK
AES/EBU
N-1 OUT
TEL LINE
TEL PIC 1/2
TEL LINE 1
TEL PIC 2/2
TEL LINE 2
CONTROL ROOM MONITOR
SPK AMP
MONITOR SPK
AUDITION
AUDITION SPK (SPK with Amp)
From Master
C-600-1
REM1
REM2
C-600-1
CD-RW
CD-RW
MD
CTR
AUX
EXT MON
D/A
D/A
D/A
D/A
AES/EBU
from Master
LINE1
LINE2
LINE3
LINE3
to Intercom
INSERT
Effecter
STUDIO MONITOR SPK (wall mount type)
STUDIO MONITOR
SPK AMP
WORD SYNC DA
WORD SG
from Main SYNC GEN.
The Project for Improvement of Broadcasting Equipment for NTRC
SCALE
Title
BLOCK DIAGRAM OF C-120 Studio Audio System
DWG. No.
Sy-5
DATE
DESIGNED
CHECKED
APPROVED
REVISION
14th Jul. 2004
Kobayashi
Wada
Tanaka
YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN



Abbreviation

A/D : Analog to Digital Converter
ADA : Audio Distribution Amplifier
ALC : Automatic Level Controller
C.G : Character Generator
C.GEN : Character Generator
CCU : Camera Control Unit
CM : Color Monitor
D/A : Digital to Analog Converter
DA : Distribution Amplifier
DDA : Digital Distribution Amplifier
DVE : Digital Video Effector
EQA : Equalizer Amplifier
FPU : Field Pick Up Unit
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MON : Monitor
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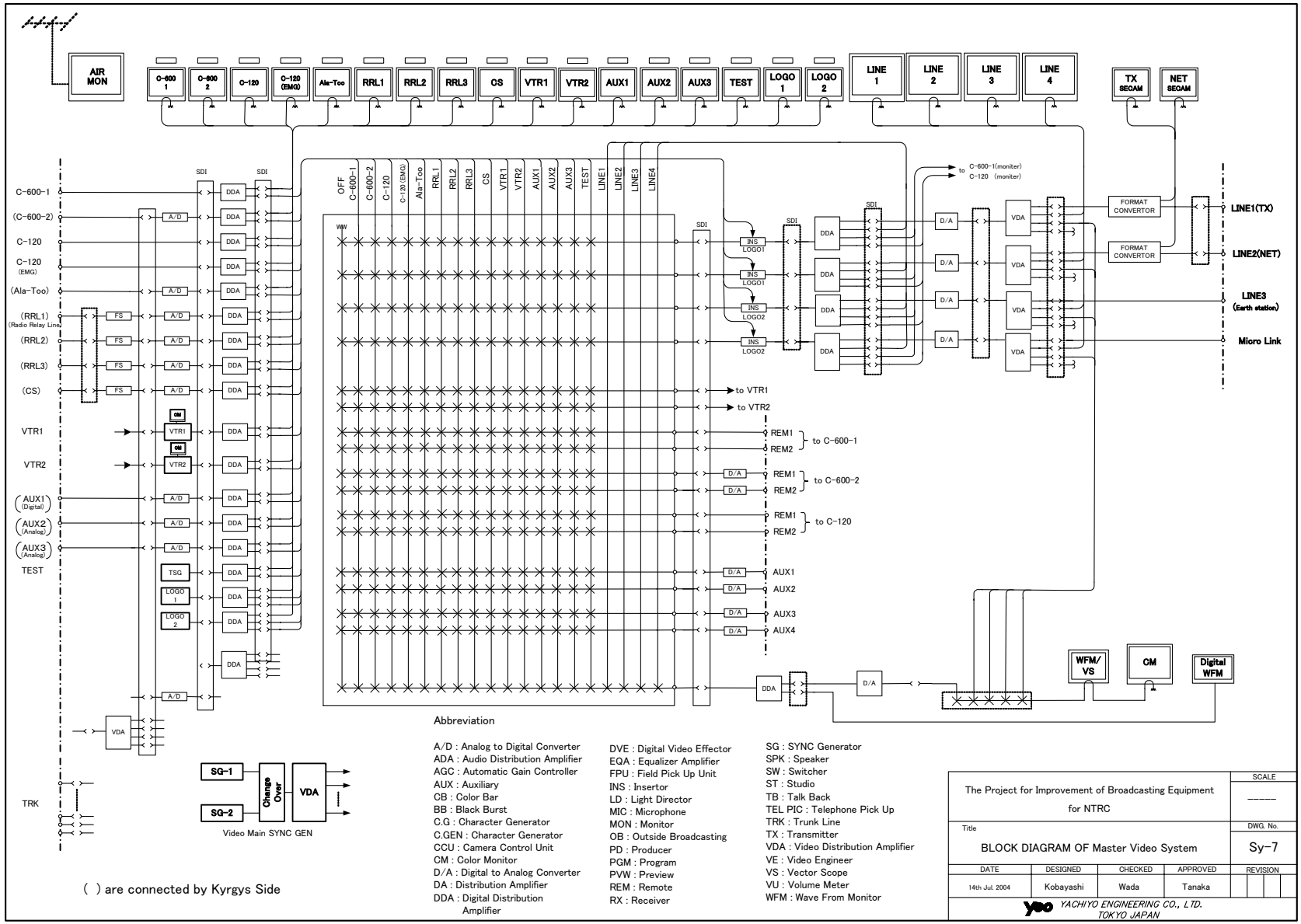
SG : SYNC Generator
SPK : Speaker
SW : Switcher
TB : Talk Back
TEL PIC : Telephone Pick Up
TRK : Trunk Line
TX : Transmitter
VDA : Video Distribution Amplifier
VE : Video Engineer
VS : Vector Scope
VU : Volume Meter
WFM : Wave From Monitor

The Project for Improvement of Broadcasting Equipment for NTRC				SCALE ------
Title: BLOCK DIAGRAM OF C-120 Studio Intercom System				DWG. No. Sy-6
DATE	DESIGNED	CHECKED	APPROVED	REVISION
14th Jul. 2004	Kobayashi	Wada	Tanaka	
YACHIYO ENGINEERING CO., LTD. TOKYO JAPAN				



( ) are connected by Kyrgys Side

Abbreviation

A/D : Analog to Digital Converter
ADA : Audio Distribution Amplifier
AGC : Automatic Gain Controller
AUX : Auxiliary
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C.G : Character Generator
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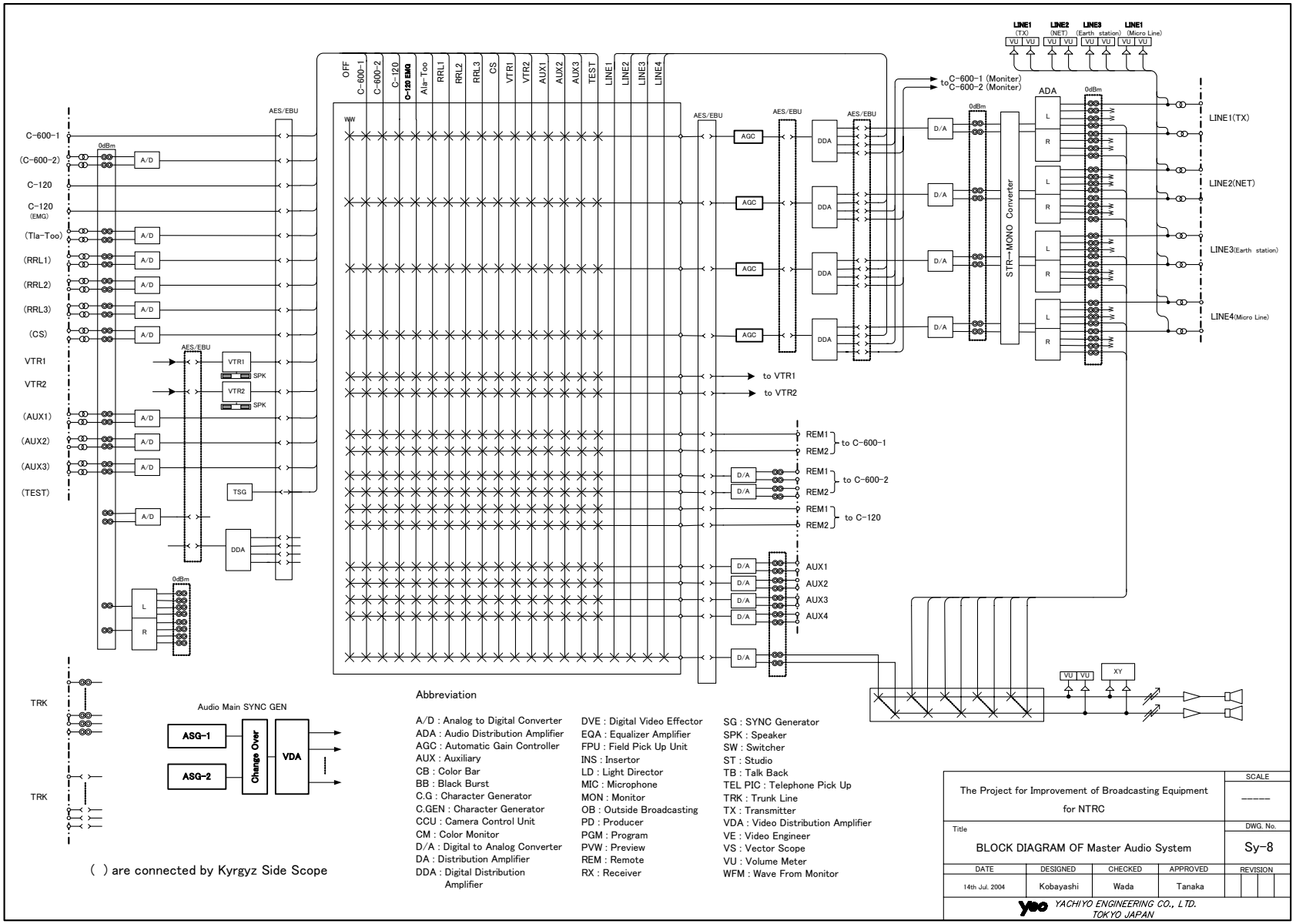
DDA : Digital Distribution Amplifier
DVE : Digital Video Effector
EQA : Equalizer Amplifier
FPU : Field Pick Up Unit
INS : Insertor
LD : Light Director
MIC : Microphone
MON : Monitor
OB : Outside Broadcasting
PD : Producer
PGM : Program
PVW : Preview
REM : Remote
RX : Receiver
SG : SYNC Generator
SPK : Speaker
SW : Switcher
ST : Studio
TB : Talk Back
TEL PIC : Telephone Pick Up
TRK : Trunk Line
TX : Transmitter
VDA : Video Distribution Amplifier
VE : Video Engineer
VS : Vector Scope
VU : Volume Meter
WFM : Wave From Monitor

The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: ———
Title: BLOCK DIAGRAM OF Master Video System				DWG. No.: Sy-7
DATE	DESIGNED	CHECKED	APPROVED	REVISION
14th Jul. 2004	Kobayashi	Wada	Tanaka	

YACHIYO ENGINEERING CO., LTD. TOKYO JAPAN



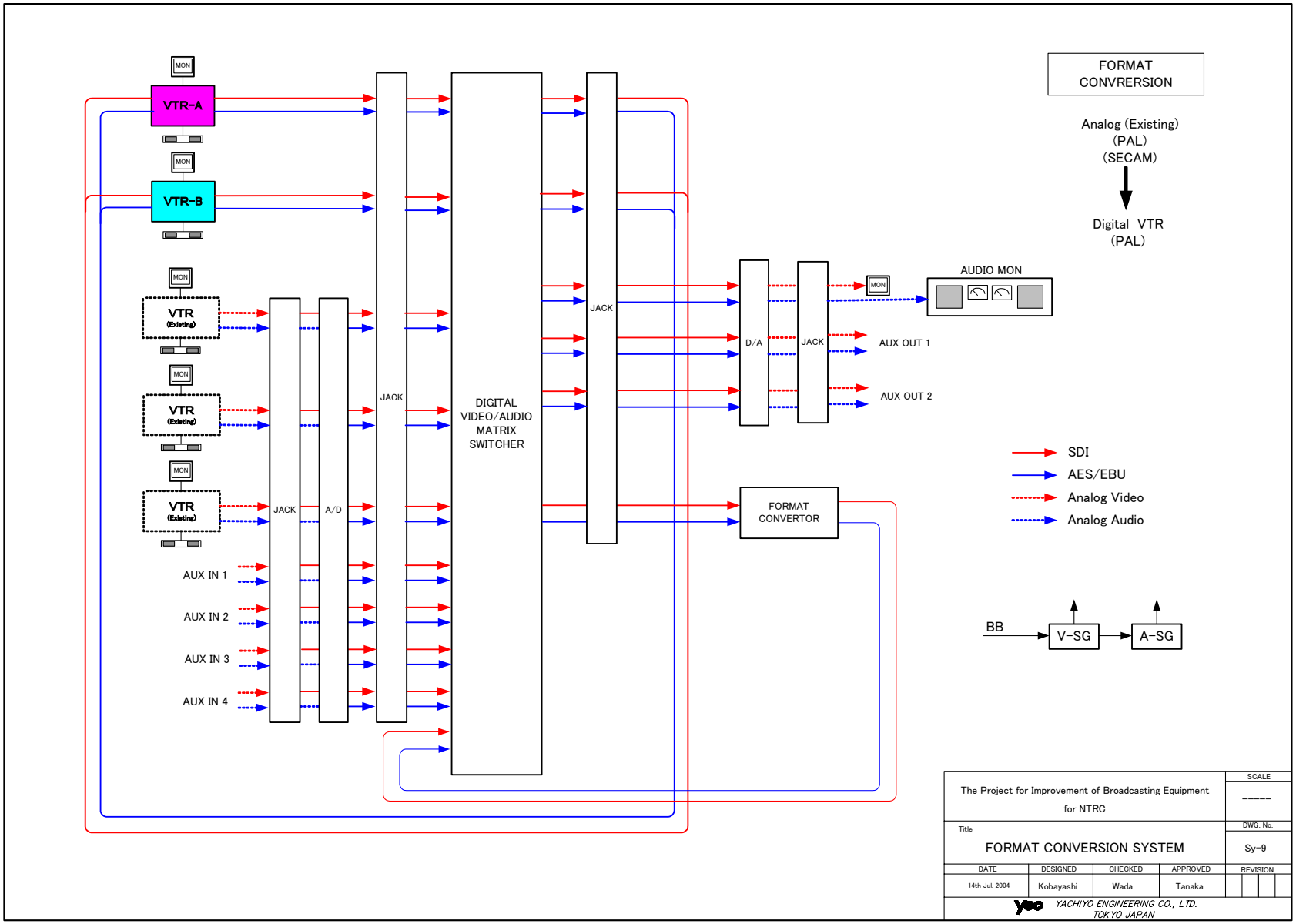
( ) are connected by Kyrgyz Side Scope

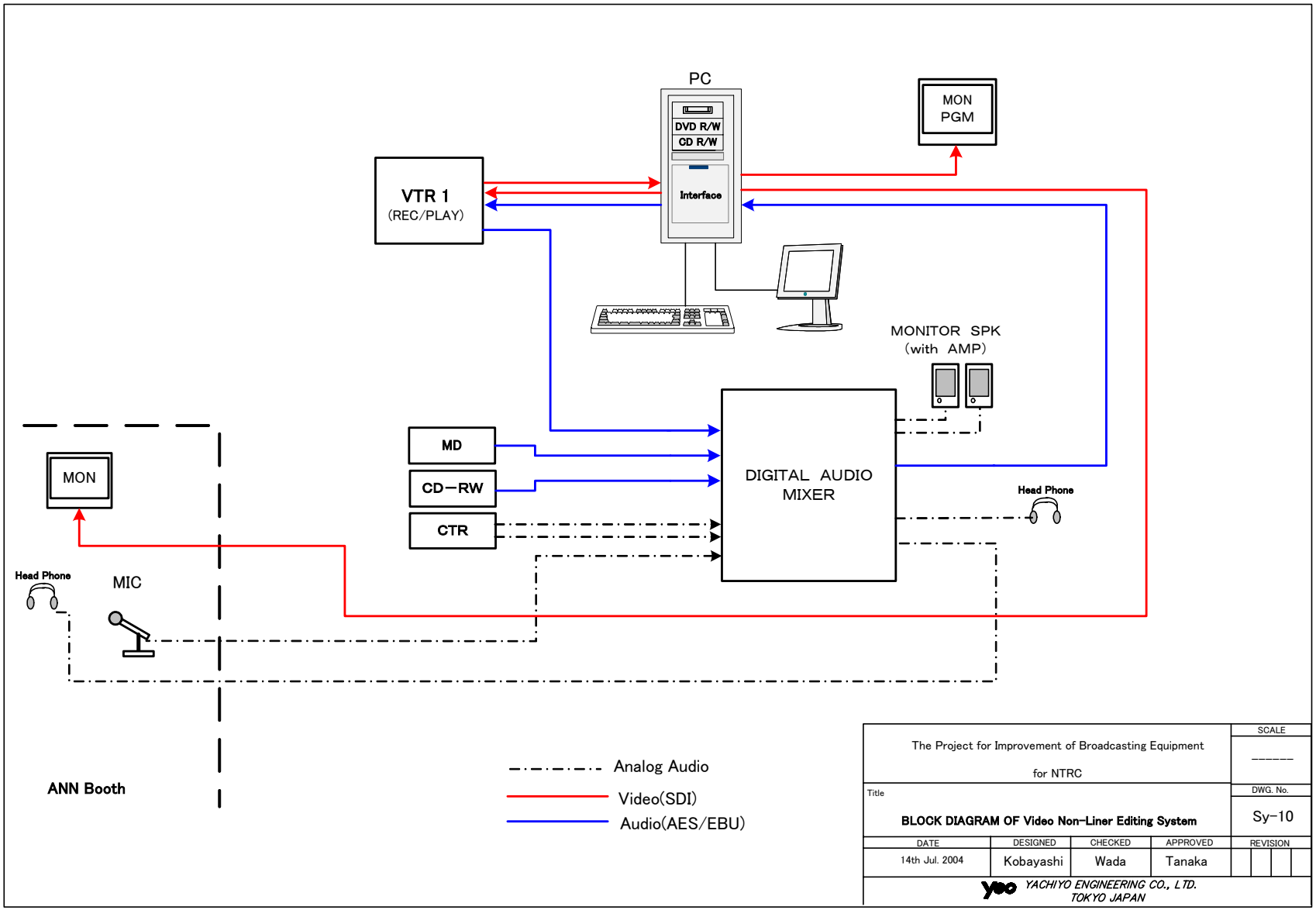
Abbreviation

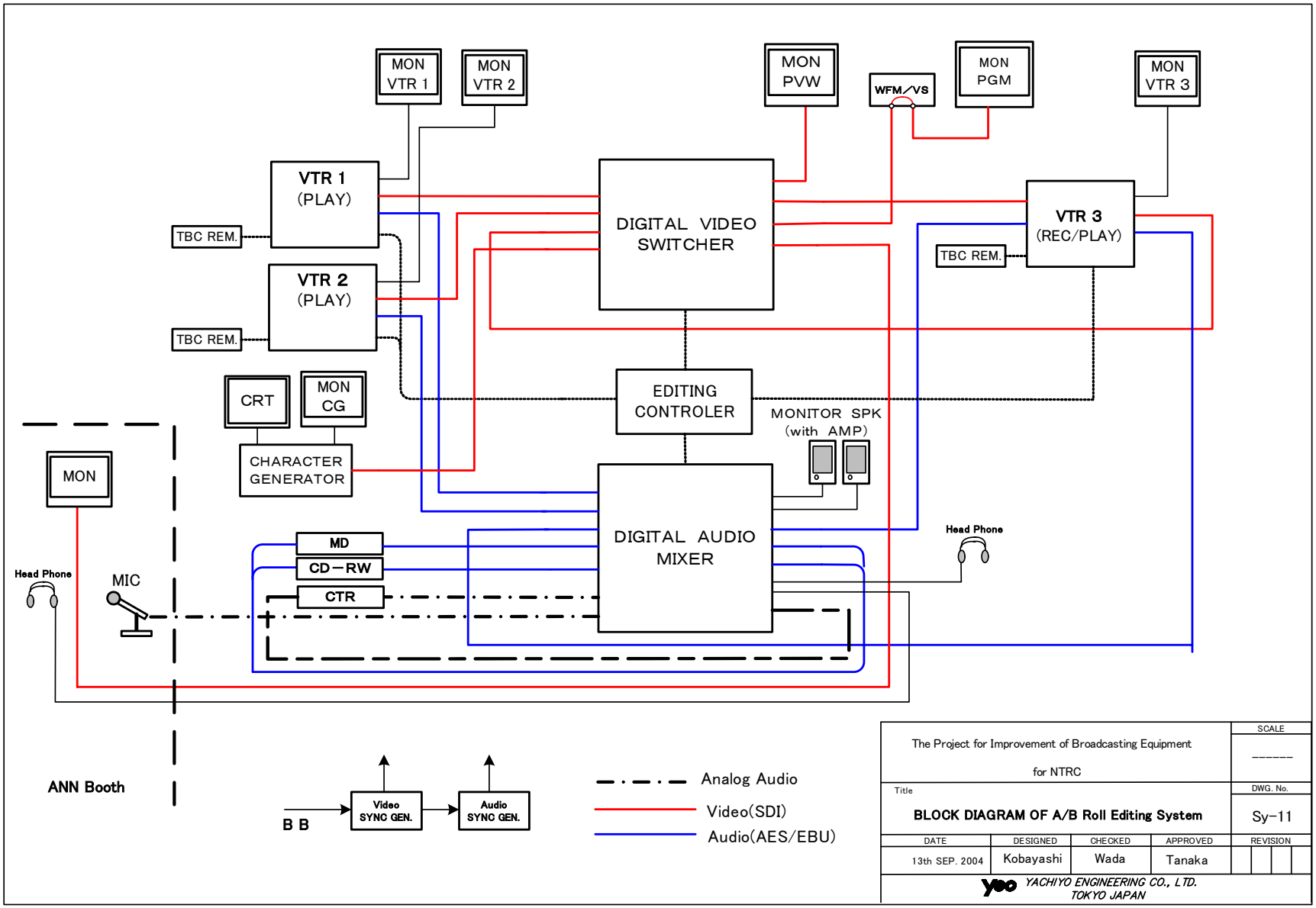
A/D : Analog to Digital Converter
ADA : Audio Distribution Amplifier
AGC : Automatic Gain Controller
AUX : Auxiliary
CB : Color Bar
BB : Black Burst
C.G : Character Generator
C.GEN : Character Generator
CCU : Camera Control Unit
CM : Color Monitor
D/A : Digital to Analog Converter
DA : Distribution Amplifier
DDA : Digital Distribution Amplifier
DVE : Digital Video Effector
EQA : Equalizer Amplifier
FPU : Field Pick Up Unit
INS : Insertor
LD : Light Director
MIC : Microphone
MON : Monitor
OB : Outside Broadcasting
PD : Producer
PGM : Program
PVW : Preview
REM : Remote
RX : Receiver
SG : SYNC Generator
SPK : Speaker
SW : Switcher
ST : Studio
TB : Talk Back
TEL PIC : Telephone Pick Up
TRK : Trunk Line
TX : Transmitter
VDA : Video Distribution Amplifier
VE : Video Engineer
VS : Vector Scope
VU : Volume Meter
WFM : Wave From Monitor

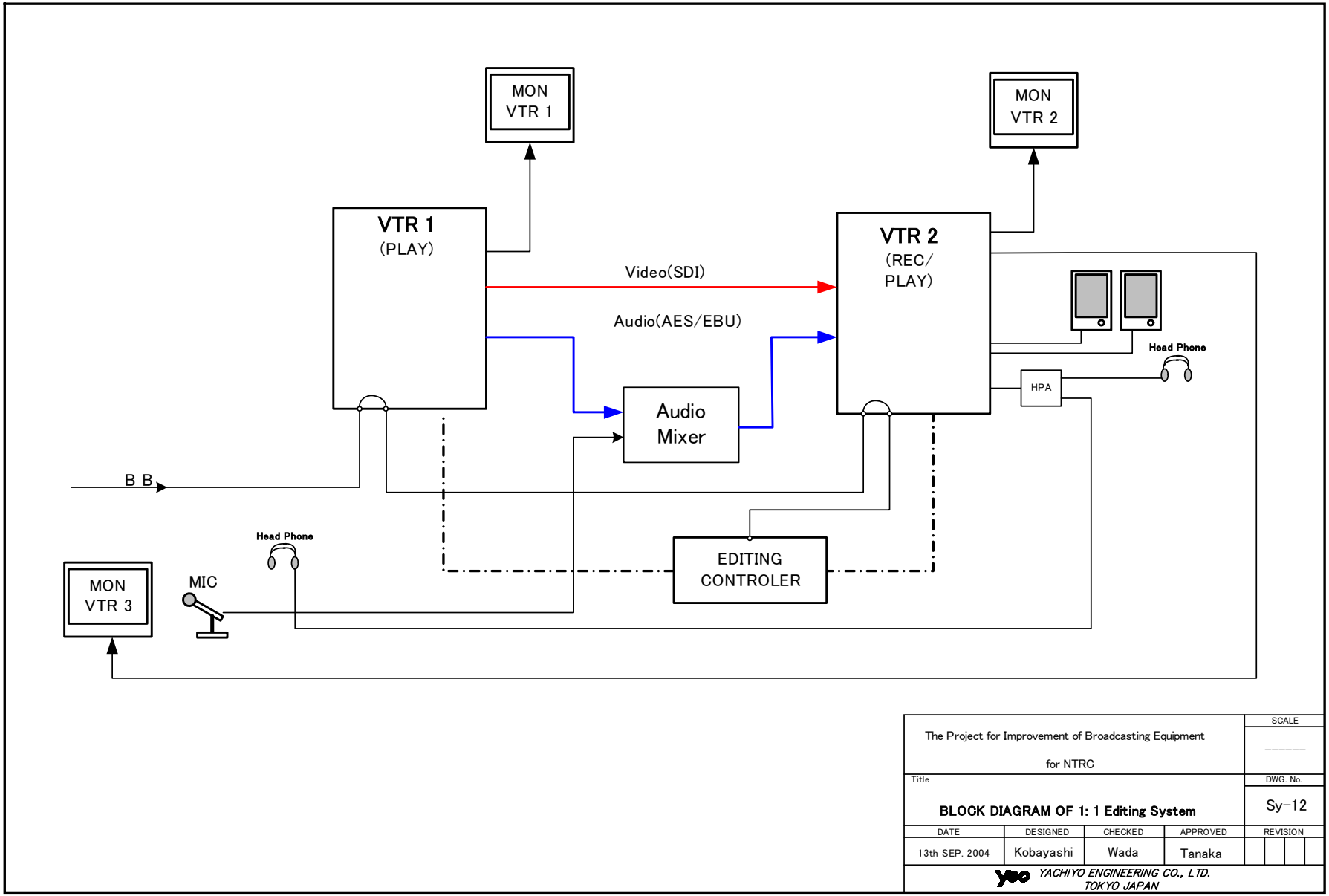
The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: ———
Title: BLOCK DIAGRAM OF Master Audio System				DWG. No.: Sy-8
DATE	DESIGNED	CHECKED	APPROVED	REVISION
14th Jul. 2004	Kobayashi	Wada	Tanaka	

YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN


FORMAT
CONVRERSION
Analog (Existing)
(PAL)
(SECAM)
Digital VTR
(PAL)
MON
VTR-A
VTR-B
VTR
(Existing)
AUX IN 1
AUX IN 2
AUX IN 3
AUX IN 4
JACK
A/D
DIGITAL
VIDEO/AUDIO
MATRIX
SWITCHER
D/A
AUDIO MON
AUX OUT 1
AUX OUT 2
FORMAT
CONVERTOR
SDI
AES/EBU
Analog Video
Analog Audio
BB
V-SG
A-SG
The Project for Improvement of Broadcasting Equipment
for NTRC
SCALE
Title
FORMAT CONVERSION SYSTEM
DWG. No.
Sy-9
DATE
DESIGNED
CHECKED
APPROVED
REVISION
14th Jul. 2004
Kobayashi
Wada
Tanaka
YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN


PC
DVD R/W
CD R/W
Interface
MON
PGM
VTR 1
(REC/PLAY)
MONITOR SPK
(with AMP)
MD
CD−RW
CTR
DIGITAL AUDIO
MIXER
Head Phone
MON
Head Phone
MIC
ANN Booth
Analog Audio
Video(SDI)
Audio(AES/EBU)
The Project for Improvement of Broadcasting Equipment
for NTRC
SCALE
Title
BLOCK DIAGRAM OF Video Non-Liner Editing System
DWG. No.
Sy-10
DATE
DESIGNED
CHECKED
APPROVED
REVISION
14th Jul. 2004
Kobayashi
Wada
Tanaka
YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN


MON VTR 1
MON VTR 2
MON PVW
WFM/VS
MON PGM
MON VTR 3
VTR 1 (PLAY)
TBC REM.
VTR 2 (PLAY)
TBC REM.
DIGITAL VIDEO SWITCHER
VTR 3 (REC/PLAY)
TBC REM.
CRT
MON CG
CHARACTER GENERATOR
EDITING CONTROLER
MONITOR SPK (with AMP)
MON
DIGITAL AUDIO MIXER
Head Phone
MD
CD－RW
CTR
Head Phone
MIC
ANN Booth
B B
Video SYNC GEN.
Audio SYNC GEN.
Analog Audio
Video(SDI)
Audio(AES/EBU)
The Project for Improvement of Broadcasting Equipment
for NTRC
SCALE
Title
BLOCK DIAGRAM OF A/B Roll Editing System
DWG. No.
Sy-11
DATE
DESIGNED
CHECKED
APPROVED
REVISION
13th SEP. 2004
Kobayashi
Wada
Tanaka
YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN



The Project for Improvement of Broadcasting Equipment for NTRC				SCALE: ------
Title: BLOCK DIAGRAM OF 1: 1 Editing System				DWG. No.: Sy-12
DATE	DESIGNED	CHECKED	APPROVED	REVISION
13th SEP. 2004	Kobayashi	Wada	Tanaka	

YACHIYO ENGINEERING CO., LTD.
TOKYO JAPAN

2.2.3 Procurement Plan

2.2.3.1 Implementation Policy

The Project will be implemented within the framework of the Japanese grant aid scheme. Accordingly, the Project will only be implemented after approval of project implementation by the Government of Japan and the signing of the Exchange of Notes (E/N) by both governments. Fundamental matters and important points related to the implementation of the Project are described below.

(1) Implementing Agency

T1he government office responsible for supervision of the Project and the implementing agency on the Kyrgyzstan side are the Ministry of Finance and the National TV and Radio Broadcasting Corporation (NTRC).

The government office responsible for the supervision and the implementing agency should appoint a person (persons) responsible for implementation of the Project. Representatives of the Kyrgyzstan side will not only act as go-betweens and hold discussions with the Japanese consultant and supplier, but also fully explain the project contents to related organizations and persons on the Kyrgyzstan side for the purpose of obtaining their cooperation.

(2) Consultant

A Japanese consultant will conclude a design and supervision agreement with the Ministry of Finance and will execute a detailed design (including preparation of tender documents) and procurement supervision (including assisting with tendering and procurement supervision) for the Project.

(3) Suppliers

Supplier for the Project will be responsible for delivery of equipment which meets the specifications set forth in the tender documents by the designated date as contracted by the Kyrgyzstan side.

The supplier will also be responsible for post-project after service, including the supply of spare parts and arrangement of repair work, etc.

(4) Need for Dispatching Engineers

Since the equipment to be procured under the Project will require a high level of skills for installation as well as adjustment and testing after installation, dispatching of engineers from Japan will be necessary to ensure quality control, provide technical guidance and schedule control at the time of such work.

Technical personnel from the NTRC are experienced in the operation and maintenance of broadcasting equipment, so no special technical problems related to equipment maintenance are anticipated. However, they are unfamiliar with the operation and maintenance of the latest digital equipment. Therefore, technical guidance on operation and maintenance should be conducted by Japanese engineer(s) dispatched by the manufacturer at the time of installation.

2.2.3.2 Procurement Conditions

(1) Local Companies

Although there are several construction companies and electrical suppliers in Bishkek where the NTRC is located, none possess the skills needed for installation of the broadcasting equipment to be provided under the Project. Accordingly, Japanese engineer(s) will be dispatched at the time of installation to provide technical guidance, quality control and schedule control.

(2) Effective Use of Local Equipment and Materials

Equipment and materials will be procured locally as much as possible.

2.2.3.3 Scope of the Work

The procurement and installation of broadcasting equipment will be conducted by the Japanese side while the removal of existing equipment and renovation of existing facilities will be conducted by the Kyrgyzstan side. The division of work between the Japanese side and the Kyrgyzstan side is shown in Table 2.2-4.

Table 2.2-4 Division of Work between the Japanese side and the Kyrgyzstan side

Work Item	Side Responsible		Remarks
	Japan	Kyrgyzstan	
(1) Procurement of equipment	○		
(2) Inland transportation of equipment	○		
(3) Installation of equipment	○		
(4) On-site testing and on-site adjustment after installation	○		
(5) Repair work of the editing room		○	・ To be completed prior to the shipment of equipment procured by the Japanese side ・ To report to the Japanese side of the implementation undertaken by the recipient country
(6) Interior work of the editing room (installation of the announcer booth)	○ (Advice)	○	Same as above
(7) Replace of inside wall plate in the C-120 studio (only for sub-control room)	○ (Advice)	○	Same as above
(8) Repair work of switchboards (replace of circuit breaker for power distribution)	○ (Advice)	○	Same as above
(9) Maintenance of central air-conditioning system		○	
(10) Installation of temporary broadcasting facilities associated with exchanging new and existing facilities	○ (Advice)	○	Same as above
(11) Provision of chairs for operating the broadcasting equipment		○	
(12) Removal of existing equipment		○	
(13) Provision of temporary place to store equipment within the NTRC lot	○ (Advice)	○	Same as above

(Note) ○ denotes the side responsible for work in question.

2.2.3.4 Consultant Supervision

(1) Basic Policy on Work Supervision

In accordance with the grant aid scheme of the Government of Japan and based on the purposes of the basic design, the consultant is obligated to smooth implementation of the detailed design and work supervision by forming a project team which will be responsible for the Project.

At the work supervision stage, the consultant will dispatch engineers corresponding to the progress of the equipment installation work, on-site testing and on-site adjustment after installation, etc., to supervise the work conducted by the supplier in order to provide schedule control, quality control, progress management and safety management. In addition, the consultant is obligated to conduct pre-shipment inspection of equipment to prevent the occurrence of any problems after delivery to the project site.

The key points for work supervision are explained below.

1) Schedule Control

The consultant will require the supplier to abide by the time limit for work specified in the agreement and will conduct weekly as well as monthly work progress checks. If the completion of the work is delayed, the consultant will discuss the possible delay with the supplier and submit an implementation plan to rectify the situation. Comparison of the planned schedule and actual progress will primarily be based on the following.

① Confirmation of work progress (manufacturing progress at the plant(s) and shipment progress)

② Confirmation of actually delivered equipment

③ Confirmation of planned input and actual input of engineers, skilled works and laborers

2) Quality and Progress Management

Supervision of quality and work progress will be conducted to ensure that the procured equipment meets the quality and completed amount specified in the agreement. If the check results suggest that the required quality and/or completed amount may not be achieved, the consultant will immediately demand that the supplier make the necessary corrections, alterations or modifications.

① Checking of equipment specifications

② Checking of shop drawings and equipment specifications

③ Witnessing of plant inspections or checking of plant inspection results

④ Checking of installation manuals

⑤ Checking of test operations, adjustment of equipment and inspection manuals

⑥ Supervision of the on-site equipment installation work and witnessing of test operations, adjustment and inspections

3) Labor Management

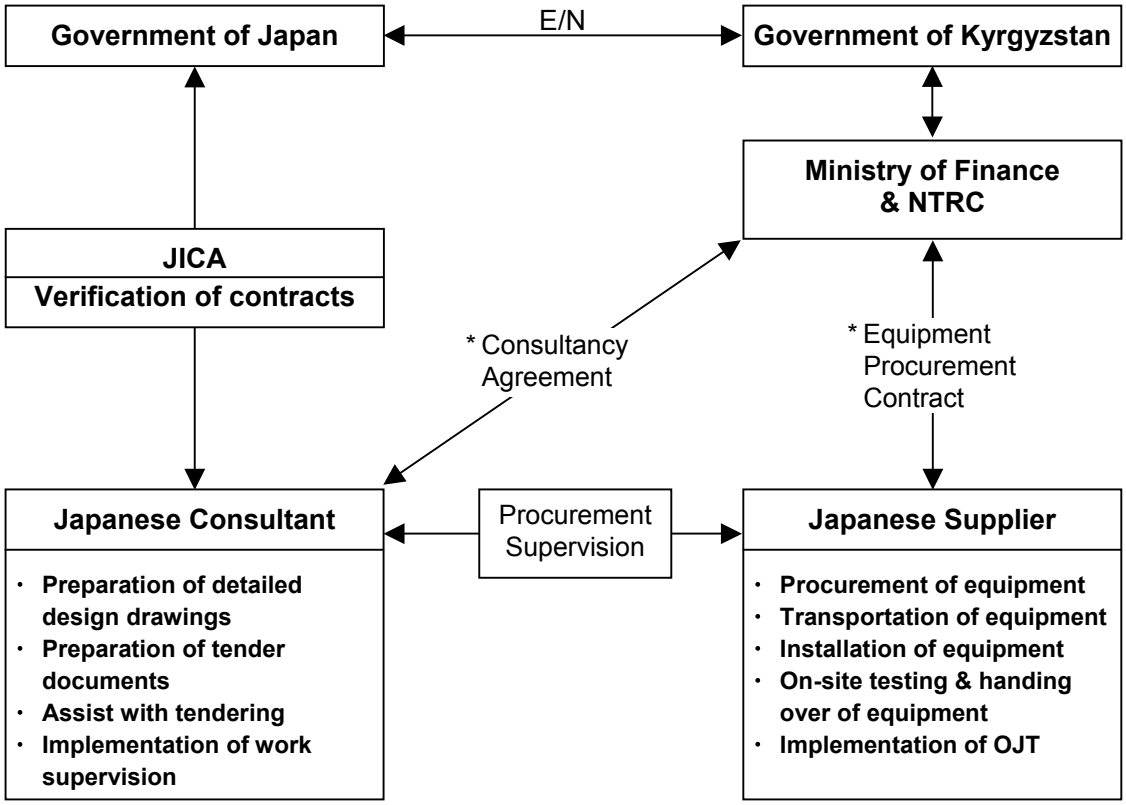
Proper consultations with the person assigned by the supplier responsible for safety control must be conducted to prevent site accidents involving workers as well as damage or accidents involving third parties during the work period. The important points for on-site safety control are listed below.

① Establishment of safety control rules and appointment of a safety manager

② Establishment of travel routes for work vehicles and transport machinery and strict implementation of safe driving

③ Introduction of welfare measures for workers and strict enforcement of day-off arrangements

Fig. 2.2-15 shows the relationship between the persons involved in the Project.



Note: Both the consultancy agreement and supplier contract must be validated by the Government of Japan.

Fig. 2.2-15 Project Implementation Relationship

(2) Work Supervisors

The supplier will be responsible for the procurement, delivery and installation of equipment. The supplier must ensure that the local contractor properly understands the work schedule; quality and progress requirements and safety measures specified in the agreement and will dispatch engineers with similar work experience overseas to the project site in order to provide guidance and education for the local contractor.

2.2.3.5 Quality Control Plan

The procured equipment's conformity to the technical specifications in the tender documents must be confirmed at the time of the pre-shipment plant inspection. At the on-site work stage, quality control must be conducted in accordance with the work agreement criteria specified in the work manual.

2.2.3.6 Procurement Plan

Since the equipment to be procured under the Project is not manufactured in Kyrgyzstan, it will be procured in Japan and some broadcasting equipment will be procured from third countries.

Table 2.2-5 Equipment Supply Sources

Description		Source Country	
		Japan	Third Country
1.	C-600-1 TV studio System		
1.1	Digital Color Camera	○	
1.2	Digital VTR System	○	
1.3	Digital Video System	○	
1.4	Character Generator	○	○ (part)
1.5	Digital Audio System	○	○ (part)
1.6	Microphone	○	
1.7	Microphone Stand	○	
1.8	Microphone Cable	○	
1.9	Microphone Connector Plate	○	
1.10	Video Sync System	○	
1.11	Monitoring System (A/V)	○	
1.12	Intercom System	○	○ (part)
1.13	On-Air Light and Tally System	○	
2.	C-120 TV studio System		
2.1	Digital Color Camera	○	
2.2	Digital VTR System	○	
2.3	Digital Video System	○	○ (part)
2.4	Character Generator	○	○ (part)
2.5	Digital Audio System	○	
2.6	Microphone	○	
2.7	Microphone Stand	○	
2.8	Microphone Cable	○	
2.9	Microphone Connector Plate	○	
2.10	ANN Cough Equipment	○	
2.11	Video Sync System	○	
2.12	Monitoring System (A/V)	○	
2.13	Intercom System	○	○ (part)
2.14	On-Air Light and Tally System	○	
2.15	Studio Lighting System	○	
3.	Master Control System	○	○ (part)
4.	Format Conversion System	○	○ (part)
5.	Field Recording (ENG) System	○	
6.	Video Non-Linear Editing System	○	
7.	A/B roll Editing System	○	○ (part)
8.	1:1 Editing System	○	
9.	Measuring Equipment and Tools	○	
10.	Consumable Parts	○	

2.2.3.7 Implementation Schedule

The project implementation schedule shown in the following figure is planned based on the timetable required by the grant aid scheme of the Government of Japan.

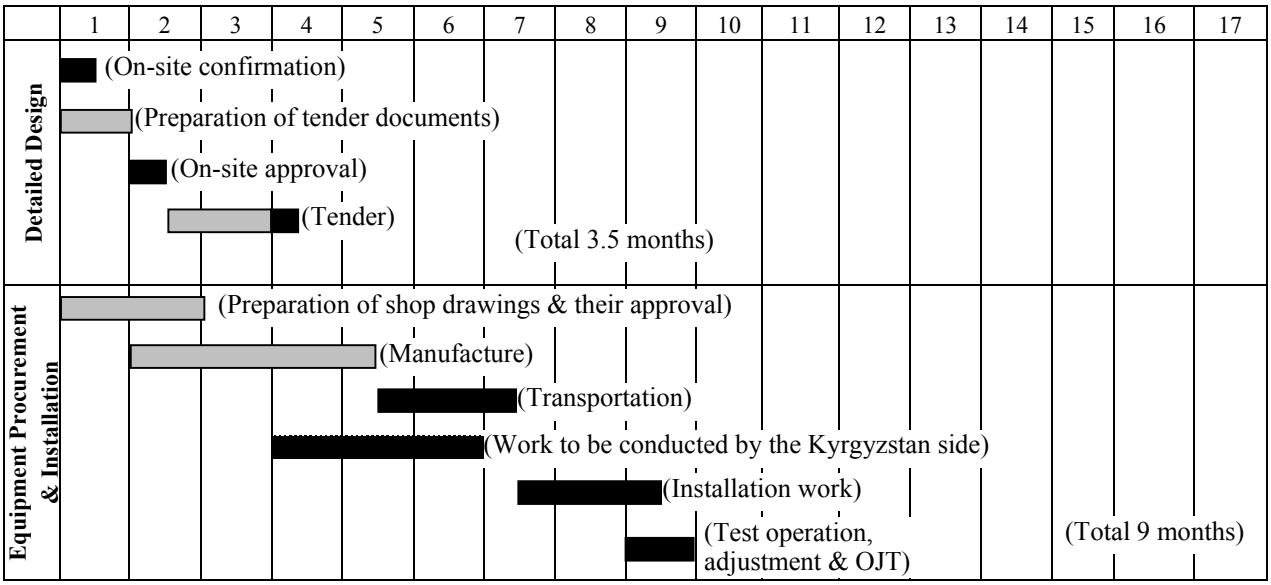


Fig. 2.2-16 Project Implementation Schedule

2.3 Project Operation Plan

(1) Operation and Maintenance System

In order for the NTRC television station to perform its role as a local broadcasting station, equipment procurement and renewal based on the planning and budget of the NTRC are necessary. Accordingly, the maintenance plan for the equipment to be procured through the Project takes periodical renewal of such equipment into consideration. The maintenance plan is shown in Table 2.3-1.

According to this plan, parts such as VTR rollers, etc., will be replaced yearly due to rapid wear from continuous use. The heads of the cassette tape recorders and VTRs, etc. will be replaced every 3 years bearing in mind their physical service life. VTRs, editing control unit and other main equipment will be completely replaced after 10 years of service in view of the depreciation period of this equipment and technical innovation. In Japan, this type of equipment is usually replaced every 6 years. However, the broadcasting time at the NTRC TV station is limited to 7:00 am to 12:00 pm midnight. Therefore, taking into consideration the lower frequency of use of a domestic broadcasting station, the renewal period is set at 10 years.

Table 2.3-1 Equipment Maintenance Plan

Renewal Period	Subject Items
Annual	Video and sound recording tapes, batteries, VTR rollers
Every 3 years	In addition to the above, some mechanical parts and VTR heads, some lamps, microphones, cooling fans
After 10 years	VTRs, audio equipment, TV cameras

(2) Routine Checks

The improved reliability and durability of electronic equipment due to technological innovation in recent years and the decrease in the number of parts have reduced the occurrence of equipment malfunctions. Along with this trend, in Japan the interval of equipment checks is increasing.

Nevertheless, regular routine checks are essential to ensure the effectiveness of equipment over extended periods. The NTRC carries out inspections of equipment in addition to facility inspections through interruptions in broadcasting on Tuesday mornings. Proper implementation of these checks is even more important for organizations such as the NTRC which cannot renew equipment often due to financial constraints. Minimum maintenance standards for regular routine checks will, therefore, be formulated to create a system designed to prevent equipment breakdown. Items subject to regular routine checks for equipment procured under the Project and the measuring instruments and tools required for these checks are shown in Table 2.3-2.

Table 2.3-2 Items Subject to Equipment Checks and Required Instruments and Tools

Type of Check	Items	Required Instruments/Tools
Routine/Daily Check	Visual inspection of various meters and breakdown indicators, etc., and confirmation of video and audio test recording	Video and audio monitors
	Visual check of connections	Tool set
6 month Check (Characteristics Check)	Measuring of characteristics of video and audio equipment (frequency characteristics; S/N); bias rate; level diagram	Video and audio signal testers and test tapes
	Measuring of power source voltage and other voltages	Oscilloscope and digital tester

2.4 Estimated Project Cost

2.4.1 Estimated Project Cost of the Requested Japanese Assistance

The cost of the Project under the grant aid scheme of the Government of Japan will be approximately ¥682 million. The breakdown of expenses of both governments in accordance with the undertakings taken by Japan and Kyrgyzstan and are estimated as follows. However, this estimated project cost is provisional and does not always indicate the limited grant amount in accordance with the E/N and the further examination will be made at the time of reviewing the implementation of the Project.

(1) Cost to be borne by the Japanese side

(Unit: ¥ million)

	Item	Quantity	Amount
Equipment	C-600-1 TV Studio System	1 lot	139.7
	C-120 TV Studio System (Including Studio Lighting System)	1 lot	145.0
	Master Control System	1 lot	70.7
	Format Conversion System	1 lot	19.6
	Field Recording (ENG) System	8 sets	69.5
	Video Non-Linier Editing System (with Audio Equipment)	3 sets	21.8
	A/B Roll Editing System	2 sets	42.7
	1:1 Editing System	2 sets	10.2
	Measuring Equipment and Tools	1 lot	11.9
	Others	1 lot	3.4
Design supervision			147.4
Total			681.9

approximately less than 7 million US$

(2) Cost to be borne by the Kyrgyzstan side 697,000 som (Approximately ¥ 1.74 million)

1) Renovation of editing rooms 0 som (Approx. ¥ 0.00 million)

* Since the NTRC has ensured a budget for relevant construction, contracted with contractors and progressive renovation work, the cost for relevant construction is not included in the cost under the Project.

2) Interior work for editing rooms (installation of announcer booths)

208,000 som (Approx. ¥ 0.52 million)

3) Replacement of wall board in C-120 studio (only sub-control room side
20,000 som (Approx. ¥ 0.05 million)

4) Repair work for distribution panels (replacement of circuit breakers)
40,000 som (Approx. ¥ 1.00 million)

5) Maintenance work for central air conditioning system
0 som (Approx. ¥ 0.00 million)

* Since the NTRC can deal with this through daily routine maintenance, this is not included in the cost borne by the recipient country.

6) Installation of temporary broadcasting facilities associated with facility switching
0 som (Approx. ¥ 0.00 million)

* Since the NTRC can deal with this using existing equipment, materials and human resources, it is not included into the cost borne by the recipient country.

7) Provision of chairs for broadcasting equipment consoles
60,000 som (Approx. ¥ 0.15 million)

8) Removal of existing equipment
9,000 som (Approx. ¥ 0.02 million)

* Since the NTRC can deal with this using existing equipment and human resources, it is not included in the cost borne by the recipient country.

(Note) The above-mentioned financial undertakings are the necessary, minimum budget for implementation of the Project.

(3) Estimation Conditions

1) Date of estimation : July 2004

2) Foreign exchange rate : 1US$ ＝ ¥109.50 ＝ 42 som
1som ＝ ¥2.50

3) Work period : As described in the work schedule.

4) Other : The Project will be implemented in accordance with the grant aid scheme guidelines of the Government of Japan.

2.4.2 Operation and Maintenance Cost

In order for the NTRC TV station to be operated under sound conditions in the future, it is necessary to replace equipment procured under the Project on a periodic basis. Accordingly, an operation and maintenance plan should be formulated to take new and existing equipment as well as periodical replacement of equipment mentioned in 2.4 into account.

(1) Preconditions

Preconditions of operating cost and revenue are arranged as follows.

1) Expenditure

Annual expenditure is estimated assuming that the equipment procured under the Project will operational from 2005, and the replacement cost (approximately ¥300 million) of main parts anticipated in 2015 (after 10 years) will be accumulated annually as savings (reserve fund for new equipment).

The amount saved depends on increases in PR revenue and reduction in production cost. As a result of preliminary arrangements with the NTRC, PR cost will tend to increase every year. Therefore, it was calculated by assuming a 5% possibility. In addition, a 2% increase in production cost is the aim. Other expenditures and budget estimation are shown in Table 2.4-1.

Table 2.4-1 Budget Estimation

(Unit: 1,000 Kyrgyzstan Som: KGS)

Operating cost Item	Budget Estimation Method	Required Budget
Maintenance personnel expense	Adopt average for last three years' data (2000 to 2002)	3,948
Program production cost		28,896 (Aim at reducing cost by 2% every year)
Lighting and heating cost		3,780
Maintenance expense (parts for repair of TV equipment)	Appropriate necessary cost estimated for equipment maintenance as mentioned in 3-3: Project Operation and Maintenance Plan	840 annually 2,520 every 3 years (Reference: average number of TV equipment parts used for repairs between 2000 and 2002: approx. 1,974)
Maintenance expenses (parts for radio equipment maintenance, buildings, vehicles, etc.)	Adopt average for last three years' data (2000 to 2002)	4,956
Program broadcasting, communications cost	(Paid to Kyrgyz Telecom via NTRV.)	40,614
Satellite usage fees	The state pays directly to Kyrgyz Telecom.	0
General expenses	Adopt average for last three years' data (2000 to 2002)	8,442 (Aim at reducing cost by 2% annually)

2) Revenue

Operating revenue is estimated by combining the commercial fees of the NTRC TV station (CM fees) related to spot PR obtained from firms and organizations and other revenue such as hall rentals. The annual revenue is shown in Table 2.4-2.

Table 2.4-2 Annual Revenue

(Unit: 1,000 Kyrgyzstan Som: KGS)

Item	Estimation Method	Revenue (Annual)
TV CM fees	Adopt average for last three years' data (2000 to 2002) Aim at increase of 5% annually	20,916
Other revenue sources (Open hall, other sources)	Adopt average for last three years' data (2000 to 2002)	1,302

3) Government Subsidies

Since a government subsidy is expected in FY2003, the subsidy amount can be estimated as follows. The annual subsidy is shown in Table 2.4-3.

Table 2.4-3 Annual Subsidy

(Unit: 1,000 Kyrgyzstan Som: KGS)

Subsidy	Estimation Method	Subsidy amount (Annual)
Central government	Average 2000 to 2003 2000	69,300

(2) Estimation Results

Based on the above-mentioned preconditions, the revenue forecast until 2015 when equipment replacement is planned is shown in Table 2.4-4. It shows that savings can be secured for the replacement in 2015. In addition, according to NTRC data, they can secure the cost for replacing equipment 10 years from now due to a reduction in maintenance cost or an increase in PR fees.

The budget at NTRC is shared between the TV and radio departments. Consequently, the securing of profits in the radio department has become an issue.

Table 2.4-4 Estimated Operating Cost and Maintenance Cost at the NTRC TV Station

Unit: 1,000 Kyrgyzstan Som: KGS

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Revenue												
TV CM fees	20,916	21,962	23,060	24,213	25,424	26,695	28,029	29,431	30,902	32,448	34,070	35,773
Rental hall fees	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302	1,302
Other	0	0	0	0	0	0	0	0	0	0	0	0
Sub-total A	22,218	23,264	24,362	25,515	26,726	27,997	29,331	30,733	32,204	33,750	35,372	37,075
Expenditure												
Maintenance & personnel expenses	3,948	3,948	3,948	3,948	3,948	3,948	3,948	3,948	3,948	3,948	3,948	3,948
Program production cost	28,896	28,318	27,752	27,197	26,653	26,120	25,597	25,085	24,584	24,092	23,610	23,138
Lighting & heating cost	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780	3,780
Maintenance expenses (parts for repair of the TV equipment)	1,974	1,974	840	840	2,520	840	840	2,520	840	840	2,520	840
Maintenance expenses (parts for maintenance of the radio equipment, buildings, vehicles, etc.)	4,956	4,956	4,956	4,956	4,956	4,956	4,956	4,956	4,956	4,956	4,956	4,956
Program broadcasting, communications cost	40,614	40,614	40,614	40,614	40,614	40,614	40,614	40,614	40,614	40,614	40,614	40,614
Satellite charges	0	0	0	0	0	0	0	0	0	0	0	0
General expenses	8,442	8,273	8,108	7,946	7,787	7,631	7,478	7,329	7,182	7,038	6,898	6,760
Sub-total B	92,610	91,863	89,997	89,280	90,257	87,889	87,214	88,232	85,904	85,268	86,326	84,036
Profit (A – B) = C	-70,392	-68,599	-65,636	-63,765	-63,532	-59,892	-57,882	-57,499	-53,699	-51,519	-50,954	-46,960
Subsidy from the Government												
Central government	69,300	69,300	69,300	69,300	69,300	69,300	69,300	69,300	69,300	69,300	69,300	69,300
Special budget	2,856	2,856										
Sub-total D	72,156	72,156	69,300	69,300	69,300	69,300	69,300	69,300	69,300	69,300	69,300	69,300
Balance after subsidy revenue (C – D)	1,764	3,557	3,664	5,535	5,768	9,408	11,418	11,801	15,601	17,781	18,346	22,340
Reserve fund (cost for equipment replacement)			3,664	5,535	5,768	9,408	11,418	11,801	15,601	17,781	18,346	22,340
Accumulated reserve fund				9,199	14,967	24,375	35,793	47,594	63,195	80,976	99,322	121,662
Balance after reserve fund (E – F)			0	0	0	0	0	0	0	0	0	0

2.5 Other Relevant Issues

(1) Measures for Tax Exemption

Tax exemption measures with the Kyrgyzstan agencies concerned will be taken through the following procedures:

① After concluding a contract between the Kyrgyzstan Ministry of Finance (MOF) and Japanese supplier, the supplier will submit an equipment list to the NTRC.

② The NTRC will forward the equipment list mentioned in ① to the MOF in order to apply for approval for tax exemption.

③ The MOF issues an approval letter for tax exemption (normally signed by the vice minister of finance) to Customs (a copy is issued to the NTRC).

④ When the equipment to be procured in Japan arrives locally, the NTRC will bring the letter mentioned in ③ to Customs to obtain references, customs clearance and tax exemption.

(2) Consumable Parts Procurement Plan

In the Project's implementation, the manufacturers' guarantee period for equipment is assumed to be one year. Accordingly, the inclusion of consumables such as tapes in the Project is planned. The Kyrgyzstan side should prepare the necessary budget to procure additional spare parts (replacement parts and consumables) so that such parts can be procured successfully. The plan to procure consumables is shown in Table 2.5-1.

Table 2.5-1 Procurement Plan for Consumables

(Unit: lot)

Item		Quantity			
		C-600-1 Studio	C-120 Studio	A/B Roll Editing System 1:1 Cu t Editing System & Non-linear	Total
Consumables	Video tapes	1,000 (for storage)		1,000 (for operations)	2,000
	Audio cassette tapes	200			200
	CD-RW	200			200
	MD	200			200

Since production time at NTRC is approximately 40 hours per week, assuming a tape to be 1 hour long, the quantity of media needed for the Project is as follows.

［Video Tape for Operations］

If it is assumed that total time per week is approximately 90 hours, and utilization time is 1,080 hours over 3 months, 1,080 tapes will be necessary. Normally, a tape cannot be used after four times of program production. Therefore, all tapes will be scrapped within 1 year (3 months × 4 cycles). Therefore, the Project assumes the necessary quantity to be 1,000 lots.

［Video Tape for Storage］

Since a 3-month portion (480 hours) is necessary for storage at C-600-1 and C-120 studios, in other words, 480 tapes will be required; the necessary quantity is estimated to be 1,000 lots (480 X 2 ≒ 1,000).

［Audio Cassette Tape, CD-RW and MD］

Although various types of audio media are used to supplement production of news reporting, etc., by calculating the utilization ratio to be one tenth (1/10), 200 lots will be required. Therefore, the Project assumes the necessary quantity to be 200 lots.

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATIONS

CHAPTER 3
PROJECT EVALUATION AND RECOMMENDATIONS

3.1 Project Effects

Present Conditions and Problems	Countermeasures under the Project (Requested Japanese Assistance)	Project Effects and Level of Improvement
1. Equipment deterioration Although the NTRC plays an important role in dispatching information to the public nationwide as the sole public broadcasting organization in Kyrgyzstan, the equipment presently owned are remarkably deteriorated so that a stable broadcasting system should be improved by urgently upgrading the equipment.	The following broadcasting equipment will be improved. •C-600-1 studio system (1 set) •C-120 studio system (1 set) •Lighting system for the above-mentioned system (1 set) •Format conversion system (1 set) •Master control system (1 set) •ENG system (8 sets) •Non linier editing system (1 set) •A/B roll editing system (2 sets) •1:1 editing system (2 sets) •Measuring instruments (1 set) •Spare parts (1 set)	• System for continual TV broadcasting can be improved.
2. VTR format without compatibility Since the present equipment don't consider the functionality of the entire broadcasting station, many types of the recording formats are intermingled so that there is no tonality. This is a big problem that lowers the efficiency of program production.		• The NTRC can take the role of public broadcasting organization for wide transmission of information to the public.

(1) Direct Effects

1) Continuity of TV Broadcasting

Through the Project, continuity in TV broadcasting is possible by replacing old equipment that cannot be repaired with the latest broadcasting equipment.

2) Increase in Number of Programs

Although Russian is the official language in Kyrgyzstan, Kyrgyz is used in rural areas on a daily basis so few residents understand Russian. Accordingly, TV programs on education and health produced in Kyrgyz are an important source of information for rural residents. In addition to improving the performance of program production equipment under the Project, it will be possible to reduce the burden on studio systems through a higher grade master control system for better diversification during the editing stage, such as "dubbing" or when dispersing current programs to each studio system. Through this, the overall capacity of

broadcasting production will be improved and an increase in the number of programs independently produced in the Kyrgyz language will be possible through lower unit production cost per program. By collaborating with the Ministry of Education and the Ministry of Health the NTRC plans to produce programs in order to improve education and everyday life. In addition, it plans to produce programs on Japan and Japanese ODA activities.

As mentioned above, it is possible to increase the number of programs independently produced in Kyrgyzstan language from the present 46 hours per week to over 51 hours per week five years later after the application for equipment.

3) Securing Real-time News and Reports

Under the Project, it will be easy to produce programs on social or cultural issues in rural areas by effectively utilizing ENG equipment. In addition, it will be easier to provide live coverage of live natural disasters, accidents and other incidents or social events to residents in affected areas.

(2) Indirect Effects

Science and education programming produced in the Kyrgyz language or health and medical information for the prevention of infectious diseases will increase through the program production efficiency. In addition, for those who watch information programs, this will also contribute to better awareness among the Kyrgyzstan people, including those who do not understand Russian.

3.2 Recommendations

The Kyrgyzstan side should carry out the following to promote the Project as planned.

(1) Implementation of Items undertaken by the Kyrgyzstan side

1) Repair work for the editing rooms
2) Interior work for editing rooms (installation of announcer booths)
3) Replacing of inside wall plate in the C-120 studio (only for sub-control room)
4) Repair work for switchboards (replace circuit breakers)
5) Maintenance for central air conditioning system
6) Installation of temporary broadcasting facilities during installation of new facilities

7) Provision of chairs for operation of broadcasting equipment

8) Removal of existing equipment

(2) Acquisition of Skills for Operating Upgraded Equipment

An operation and maintenance or expansion plan should be prepared in the future by the Kyrgyzstan side including education and training on the operation of broadcasting equipment and professional skills necessary to engineers during the installation of equipment by the Japanese side.

(3) Operation and Maintenance

Replacement parts for equipment should be made available in order to prevent broadcasting accidents and to prolong equipment life.

(4) Building Maintenance

The building should be maintained through the current maintenance system. In addition, in due consideration of the program production environment and equipment condition, the quality of electric power and air conditioners should also be taken into account.

APPENDICES

1. MEMBERS LIST OF THE STUDY TEAM

1. Members of the Basic Design Study Team

1.1 Members of the Basic Design Study Team

Name	Work Assignment	Current Position
Mr. Satoshi Nakano	Team Leader	Resident Representative JICA Kyrgyz Republic Office JICA
Mr. Nobutaka Kondo	Project Coordinator	Living Condition Improvement Team Project Management Group II Grand Aid Management Department JICA
Mr. Kiyofusa Tanaka	Chief Consultant/Maintenance Planner	Yachiyo Engineering Co., Ltd.
Mr. Masuo Wada	Broadcasting Equipment Planner	Yachiyo Engineering Co., Ltd.
Mr. Tatsuya Kobayashi	Procurement Planner/Cost Estimation	Yachiyo Engineering Co., Ltd.
Mr. Yoshiyuki Murai	Interpreter (Russian)	Yachiyo Engineering Co., Ltd.

1.2 Members of the Explanation Team of the Draft Final Report

Name	Work Assignment	Current Position
Mr. Satoshi Nakano	Team Leader	Resident Representative JICA Kyrgyz Republic Office JICA
Mr. Kiyofusa Tanaka	Chief Consultant/Maintenance Planner	Yachiyo Engineering Co., Ltd.
Mr. Masuo Wada	Broadcasting Equipment Planner	Yachiyo Engineering Co., Ltd.
Mr. Yoshiyuki Murai	Interpreter (Russian)	Yachiyo Engineering Co., Ltd.

2. STUDY SCHEDULE

2. Study Schedule
2.1 Basic Design Study

No.	Day		Contents of Field Survey					Stay at
			Official Member	Chief Consultant／Plan of management maintenance	Equipment plan	Supply／calculation	Interpreter	
			(Mr. Nobutaka Kondo)	(Mr. Kiyofusa Tanaka)	(Mr. Masuo Wada)	(Mr. Tatsuya Kobayashi)	(Mr. Yoshiyuki Murai)	
1	7/3	Sat.		Trip{Tokyo 12:30→ Seoul 15:00：JL953}{Seoul 17:30→ Tashkent 21:10: OZ573}				Tashkent
2	7/4	Sun.						Tashkent
3	7/5	Mon.		Trip{Tashkent 13:15→ Bishkek 15:40: HY775}				Bishkek
4	7/6	Tue.		AM： Courtesy call to Embassy of Japan and JICA Kyrgyz office in Bishkek, discussion regarding the survey schedule and contents, etc. PM： Courtesy call to NTRC, discussion regarding the survey schedule, contents and questionnaire, etc.				Bishkek
5	7/7	Wed.		AM： Discussion regarding the survey schedule, contents and questionnaire, etc. PM： Site survey in NTRC studio, transmission station				Bishkek
6	7/8	Thu.		Discussion with NTRC (Component of the project, etc.)		Field survey of electricity and air conditioning system in NTRC		Bishkek
7	7/9	Fri.	Trip{Tokyo 13:25 → Istanbul 19:55 JL5091}	Discussion with NTRC (the equipment and program-1（Out Line）, etc)		Data collection of temperature and electricity①		Bishkek
8	7/10	Sat.	Trip{Istanbul 17:10 → }	Field survey (NTRC TV program)				Bishkek
9	7/11	Sun.	Trip{→ Bishkek 1:10 TK1348}	Internal Meeting				Bishkek
10	7/12	Mon.	AM： Meeting JICA Kyrgyz office PM：Courtesy call to NTRC, a commercial broadcasting company		AM： Discussion of installation plan PM： Courtesy call to a commercial broadcasting company	Data collection of temperature and electricity②		Bishkek
11	7/13	Tue.	AM： Field survey (Studio of NTRC) PM： Courtesy call to Ministry of Finance, Courtesy call to KYRGYS TELECOM		Discussion of installation plan	AM: Field survey of electricity and air conditioning system in NTRC PM:Measurement data analysis		Bishkek
12	7/14	Wed.	Discussion with MOF and NTRC					Bishkek
13	7/15	Thu.	AM: Discussion with EOJ PM: Signing of M/D		AM: Field survey of C-120 studio PM: Some as left.	AM: Field survey of C-120 studio PM: Discussion with MOF. (Tax exemption)		Bishkek
14	7/16	Fri.	Reporting EOJ and JICA Kyrgyz office	AM:：Reporting EOJ and JICA Kyrgyz office PM：Study of budgetary plan for O & M.	AM: Field survey (Studio, Editing room) PM: Field survey (Master Control room)	AM: Field survey (Studio, Editing room) PM: Preparing field report		Bishkek
15	7/17	Sat.	Internal meeting, Field survey of NTRC TV program and preparing field report					Bishkek
16	7/18	Sun.	Trip{Bishkek 3:05 → Istanbul 6:05 TK1349}	Internal Meeting and preparing field report				Bishkek
17	7/19	Mon.	Trip{Istanbul 18:00 →	AM: Field survey of the existing equipment. PM: Internal Meeting and preparing field report	AM: Field survey (Studio, Editing room) PM: Internal Meeting and preparing field report	AM: Survey of transportation route PM: Internal Meeting and preparing field report		Bishkek
18	7/20	Tue.	Trip{→ Tokyo 11:25 JL5092}	AM: Field survey (C-600-1) PM: Discussion with NTRC (Field report)		Market survey		Bishkek
19	7/21	Wed.		AM: Field survey (Editing, Master) PM: Discussion with NTRC (Field report)		Ditto		Bishkek
20	7/22	Thu.		AM: Field survey (C-120) PM: Discussion with NTRC (Field report)		Ditto		Bishkek
21	7/23	Fri.		AM: Field survey (ENG, OB van) PM: Discussion with NTRC (Field report)		Supplemental survey in NTRC		Bishkek
22	7/24	Sat.		Internal Meeting, Survey of TV audiences				Bishkek
23	7/25	Sun.						Bishkek
24	7/26	Mon.		AM: Supplemental survey in NTRC PM: Report to Embassy of Japan and JICA Kyrgyz office				Bishkek
25	7/27	Tue..		Report to NTRC				Seoul
26	7/28	Wed.		Trip {Bishkek 7:00 → Tashkent 7:30: HY780} {Tashkent 10:35→ Seoul 21:00:HY513}				
27	7/29	Thu		Trip{Seoul 13:35→ Tokyo 16:00: JL950}				

2.2 Explanation of the Draft Final Report

No.	Day		Contents of Field Survey				Stay at
			Official Member	Chief Consultant／Plan of management maintenance Equipment	Supply	Interpreter	
				(Mr. Kiyofusa Tanaka)	(Mr. Masuo Wada)	(Mr. Yoshiyuki Murai)	
1	10/15	Fri.		Trip{Tokyo (12:30)→ Seoul (15:00)}{Seoul (17:30)→ Tashkent (21:10)}			Tashkent
2	10/16	Sat.					Tashkent
3	10/17	Sun.					Tashkent
4	10/18	Mon.		Trip{Tashkent (13:15)→ Bishkek (15:40)}			Bishkek
5	10/19	Tue.	AM: Courtesy call to Embassy of Japan and JICA Kyrgyz office in Bishkek, discussion regarding the survey schedule and contents, etc. PM: Courtesy call to NTRC, discussion regarding the survey schedule, etc.				Bishkek
6	10/20	Wed.	Discussion with NTRC regarding the draft final report,etc.				Bishkek
7	10/21	Thu.	Discussion with NTRC regarding the equipment list and specification, etc.				Bishkek
8	10/22	Fri.	Discussion with NTRC regarding the schedule of implementation and budget ,etc.				Bishkek
9	10/23	Sat.	Internal meeting				Bishkek
10	10/24	Sun.					Bishkek
11	10/25	Mon.	Confirmation with NTRC regarding the contents of report, etc.				Bishkek
12	10/26	Tue.	Confirmation with NTRC regarding the contents of M/D, etc.				Bishkek
13	10/27	Wed.	Signing of M/D				Bishkek
14	10/28	Thu.	Confirmation with NTRC regarding the technical transfer, etc.				Bishkek
15	10/29	Fri.	Report to Embassy of Japan and JICA Kyrgyz office				Bishkek
16	10/30	Sat.	Arrangement of collected data				Bishkek
17	10/31	Sun.					Bishkek
18	11/1	Mon.		Trip {Bishkek (15:40)→ Tashkent (17:10)} {Tashkent(22:50) → Seoul (9:20)+1}			Air
19	11/2	Tue.		Trip{Seoul (13:15)→ Tokyo (15:55)}			

3. LIST OF PARTIES CONCERNED IN THE RECIPIENT COUNTRY

3. List of Parties Concerned in the Recipient Country

Affiliation and Name	Position
The Kyrgyz Republic	
Ms. Toktosh D. AYTIKEEVA	Deputy Prime Minister
Ministry of Finance of the Kyrgyz Republic	
Mr. Emirlan T. TOROMYRZAEV	First Deputy Minister
Mr. Uchkunbek TASHBAEV	Head of KR, External Relations Division Investment Policy Department
Mr. Almazbek KOCHKOROV	Head of International Tax Relations Department
Ms. Nadiya R. YUSUPOVA	Leading Expert, KR, External Relations Division Investment Policy Department
Ministry of Foreign Affairs of the Kyrgyz Republic	
Mr. Askar AITMATOV	Minister
Mr. Chingiz ESHIMBEEKOV	First Secretary
Mr. Islam RYSKYLOV	Chief of Department
National TV and Radio Broadcasting Corporation, the Kyrgyz Republic (NTRC)	
Dr. Syrtbay Dj. MUSAEV	President
Mr. Moldoseit M. MAMBETAKUNOV	1st Vice-president
Mr. Kubatbek K. TALYPOV	Vice-president
Mr. Myrzakul G. MAMBETALIEV	Vice-president
Mr. Ynakbek T. TANTABAEV	Financial Director
Mr. Ishenbek A. SADYKOV	Head of Technical Director
Mr. Valery V. MIHIN	Head of Television Department
Ms. Elena S. BABICHEVA	Head of Video Recording Department
Mr. Vladimir V. BONDARENKO	Head of TV and Radio Field Equipment Department
Mr. Batalbek J. JANUZAKOV	Head of Radio Broadcasting Department
Mr. Suyun D. SAGYNBAEV	Head of Lightning System Department
Ms. Gulmira A. USUPBEKOVA	Head of Computer and I. T. Department
Mr. Vladimir N. KUZMIN	Head of sector of Television and Radio Field Equipment Department
Mr. Valery N. HRAPACH	Head of Power Engineering Complex

Ms. Galina N. RYADOVAYA	Head of Sanitary Engineering Department
Ms. Gulmira TOLONOVA	Head of Financial and Economic Department
Mr. Boris A. VOLGIN	1st category Engineer of Production Laboratory
Mr. Igor V. SOSNIN	Principal Engineer of Video Recording Department
Mr. Kairat KENJESARIEV	Principal Engineer of Television Department
Mr. Edil KALMAMATOV	System Administrator of Computer and I. T. Department
Ms. Nurzat Sh. NIYAZOVA	Translator of the Production and Operational Department

Kyrgyz Telecom

Mr. Kuban BEGALIEV	General Director

TV and Radio Company "Pyramid"

Mr. Oleg E. VASSIL	Vice-president
Mr. Muhtar HALDAROV	General Technical Director

Embassy of Japan

Mr. Hideto WATANABE	Second Secretary

JICA Kyrgyz Republic Office

Mr. Satoshi NAKANO	Resident Representative
Ms. Naomi ABE	Project Formulation Advisor
Mr. Kubat JUMALIEV	Assistant Project Officer
Mr. Ermek DOSALIEV	Project Formulation Advisor's Assistant

4. MINUTE OF DISCUSSION

4. Minute of Discussion

Minutes of Discussions
on the Basic Design Study
on the Project for Improvement of Program Production Equipment
of the National TV and Radio Broadcasting Corporation
in the Kyrgyz Republic

In response to the request from the Government of the Kyrgyz Republic, the Government of Japan decided to conduct a Basic Design Study on "The Project for Improvement of Program Production Equipment of the National TV and Radio Broadcasting Corporation" (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the Kyrgyz Republic the Basic Design Study Team (hereinafter referred to as "the Team"), headed by Mr. Satoshi Nakano, the Resident Representative of the JICA Kyrgyz Republic Office, and is scheduled to stay in the country from July 5 to 28, 2004.

The Team held discussions with the officials concerned of the Government of the Kyrgyz Republic. In the course of the discussions, both sides have confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Bishkek, July 15, 2004

Satoshi Nakano
Leader
Basic Design Study Team
Japan International Cooperation Agency

Emirlan T. Toromyrzaev
First Deputy Minister
Ministry of Finance
Kyrgyz Republic

Toktosh D. Aytikeeva
President
National TV and Radio Broadcasting Corporation
Kyrgyz Republic

ATTACHMENT

1. Objective

The objective of the Project is to improve the program production equipment in the National TV and Radio Broadcasting Corporation (hereinafter referred to as "NTRC") of the Kyrgyz Republic for the better and impartial broadcasting.

Examples of the meanings of "impartial" are as follows:

- Benefit to all the population of the Kyrgyz Republic,
- Accurate and well-grounded reporting,
- No restriction of press freedom.

2. Project Site

The site of the Project is the Republican Radio and TV Centre of the NTRC as shown in **Annex-1**.

3. Responsible and Implementing Organizations

(1) The responsible ministry is the Ministry of Finance.

(2) The implementing organization is the NTRC.

4. Items Requested by the Government of the Kyrgyz Republic

After discussions with the Team, the items described in **Annex-2** (hereinafter referred to as "the Equipment") were finally requested by the Kyrgyz side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

(1) The Kyrgyz side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of the Kyrgyz Republic explained by the Team as described in **Annex-3**.

(2) The Kyrgyz side will take necessary measures, as described in **Annex-4**, for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

6. Schedule of the study

(1) The consultants will proceed to further study in the Kyrgyz Republic by July 28, 2004.

(2) JICA will prepare the draft report in English and dispatch a mission to the Kyrgyz Republic in order to explain its contents around the end of October, 2004.

(3) In case that the contents of the report is accepted in principle by the Government of the Kyrgyz Republic, JICA will complete the final report and send it to the Government of

Kyrgyz Republic by the end of December, 2004.

7. Other Relevant Issues

(1) The Kyrgyz side will make best efforts to achieve the following tasks in case the Project is implemented.

- To broadcast impartially the news programs to support, so called, the Good Governance in the Kyrgyz Republic.
- To broadcast the educational and informative programs as much as possible to improve the overall living standard of the people of the Kyrgyz Republic.
- To improve the broadcasting transmission network, especially in the Southern region of the Kyrgyz Republic.

(2) The Kyrgyz side understands that the Japan's Grant Aid Project cannot cover all the requests submitted by the Kyrgyz side in August, 2002, and also understands the need to optimize the components of the Equipment from the viewpoint of cost-effectiveness.

(3) The Kyrgyz side will allocate sufficient budget and qualified staff to properly and effectively operate and maintain the Equipment.

(4) The Kyrgyz side shall ensure prompt tax exemption and customs clearance of the products at the terminal of disembarkation.

(5) The Kyrgyz side shall exempt from VAT concerning local procurement of goods and services under the Project to a Japanese supplier.

(6) The Kyrgyz side will dismantle the existing analog equipment, if necessary, by the shipment of the Equipment on the Kyrgyz side's responsibility to install the new Equipment to the place.

(7) The Kyrgyz side shall furnish and/or improve facilities for stable electricity supply and air-conditioning for the Equipment to secure program producing conditions by the Kyrgyz side's expenses.

(8) The Kyrgyz side shall renovate the existing building, if necessary, to introduce the Equipment.

(9) The Kyrgyz side requested the counterpart training in Japan on the operation and maintenance on the Equipment as a technical cooperation by JICA, and the Kyrgyz side understands that another official request will be necessary to be submitted by the Kyrgyz side to the Japanese side through the Embassy of Japan.

(10) Any official documents concerning the Project shall be prepared in English.

キルギス国 位置図
Map of KYRGYZ REPUBLIC

本計画対象地
Site of the Project

The list below showing the scope of the equipment and materials to be planned under the Project has been mutually agreed between the Team and NTRC.

	Item	Quantity	Priority	Item in M/D (for reference)
1	C-600-1 TV Studio System	1 lot	A	Program Production System for C-600-2 in the TV and Radio Center of the NTRC (1set)
	C-600-1 TV Studio Lighting System	1 lot	C	
2	C-120 TV Studio System	1 lot	B	Program Production System for Broadcasting Studio in the TV and Radio Center of the NTRC(1set)
	C-120 TV Studio Lighting System	1 lot	B	
3	Master Control System	1 lot	A	Master Control Equipment(1set)
4	Format Conversion System	1 lot	A	
5	ENG System	8 sets	A	ENG System for Broadcasting Studio in the TV and Radio Center of the NTRC(8 set)
6	Video Non Linier Editing System (with Audio Equipment)	3 sets	A	Video Non Linier Editing System(4set)
	Video Non Linier Editing System (with Audio Equipment)	1set	B	
7	A/B Roll Editing System	2 sets	A	A/B Roll Editing System(4set)
	A/B Roll Editing System	2 sets	B	
	1:1 Editing system	2 sets	A	
	1:1 Editing system	2 sets	C	
8	Audio Production System	2 sets	C	Audio Production System for 2 New Radio Studios in the TV and Radio Center of the NTRC
	Audio Non Linier Editing System	2 sets	C	
9	Measuring Equipment and tools	1 lot	A	Measuring Equipment and tools
10	Consumable Parts	1 lot	A	Spare parts

(Remarks)

Priority A: Top prioritized equipment

B: Second prioritized equipment

C: The lowest prioritized equipment

JAPAN'S GRANT AID

The Grant Aid scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

Japan's Grant Aid scheme is executed through the following procedures:

Application	(Request made by the recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal &Approval	(Appraisal by the Government of Japan and Approval by the Cabinet)
Determination of Implementation	(The Note exchanged between the Governments of Japan and recipient country)

Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study) using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

(1) Contents of the study

The aim of the Basic Design Study (hereafter referred to as "the Study") conducted by JICA on a requested project (hereafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.
- Estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of the Japan's Grant Aid scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA. The consultant firm(s) used for the Study is (are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

(1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(2) "The period of the Grant Aid" means the one fiscal year, which the Cabinet approves, the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed. However, in case of delays in delivery, installation or construction due to unforeseen factors such as national disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

(3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country. However, the prime contractors, namely, consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(4) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(5) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as the following:

a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction,

b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,

c) To secure buildings prior to the procurement in case the installation of the equipment,

d) To ensure all the expenses and prompt excursion for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,

e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts,

f) To accord Japanese nationals, whose services may be required in connection with the supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(6) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and the equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

(7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

(9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an

Authorization to Pay and payment commissions to the Bank.

(End)

Major undertakings to be taken by each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient side
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	a) Advising Commission of A/P		●
	b) Payment commission		●
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	a) Marine (Air) transportation of the products from Japan to the recipient country	●	
	b) Tax exemption and customs clearance of the products at the port of disembarkation		●
	c) Internal transportation from the port of disembarkation to the project site	●	
3	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their		●
4	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		●
5	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

(B/A: Banking Arrangement, A/P: Authorization to pay)

Minutes of Discussions
on the Basic Design Study
on the Project for Improvement of Program Production Equipment
of the National TV and Radio Broadcasting Corporation
in the Kyrgyz Republic
(Explanation of Draft Final Report)

In July 2004, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Improvement of Program Production Equipment of the National TV and Radio Broadcasting Corporation (hereinafter referred to as "the Project") to the Kyrgyz Republic, and through discussions, field survey, and technical examination of the results in Japan, JICA prepared a draft final report of the study.

In order to explain and to consult with officials concerned of the Government of the Kyrgyz Republic on the components of the draft final report, JICA sent to the Kyrgyz Republic the Basic Design Explanation Team (hereinafter referred to as "the Team"), headed by Mr. Satoshi Nakano, Resident Representative of the JICA Kyrgyz Republic Office from October 18 to November 1, 2004.

As a result of discussions, both sides confirmed the main items described in the attached sheets.

Bishkek, October 28, 2004

Satoshi Nakano
Leader
Basic Design Explanation Team
JICA

Emirlan T. Toromyrzaev
First Deputy Minister
Ministry of Finance
Kyrgyz Republic

Prof. Syrtbay Dj. Musaev
President
National TV and Radio Broadcasting Corporation
Kyrgyz Republic

ATTACHMENT

1. Components of the Draft Final Report

The Kyrgyz side agreed and accepted in principle the components of the draft final report and the draft detailed specifications of the equipment explained by the Team.

2. Japan's Grant Aid Scheme

The Kyrgyz side understands the Japan's Grant Aid scheme and the necessary undertakings to be taken by the National TV and Radio Broadcasting Corporation (hereinafter referred to as "NTRC") as explained by the Team and described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both sides on July 15, 2004.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of the Kyrgyz Republic by the end of December, 2004.

4. Other Relevant Issues

4-1. The Kyrgyz side will make best efforts to achieve the following tasks in case the Project is implemented.

- To broadcast impartially the news programs to support, so called, Good Governance in the Kyrgyz Republic.
- To broadcast the educational and informative programs as many as possible to improve the overall living standard of the people of the Kyrgyz Republic.
- To improve the broadcasting transmission network, especially in the Southern region of the Kyrgyz Republic.

4-2. The Kyrgyz side shall develop and execute a budget planning on operational and maintenance cost as well as purchasing cost of new equipment in the future by the Kyrgyz side's expenses.

4-3. The Kyrgyz side shall provide temporary storage yard for the equipment and the installation materials near the site.

4-4. The Kyrgyz side shall furnish and/or improve facilities for stable electricity supply and air-conditioning for the equipment to secure program producing conditions by the Kyrgyz side's expenses.

4-5. The Kyrgyz side shall complete the following works by the end of September, 2005, when the shipment of the equipment is planned.

- Refurbishment and interior finish work of the editing room,

- Refurbishment of the inner wall panel of C-120 studio,
- Maintenance work of distribution board,
- Preparation of temporary broadcasting unit for the replacement of the equipment,
- Removal of the existing analog equipment, if necessary, on the Kyrgyz side's responsibility.

4-6. The Kyrgyz side shall ensure prompt tax exemption and customs clearance of the products at the terminal of disembarkation.

4-7. The Kyrgyz side shall exempt from Value Added Tax concerning local procurement of goods and services under the Project to a Japanese supplier.

4-8. The Kyrgyz side requested the Team to carry out the counterpart training in Japan on the management of the operation and maintenance of the equipment as a technical cooperation of JICA, and the Kyrgyz side understands that a separate official request for the training will be necessary to be submitted from the Kyrgyz side to the Japanese side through the Embassy of Japan in Bishkek.

4-9. The Kyrgyz side shall allocate sufficient budget and necessary qualified staff to effectively operate and to properly maintain the equipment.

4-10. The Team handed one (1) copy of the draft detailed specifications of the equipment to the Kyrgyz side and stated that these draft specifications are confidential and should not be duplicated or released to other parties in order to secure the fairness of the tender of the Project.

Annex-1: List of Requested Equipment

List of Requested Equipment

	Item	Quantity
1	C-600-1 TV Studio System	1 lot
2	C-120 TV Studio System	1 lot
3	C-120 TV Studio Lighting System	1 lot
4	Master Control System	1 lot
5	Format Conversion System	1 lot
6	ENG System	8 sets
7	Video Non-Linier Editing System (with Audio Equipment)	3 sets
8	A/B Roll Editing System	2 sets
9	1:1 Editing System	2 sets
10	Measuring Equipment and Tools	1 lot
11	Consumable Parts	1 lot

5. LIST OF COLLECTED MATERIALS

5. List of Collected Materials

Study Name : Basic Design Study on the Project for Improvement of Program Production Equipment of the National TV and Radio Broadcasting Corporation in the Kyrgyz Republic

No.	Title	Form Book・Video・Map・Photo, etc.	Original・Copy	Publishing Agency	Year of Publication
1	Kyrgyzstan Meteorological Data (2003)	Book	Copy	Government of the Kyrgyz Republic	2004
2	Ordinance relating to Import Tax Exemption in the Kyrgyz Republic & List of Items subject to Tax Exemption	Book	Copy	Government of the Kyrgyz Republic	2004
3	Regulations on Standard Wages at NTRC	Book	Copy	NTRC	2004
4	Kyrgyzstan Interim Plan on Budget	Book	Copy	Ministry of Finance	2004