付　属　資　料

１．PDM

２．詳細計画策定調査時 M/M

３．R/D 及び R/D 締結時 M/M

４．資料収集リスト

５．ベトナムの試験機関について
〔(財）電気安全環境研究所　田中理事、(財）日本品質保証機構　桜井参与　所感〕

６．現地機材実査結果（家電及び EMC）

Project Design Matrix (PDM)

PROJECT NAME: Project on Strengthening the System and Operation on Standards and Conformance PROJECT DURATION: November 2009 – April 2013 (Three years and five months) Version: 1

TARGET AREA: Hanoi, Ho Chi Minh TARGET GROUP: Staff of Directorate for Standards, Metrology and Quality, Ministry of Science and Technology (STAMEQ) and other related organizations

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal The quality of electrical and electronic equipment manufactured in Vietnam is improved, and the consumers' safety is ensured.	1. Decrease in the number of accidents caused by electrical and electronic equipment	Data gathered by STAMEQ	
Project Purpose The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.	1. Improvement of capabilities of STAMEQ on standards and conformance as compared with international MRA requirements	- Records of the project activities - Report of STAMEQ	1. The manufacturers of the electrical and electronic equipment observe the standards and conformance. 2. The organizations related to the project remain as government bodies.
Outputs 1. The capacity of planning the standards and conformance policy in the field of electrical and electronic equipment is strengthened.	1-1 Number of seminars held by JICA experts and ex-JICA trainees	- Records of the project activities	
2. The capacity of developing standards and regulations in the field of electrical and electronic equipment is improved.	2-1 Increase in the number of Vietnam national standards(TCVN) based on the latest IEC standards	- Records of the project activities -Records of TCVN	
3. The capacity of accreditation is improved.	3-1 Decrease non conformities of APLAC MRA evaluations 3-2 Status of PAC MLA application preparation for product program	- Records of the project activities - The report of re-evaluation by MRA	
4. The capacity of certification in the field of electrical and electronic equipment is improved.	4-1 Accumulated number of product certificates by QUACERT 4-2 Status of IECEE CB scheme application preparation	- Records of the project activities	
5. The capacity of testing in the field of electrical and electronic equipment is improved.	5-1 Execution situation of test to 13 electrical and electronic appliance 5-2 Expansion of the accreditation scope for the EMC testing laboratory of QUATEST 3	- Records of the project activities	
Activities	**Inputs**		The C/Ps remain at STAMEQ.
1-1 To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy. 1-2 To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.	Viet Nam side 1. Counterpart personnel 1) Project Director 2) Project Manager 3) Full-time Counterpart personnel 4) Supporting staff 2. Project Office in Hanoi and Ho Chi Minh	Japanese side 1. Dispatch of Experts 1) Chief Advisor 2) Coordinator 3) Other relevant fields 2. Training of counterpart personnel in Japan 3. Provision of testing equipment	
2-1 To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.			
3-1 To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.			

4-1 To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.	3. Necessary budget for the implementation of the project 4. Necessary installation of testing equipment		**Pre-Conditions** The policy toward to strengthen on standards and conformance does not change.
5-1 To provide training and technical advice for testing in the field of electrical and electronic equipment.			

２．詳細計画策定調査時 M/M

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY AND
DIRECTORATE FOR STANDARDS, METROLOGY AND QUALITY, MINISTRY OF SCIENCE AND TECHNOLOGY
FOR
THE JAPANESE TECHNICAL COOPERATION PROJECT
ON STRENGTHENING
THE SYSTEM AND OPERATION ON STANDARDS AND CONFORMANCE

The Japanese Preliminary Study Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Go Shimada, Director, Trade, Investment and Tourism Division, Industrial Development Department, Japan International Cooperation Agency, visited the Socialist Republic of Viet Nam from August 31, 2009 until September 11, 2009. The purposes of the visit were clarifying the background, concept, and scope of the project proposal made by the authorities concerned of the Government of the Socialist Republic of Viet Nam and studying the feasibility of the Japanese Technical Cooperation Project on Strengthening the System and Operation on Standards and Conformance (hereinafter referred to as "the Project").

During its stay in the Socialist Republic of Viet Nam, the Team exchanged views and had a series of discussions with the Government of the Socialist Republic of Viet Nam.

As a result of the discussions, both sides mutually have agreed upon the matters referred to in the document attached hereto.

This Minutes of Meeting (hereinafter referred to as "M/M") is an official document, which both sides mutually have agreed upon the matters as of completing the Preliminary Study. The agreed matters shall be finally confirmed by the signing of Record of Discussion (hereinafter referred to as "R/D"). Japanese side presented the draft of R/D as shown in ANNEX 5.

Hanoi, September 11, 2009

Mr. Go Shimada
Leader, Japanese Preliminary Study Team
Japan International Cooperation Agency
Japan

Dr. Ngo Quy Viet
Director General,
Directorate for Standards, Metrology and Quality, Ministry of Science and Technology
Socialist Republic of Viet Nam

Mr. Vu Xuan Thuy
Director, Bureau of Accreditation
Ministry of Science and Technology
Socialist Republic of Viet Nam

ATTACHED DOCUMENT

1. Name of the Project

Project on Strengthening the System and Operation on Standards and Conformance

Both sides agreed that the title of the Project shall be changed from "Technical Assistance Project for Viet Nam on strengthening the technical infrastructure and capabilities on standards and conformance for trade promotion and consumer protection" to "Technical cooperation Project on Strengthening the System and Operation on Standards and Conformance".

2. Implementing Agency of the Project

Directorate for Standards, Metrology and Quality (hereinafter referred to as "STAMEQ"), and Bureau of Accreditation (hereinafter referred to as "BOA"), Ministry of Science and Technology (hereinafter referred to as "MOST")

3. Administration of the Project

Mr. Tran Van Vinh, Deputy Director General, STAMEQ, MOST, as the Project Director, will bear overall responsibility for the administration and management of the Project.

Mr. Ngo Tat Thang, Acting Director, International Cooperation Department, STAMEQ, MOST, as the Project Manager, will be responsible for the technical matters of the Project.

4. Duration of Japanese Technical Cooperation Project

Both sides agreed that the duration of the Project will be three (3) years and five (5) months from the date agreed by both sides in R/D to be concluded between JICA and STAMEQ.

5. Provisional Master Plan of the Project

(1) Overall Goal:

The quality of electrical and electronic equipment manufactured in Viet Nam is improved, and the consumers' safety is ensured.

(2) Project Purpose:

The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.

(3) Outputs:

1. The capacity of planning the standards and conformance policy in the field of electrical and electronic equipment is strengthened.

2. The capacity of developing standards and regulations in the field of electrical and electronic equipment is improved.

3. The capacity of accreditation is improved.

4. The capacity of certification in the field of electrical and electronic equipment is improved.

5. The capacity of testing in the field of electrical and electronic equipment is improved.

(4) Activities:

[For output 1]

1-1 To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy.

1-2 To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.

[For output 2]

2-1 To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.

[For output 3]

3-1 To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.

[For output 4]

4-1 To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.

[For output 5]

5-1 To provide training and technical advice for testing in the field of electrical and electronic equipment.

6. Measures to be taken by the Japanese Side

(1) Dispatch of Japanese Experts

The Japanese experts will be dispatched for technical transfer in the following areas:

(Long-term Experts)

Chief Advisor

Coordinator

(Short-term Experts)

Other relevant fields

(2) Provision of Testing Equipment

After commencement of the Project, both sides carefully examine the necessity to provide testing equipment taking budget allowance into consideration. After both sides reach the mutual understanding, JICA will provide testing equipment necessary for the implementation of the Project.

(3) Training of Personnel in Japan

JICA will receive personnel concerned with the Project for technical training in Japan.

7. Measures to be taken by the Socialist Republic of Viet Nam side

(1) Facilities for the Project

The Socialist Republic of Viet Nam side will make necessary arrangement of the facilities for the implementation of the Project.

Offices for Japanese experts will be prepared before the commencement of the Project and be equipped with telephone, fax machine, photocopy machine, personal computer, desk, chair and cabinet among other things.

(2) Assignment of Counterpart Personnel

For the successful implementation of the Project, the Socialist Republic of Viet Nam side will assign counterpart personnel as shown in ANNEX 3. Assignment of the counterpart personnel is precondition of the signing of R/D.

(3) Local Costs

Necessary local costs for the implementation of the Project will be born by the Socialist Republic of Viet Nam side. Based on the Decree 131/2006/ND-CP on Management and Utilization of Official Development Assistance, Socialist Republic of Viet Nam side would ensure sufficient allocation of counterpart budget required for the implementation of the Project activities including domestic training, seminars/workshops, and domestic business trips.

(4) Sustainability of the Project

The Socialist Republic of Viet Nam side will take necessary measures to ensure that the outcomes of technical transfer will be sustained during and after the period of the Project.

The Japanese side requested that the Socialist Republic of Viet Nam side will take necessary measures to ensure that the knowledge and techniques acquired by counterpart personnel through the Project will be sustained.

8. Others

(1) Both sides agreed that the common language in any official documents should be in English.

(2) The Team explained and the Socialist Republic of Viet Nam side understood the nature and scheme of the Technical Cooperation Project by the Government of Japan.

(3) Project Design Matrix (PDM) is shown in ANNEX 1.

(4) Tentative Plan of Operation of the Project is shown in ANNEX 2.

(5) The list of Socialist Republic of Viet Nam Counterpart and Administrative Personnel in ANNEX 3.

(6) The list of attendants in the discussions is shown in ANNEX 4.

(7) The team explained that the project will be monitored and evaluated by five criteria (Relevance, Effectiveness, Efficiency, Impact and Sustainability).

List of ANNEXES

ANNEX 1: Project Design Matrix (PDM)
ANNEX 2: Tentative Plan of Operation (PO)
ANNEX 3: List of the Socialist Republic of Viet Nam counterpart and Administrative Personnel
ANNEX 4: List of attendants
ANNEX 5: Draft of R/D

ANNEX 1

Project Design Matrix (PDM)

PROJECT NAME: Project on Strengthening the System and Operation on Standards and Conformance PROJECT DURATION: November 2009 – April 2013 (Three years and five months) Version: 1

TARGET AREA: Hanoi, Ho Chi Minh TARGET GROUP: Staff of Directorate for Standards, Metrology and Quality, Ministry of Science and Technology (STAMEQ) and other related organizations

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal The quality of electrical and electronic equipment manufactured in Vietnam is improved, and the consumers' safety is ensured.	1. Decrease in the number of accidents caused by electrical and electronic equipment	Data gathered by STAMEQ	
Project Purpose The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.	1. Improvement of capabilities of STAMEQ on standards and conformance as compared with international level	- Records of the project activities - Report of STAMEQ	The manufacturers of the electrical and electronic equipment observe the standards and conformance.
Outputs 1. The capacity of planning the standards and conformance policy in the field of electrical and electronic equipment is strengthened.	1-1 Number of seminars held by JICA experts and ex-JICA trainees	- Records of the project activities	The organizations related to the project remain as government bodies.
2. The capacity of developing standards and regulations in the field of electrical and electronic equipment is improved.	2-1 Increase in the number of Vietnam national standards(TCVN) based on the latest IEC standards	- Records of the project activities -Records of TCVN	
3. The capacity of accreditation is improved.	3-1 Decrease non conformities of APLAC MRA evaluations 3-2 Status of PAC MLA application preparation for product program	- Records of the project activities - The report of re-evaluation by MRA	
4. The capacity of certification in the field of electrical and electronic equipment is improved.	4-1 Accumulated number of product certificates by QUACERT 4-2 Status of IECEE CB scheme application preparation	- Records of the project activities	
5. The capacity of testing in the field of electrical and electronic equipment is improved.	5-1 Execution situation of test to 13 electrical and electronic appliance 5-2 Expansion of the accreditation scope for the EMC testing laboratory of QUATEST 3	- Records of the project activities	
Activities	**Inputs**		
1-1 To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy. 1-2 To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.	Viet Nam side 1. Counterpart personnel 1) Project Director 2) Project Manager 3) Full-time Counterpart personnel 4) Supporting staff 2. Project Office in Hanoi and Ho Chi Minh 3. Necessary budget for the implementation of the project 4. Necessary installation of testing equipment	Japanese side 1. Dispatch of Experts 1) Chief Advisor 2) Coordinator 3) Other relevant fields 2. Training of counterpart personnel in Japan 3. Provision of testing equipment	1. The C/Ps remain at STAMEQ. 2. The necessary testing equipment is installed as schedule. 3. The necessary budget of STAMEQ for the project is allocated.
2-1 To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.			
3-1 To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.			
4-1 To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.			**Pre-Conditions** The policy toward to strengthen on standards and conformance does not change.
5-1 To provide training and technical advice for testing in the field of electrical and electronic equipment.			

ANNEX 2

Tentative Plan of Operation (PO)

Title of the Project

Project on Strengthening the System and Operation on Standards and Conformance

Project Purpose

The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.

Operational period

Outputs & Activities	Schedule															
	2009	2010				2011				2012				2013	
	Nov.-Dec.	Jan.-March	Apr.-June	July- Sep.	Oct.-Dec.	Jan.-March	Apr.-June	July- Sep.	Oct.-Dec.	Jan.-March	Apr.-June	July- Sep.	Oct.-Dec.	Jan.-March	April
Output 1 The capacity of planning the standards and conformance policy in the field of electrical and electronic equipment is strengthened.															
1-1 To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy.	▬		▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬
1-2 To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.				▬		▬		▬		▬		▬			
Output 2 The capacity of developing standards and regulations in the field of electrical and electronic equipment is improved.															
2-1 To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.	▬			▬				▬				▬			
Output 3 The capacity of accreditation is improved.															
3-1 To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬
Output 4 The capacity of certification in the field of electrical and electronic equipment is improved.															
4-1 To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.	▬			▬	▬			▬	▬						
Output 5 The capacity of testing in the field of electrical and electronic equipment is improved.															
5-1 To provide training and technical advice for testing in the field of electrical and electronic equipment.	▬	▬	▬	▬	▬	▬	▬	▬	▬			▬			

ANNEX3 LIST OF SOCIALIST REPUBLIC OF VIET NAM COUNTERPART AND ADMINISTRATIVE PERSONNEL

(1) Project Director

Mr. Tran Van Vinh
Deputy Director General, Directorate for Standards, Metrology and Quality
Ministry of Science and Technology

(2) Project Manager

Mr. Ngo Tat Thang
Acting Director, International Cooperation Department,
Ministry of Science and Technology

(3) Counterpart Personnel (Officers directly related with the Project)

Mr. Nguyen Nam Hai, Director, QUACERT

Mr. Kim Duc Thu, Deputy Director, QUATEST1

Mr. Ton That Kiem, Head of Lab Group including EMC, QUATEST3

Mr. Luong Van Phan, Deputy Director, VSQC

Mr. Vu Xuan Thuy, Director, BQA

(4) Supporting Staff

Ms. Nguyen Mai Sinh, Officer, International Cooperation Department, STAMEQ

Ms. Vu Tu Quyen, Officer, International Cooperation Department, STAMEQ

ANNEX4 LIST OF ATTENDANTS

1. The Socialist Republic of Viet Nam Side

Mr. Tran Van Vinh	Deputy Director General, STAMEQ, MOST
Mr. Ngo Tat Thang	Acting Director, International Cooperation Department, STAMEQ, MOST
Mr. Nguyen Nam Hai	Director, QUACERT, STAMEQ, MOST
Mr. Vu Xuan Thuy	Director, BOA, MOST
Mr. Kim Duc Thu	Deputy Director, QUATEST 1, STAMEQ, MOST
Ms. Nguyen Mai Sinh	International Cooperation Department, STAMEQ, MOST
Ms. Ho Minh Trang	BOA, MOST
Ms. Man Thuy Giang	VSQC, STAMEQ, MOST
Ms. Bui Ngoc Bich	VSQC, STAMEQ, MOST
Mr. Nguyen Danh Hoa	QUATEST 1, STAMEQ, MOST
Mr. Dang Thanh Tung	QUATEST 1, STAMEQ, MOST

2. Japanese Side

Mission Team

Mr. Go Shimada	Leader, Japanese Preliminary Study Team, JICA
Mr. Mitsunori Nishimoto	Senior Advisor to the Director General, Industrial Development Department, JICA
Mr. Shige Fukunaga	Deputy Director, Technical Regulations, Standards and Conformity Assessment Policy Unit, Ministry of Economy, Trade and Industry
Mr. Norio Ishizaki	Managing Director, International Accreditation Japan (IA Japan)

Mr. Kiich Tanaka	Executive Director, International Affaires Division, Japan Electrical Safety & Environment Technology Laboratories
Mr. Kunio Sakurai	Advisor, International division, Japan Quality Assurance Organization
Mr. Shozo Satake	Director, VCCI Council
Mr. Hideki Kajiwara	Assistant Manager, Tsuru EMC Branch, EMC Engineering Dept. Safety & EMC Center, Japan Quality Assurance Organization
Mr. Tatsuya Kamisango	Technical Support Group, Engineering & Standards Division, Japan Electrical Safety & Environmental Technology Laboratories
Ms. Miho Ishida	Trade, Investment and Tourism Division, Private Sector development Group, Industrial Department, JICA
Mr. Kunio Nishimura	ICONS International Cooperation Inc.
JICA Viet Nam Office	
Mr. Kenji Okamura	Representative, JICA Viet Nam Office

ANNEX 5

(DRAFT)
RECORD OF DISCUSSIONS BETWEEN *JAPAN INTERNATIONAL COOPERATION AGENCY* AND AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE SOCIALIST REPUBLIC OF VIET NAM FOR JAPANESE TECHNICAL COOPERATION PROJECT ON STRENGTHENING THE SYSTEM AND OPERATION ON STANDARDS AND CONFORMANCE

The Japan International Cooperation Agency (hereinafter referred to as "JICA") through its Resident Representative to the Socialist Republic of Viet Nam, exchanged views and had a series of discussions with the authorities concerned of the Government of the Socialist Republic of Viet Nam with respect to the desirable measures to be taken by JICA and the Socialist Republic of Viet Nam for the successful implementation of the Project on Strengthening the System and Operation on Standards and Conformance.

As a result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of the Socialist Republic of Viet Nam, signed on October 20, 1998 (hereinafter referred to as "the Agreement"), JICA and the Socialist Republic of Viet Nam authorities concerned agreed on the matters referred to in the document attached hereto.

Hanoi, XXXXX, 2009

Mr. Motonori Tsuno
Chief Representative
JICA Viet Nam Office
Japan International Cooperation Agency

(Name)
(Position)

Witnessed by

Name
Position
Foreign Economic Relations Department
Ministry of Planning and Investment
The Socialist Republic of Vietnam

ANNEX 5

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERMENT OF THE SOCIALIST REPUBLIC OF VIET NAM

1. The Government of the Socialist Republic of Viet Nam will implement the Project on Strengthening the System and Operation on Standards and Conformance (hereinafter referred to as "the Project") in cooperation with JICA.

2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article III of the Agreement, JICA, as the executing agency for technical cooperation by the Government of Japan, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS
JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article III of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT
After commencement of the Project, both sides carefully examine the necessity to provide machinery and equipment taking budget allowance into consideration. After both sides reach the mutual understanding, JICA will provide such machinery, equipment and other materials. The provision of Article VIII of the Agreement will be applied to the Equipment.

3. TRAINING OF VIETNAMESE PERSONNEL IN JAPAN
JICA will receive the Vietnamese personnel concerned with the Project for technical training in Japan.

ANNEX 5

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE SOCIALIST PEPUBLIC OF VIET NAM

1. The Government of the Socialist Republic of Viet Nam will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.

2. The Government of the Socialist Republic of Viet Nam will ensure that the experience and knowledge acquired by the Socialist Republic of Viet Nam nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of the Socialist Republic of Viet Nam.

3. In accordance with the provisions of Article VI of the Agreement, The Government of the Socialist Republic of Viet Nam will grant in the Socialist Republic of Viet Nam privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.

4. In accordance with the provisions of Article VIII of the Agreement, The Government of the Socialist Republic of Viet Nam will take the necessary measures to receive and use the equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.

5. The Government of the Socialist Republic of Viet Nam will take necessary measures to ensure that the knowledge and experience acquired by the Socialist Republic of Viet Nam personnel from technical training in Japan will be utilized effectively in the implementation of the Project.

6. In accordance with the provisions of Article V of the Agreement, The Government of the Socialist Republic of Viet Nam will provide the services of the Vietnamese counterpart personnel and administrative personnel as listed in Annex III.

7. In accordance with the provisions of Article V of the Agreement, The Government of the Socialist Republic of Viet Nam will provide the buildings and facilities as listed in Annex IV.

8. In accordance with the laws and regulations in force in the Socialist Republic of Viet Nam, The Government of the Socialist Republic of Viet Nam will take necessary measures to supply or replace at its own expense machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.

9. In accordance with the laws and regulations in force in the Socialist Republic of Viet Nam, The Government of the Socialist Republic of Viet Nam will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Mr. Tran Van Vinh, Deputy Director General, STAMEQ, MOST, as the Project Director as listed in Annex III, will bear overall responsibility for the administration and implementation of the Project.

2. Mr. Ngo Tat Thang, Acting Director, International Cooperation Department, STAMEQ, MOST, as the Project Manager as listed in Annex III, will be responsible for the managerial and technical matters of the Project.

3. The Japanese Chief Advisor will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.

4. The Japanese experts will give necessary technical guidance and advice to the Vietnamese counterpart personnel on technical matters pertaining to the implementation of the Project.

5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex V.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Vietnamese

authorities concerned, at the middle and during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VII of the Agreement, The Government of the Socialist Republic of Viet Nam undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Socialist Republic of Viet Nam except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of the Socialist Republic of Viet Nam on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of the Socialist Republic of Viet Nam, the Government of the Socialist Republic of Viet Nam will take appropriate measures to make the Project widely known to the people of the Socialist Republic of Viet Nam.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be three (3) years and five (5) months from date, month, year.

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ANNEX 5

ANNEXES

6

ANNEX 5

ANNEX I MASTER PLAN

1. Overall Goal:

The quality of electrical and electronic equipment manufactured in Viet Nam is improved, and the consumers' safety is ensured.

2. Project Purpose:

The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.

3. Outputs:

1. The capacity of planning the standards and conformance policy in the field of electrical and electronic equipment is strengthened.
2. The capacity of developing standards and regulations in the field of electrical and electronic equipment is improved.
3. The capacity of accreditation is improved.
4. The capacity of certification in the field of electrical and electronic equipment is improved.
5. The capacity of testing in the field of electrical and electronic equipment is improved.

4. Activities:

1-1 To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy.

1-2 To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.

2-1 To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.

3-1 To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.

4-1 To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.

5-1 To provide training and technical advice for testing in the field of electrical and electronic equipment.

5. Project Site:

The Project sites are Hanoi and Ho Chi Minh

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ANNEX 5

ANNEX II LIST OF JAPANESE EXPERTS

1. **Long term expert**
   Chief advisor
   Coordinator

2. **Short term experts**
   Other relevant fields

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ANNEX 5

ANNEX III LIST OF VIETNAMESE COUNTERPART AND ADMINISTRATIVE PERSONNEL

(1) Project Director

Mr. Tran Van Vinh
Deputy Director General, Directorate for Standards, Metrology and Quality
Ministry of Science and Technology

(2) Project Manager

Mr. Ngo Tat Thang
Acting Director, International Cooperation Department,
Ministry of Science and Technology

(3) Counterpart Personnel (Officers directly related with the Project)

Mr. Nguyen Nam Hai, Director, QUACERT

Mr. Kim Duc Thu, Deputy Director, QUATEST1

Mr. Ton That Kiem, Head of Lab Group including EMC, QUATEST3

Mr. Luong Van Phan, Deputy Director, VSQC

Mr. Vu Xuan Thuy, Director, BOA

(4) Supporting Staff

Ms. Nguyen Mai Sinh, Officer, International Cooperation Department, STAMEQ

Ms. Vu Tu Quyen, Officer, International Cooperation Department, STAMEQ

ANNEX 5

ANNEX IV LIST OF BUILDINGS AND FACILITIES

The following buildings and facilities will be prepared by Socialist Republic of Viet Nam for the implementation of the Project.

(1) Project offices and other facilities necessary for the Japanese experts and the Vietnamese personnel to implement the Project.

(2) Facilities and services such as electricity, water supply, telephone fax machine, photocopy machine, personal computer, desk, chair and cabinet and necessary items for the project activities.

(3) Other facilities mutually agreed upon as necessary

ANNEX 5

ANNEX V JOINT COORDINATING COMMITTEE

1. Functions

The Joint Coordinating Committee will be held at least once a year and when the necessity arises in order to fulfill the following functions:

(1) To authorize the annual work plan of the project;

(2) To review the progress of the annual work plan;

(3) To review and exchange opinions on major issues that may arise during the implementation of the Project; and

(4) To discuss any other issues related to efficient implementation of the Project.

2. Composition

(1) Chairperson

Dr. Ngo Quy Viet	Director General, STAMEQ, MOST

(2) Members

1) Vietnamese Side

Mr. Tran Van Vinh	Deputy Director General, STAMEQ, MOST
Mr. Ngo Tat Thang	Acting Director, International Cooperation Department, STAMEQ, MOST
Mr. Vu Xuan Thuy	Director, BOA, MOST
Mr. Nguyen Nam Hai	Director, QUACERT, STAMEQ, MOST
Mr. Nguyen Canh Toi	Director, QUATEST 1, STAMEQ, MOST
Mr. Tran Van Dung	Director, QUATEST 3, STAMEQ, MOST
Mr. Pho Duc Son	Director, VSQC, STAMEQ, MOST

2) Japanese Side

- Experts assigned to the Project
- Chief Representative of JICA Viet Nam Office

(3) Notes

1) Chairperson of the Joint Coordinating Committee can invite any relevant person to discuss on specific issues.

2) Chief Representative of JICA can invite relevant staff members of Embassy of Japan and JICA to the Joint Coordinating Committee.

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ANNEX 5
ANNEX VI

Project Design Matrix (PDM)

PROJECT NAME: Project on Strengthening the System and Operation on Standards and Conformance PROJECT DURATION: November 2009 – April 2013 (Three years and five months) Version: 1

TARGET AREA: Hanoi, Ho Chi Minh TARGET GROUP: Staff of Directorate for Standards, Metrology and Quality, Ministry of Science and Technology (STAMEQ) and other related organizations

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal The quality of electrical and electronic equipment manufactured in Vietnam is improved, and the consumers' safety is ensured.	1. Decrease in the number of accidents caused by electrical and electronic equipment	Data gathered by STAMEQ	
Project Purpose The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.	1. Improvement of capabilities of STAMEQ on standards and conformance as compared with international level	- Records of the project activities - Report of STAMEQ	The manufacturers of the electrical and electronic equipment observe the standards and conformance.
Outputs 1. The capacity of planning the standards and conformance policy in the field of electrical and electronic equipment is strengthened.	1-1 Number of seminars held by JICA experts and ex-JICA trainees	- Records of the project activities	The organizations related to the project remain as government bodies.
2. The capacity of developing standards and regulations in the field of electrical and electronic equipment is improved.	2-1 Increase in the number of Vietnam national standards(TCVN) based on the latest IEC standards	- Records of the project activities -Records of TCVN	
3. The capacity of accreditation is improved.	3-1 Decrease non conformities of APLAC MRA evaluations 3-2 Status of PAC MLA application preparation for product program	- Records of the project activities - The report of re-evaluation by MRA	
4. The capacity of certification in the field of electrical and electronic equipment is improved.	4-1 Accumulated number of product certificates by QUACERT 4-2 Status of IECEE CB scheme application preparation	- Records of the project activities	
5. The capacity of testing in the field of electrical and electronic equipment is improved.	5-1 Execution situation of test to 13 electrical and electronic appliance 5-2 Expansion of the accreditation scope for the EMC testing laboratory of QUATEST 3	- Records of the project activities	
Activities	**Inputs**		
1-1 To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy. 1-2 To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.	Viet Nam side 1. Counterpart personnel 1) Project Director 2) Project Manager 3) Full-time Counterpart personnel 4) Supporting staff 2. Project Office in Hanoi and Ho Chi Minh 3. Necessary budget for the implementation of the project 4. Necessary installation of testing equipment	Japanese side 1. Dispatch of Experts 1) Chief Advisor 2) Coordinator 3) Other relevant fields 2. Training of counterpart personnel in Japan 3. Provision of testing equipment	1. The C/Ps remain at STAMEQ. 2. The necessary testing equipment is installed as schedule. 3. The necessary budget of STAMEQ for the project is allocated.
2-1 To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.			
3-1 To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.			
4-1 To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.			**Pre-Conditions** The policy toward to strengthen on standards and conformance does not change.
5-1 To provide training and technical advice for testing in the field of electrical and electronic equipment.			

ANNEX 5

ANNEX VII

Tentative Plan of Operation (PO)

Title of the Project

Project on Strengthening the System and Operation on Standards and Conformance

Project Purpose

The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.

Operational period

Outputs & Activities		Schedule															
		2009	2010				2011				2012				2013		
		Nov.-Dec.	Jan.-March	Apr.-June	July- Sep.	Oct.-Dec.	Jan.-March	Apr.-June	July- Sep.	Oct.-Dec.	Jan.-March	Apr.-June	July- Sep.	Oct.-Dec.	Jan.-March	April	
Output 1	The capacity of planning the standards and conformance policy in the field of electrical and electronic equipment is strengthened.																
1-1	To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy.	▬		▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	
1-2	To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.				▬		▬		▬		▬		▬				
Output 2	The capacity of developing standards and regulations in the field of electrical and electronic equipment is improved.																
2-1	To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.	▬			▬				▬				▬				
Output 3	The capacity of accreditation is improved.																
3-1	To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.	▬		▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	▬	
Output 4	The capacity of certification in the field of electrical and electronic equipment is improved.																
4-1	To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.	▬			▬	▬			▬	▬							
Output 5	The capacity of testing in the field of electrical and electronic equipment is improved.																
5-1	To provide training and technical advice for testing in the field of electrical and electronic equipment.	▬		▬	▬	▬	▬	▬	▬	▬			▬	▬			

RECORD OF DISCUSSIONS BETWEEN JAPAN INTERNATIONAL COOPERATION AGENCY AND AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE SOCIALIST REPUBLIC OF VIET NAM FOR JAPANESE TECHNICAL COOPERATION PROJECT ON STRENGTHENING THE SYSTEM AND OPERATION ON STANDARDS AND CONFORMANCE

The Japan International Cooperation Agency (hereinafter referred to as "JICA") through its Resident Representative to the Socialist Republic of Viet Nam, exchanged views and had a series of discussions with the authorities concerned of the Government of the Socialist Republic of Viet Nam with respect to the desirable measures to be taken by JICA and the Socialist Republic of Viet Nam for the successful implementation of the Project on Strengthening the System and Operation on Standards and Conformance.

As a result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of the Socialist Republic of Viet Nam, signed on October 20, 1998 (hereinafter referred to as "the Agreement"), JICA and the Socialist Republic of Viet Nam authorities concerned agreed on the matters referred to in the document attached hereto.

Hanoi, November 26, 2009

Mr. Motonori Tsuno
Chief Representative
Viet Nam Office
Japan International Cooperation Agency
Japan

Mr. Ngo Quy Viet
General Director
Directorate for Standards, Metrology and Quality
Ministry of Science and Technology
The Socialist Republic of Vietnam

Mr. Vu Xuan Thuy
Director
Bureau of Accreditation
Ministry of Science and Technology
The Socialist Republic of Vietnam

Witnessed by:

Mr. Nguyen Xuan Tien
Deputy Director
Foreign Economic Relations Department
Ministry of Planning and Investment
The Socialist Republic of Vietnam

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THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERMENT OF THE SOCIALIST REPUBLIC OF VIET NAM

1. The Government of the Socialist Republic of Viet Nam will implement the Project on Strengthening the System and Operation on Standards and Conformance (hereinafter referred to as "the Project") in cooperation with JICA.

2. The Project will be implemented in accordance with the Master Plan which is given in Annex I.

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article III of the Agreement, JICA, as the executing agency for technical cooperation by the Government of Japan, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS
JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article III of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT
After commencement of the Project, both sides carefully examine the necessity to provide machinery and equipment taking budget allowance into consideration. After both sides reach the mutual understanding, JICA will provide such machinery, equipment and other materials. The provision of Article VIII of the Agreement will be applied to the Equipment.

3. TRAINING OF VIETNAMESE PERSONNEL IN JAPAN
JICA will receive the Vietnamese personnel concerned with the Project for technical training in Japan.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE SOCIALIST PEPUBLIC OF VIET NAM

1. The Government of the Socialist Republic of Viet Nam will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.

2. The Government of the Socialist Republic of Viet Nam will ensure that the experience and knowledge acquired by the Socialist Republic of Viet Nam nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of the Socialist Republic of Viet Nam.

3. In accordance with the provisions of Article VI of the Agreement, The Government of the Socialist Republic of Viet Nam will grant in the Socialist Republic of Viet Nam privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.

4. In accordance with the provisions of Article VIII of the Agreement, The Government of the Socialist Republic of Viet Nam will take the necessary measures to receive and use the equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.

5. The Government of the Socialist Republic of Viet Nam will take necessary measures to ensure that the knowledge and experience acquired by the Socialist Republic of Viet Nam personnel from technical training in Japan will be utilized effectively in the implementation of the Project.

6. In accordance with the provisions of Article V of the Agreement, The Government of the Socialist Republic of Viet Nam will provide the services of the Vietnamese counterpart personnel and administrative personnel as listed in Annex III.

7. In accordance with the provisions of Article V of the Agreement, The Government of the Socialist Republic of Viet Nam will provide the buildings and facilities as listed in Annex IV.

8. In accordance with the laws and regulations in force in the Socialist Republic of Viet Nam, The Government of the Socialist Republic of Viet Nam will take necessary measures to supply or replace at its own expense machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.

9. In accordance with the laws and regulations in force in the Socialist Republic of Viet Nam, The Government of the Socialist Republic of Viet Nam will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. Deputy Director General, STAMEQ, MOST, as the Project Director as listed in Annex III, will bear overall responsibility for the administration and implementation of the Project.

2. Acting Director, International Cooperation Department, STAMEQ, MOST, as the Project Manager as listed in Annex III, will be responsible for the managerial and technical matters of the Project.

3. The Japanese Chief Advisor will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.

4. The Japanese experts will give necessary technical guidance and advice to the Vietnamese counterpart personnel on technical matters pertaining to the implementation of the Project.

5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established whose functions and composition are described in Annex V.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Vietnamese authorities concerned, at the middle and during the last six months of the cooperation term in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VII of the Agreement, The Government of the Socialist Republic of Viet Nam undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in the Socialist Republic of Viet Nam except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of the Socialist Republic of Viet Nam on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT

For the purpose of promoting support for the Project among the people of the Socialist Republic of Viet Nam, the Government of the Socialist Republic of Viet Nam will take appropriate measures to make the Project widely known to the people of the Socialist Republic of Viet Nam.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be three (3) years and five (5) months from date, month, year.

ANNEXES

ANNEX I	MASTER PLAN
ANNEX II	LIST OF JAPANESE EXPERTS
ANNEX III	LIST OF VIETNAMESE COUNTERPART AND ADMINISTRATIVE PERSONNEL
ANNEX IV	LIST OF BUILDINGS AND FACILITIES
ANNEX V	JOINT COORDINATING COMMITTEE (JCC)

ANNEX I MASTER PLAN

1. Overall Goal:

The quality of electrical and electronic equipment manufactured in Viet Nam is improved, and the consumers' safety is ensured.

2. Project Purpose:

The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.

3. Outputs:

1. The capacity of planning the standards and conformance policy in the field of electrical and electronic equipment is strengthened.
2. The capacity of developing standards and regulations in the field of electrical and electronic equipment is improved.
3. The capacity of accreditation is improved.
4. The capacity of certification in the field of electrical and electronic equipment is improved.
5. The capacity of testing in the field of electrical and electronic equipment is improved.

4. Activities:

1-1 To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy.

1-2 To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.

2-1 To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.

3-1 To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.

4-1 To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.

5-1 To provide training and technical advice for testing in the field of electrical and electronic equipment.

5. Project Site:

The Project sites are Hanoi and Ho Chi Minh

ANNEX II LIST OF JAPANESE EXPERTS

1. **Long term expert**
   Chief advisor
   Coordinator
2. **Short term experts**
   Other relevant fields

ANNEX III LIST OF VIETNAMESE COUNTERPART AND ADMINISTRATIVE PERSONNEL

(1) Project Director

Deputy Director General, Directorate for Standards, Metrology and Quality
Ministry of Science and Technology

(2) Project Manager

Acting Director, International Cooperation Department,
Ministry of Science and Technology

(3) Counterpart Personnel (Officers directly related with the Project)

Director, QUACERT

Deputy Director, QUATEST1

Head of Lab Group including EMC, QUATEST3

Deputy Director, VSQC

Director, BOA

(4) Supporting Staff

Officer, International Cooperation Department, STAMEQ

Officer, International Cooperation Department, STAMEQ

ANNEX IV LIST OF BUILDINGS AND FACILITIES

The following buildings and facilities will be prepared by Socialist Republic of Viet Nam for the implementation of the Project.

(1) Project offices and other facilities necessary for the Japanese experts and the Vietnamese personnel to implement the Project.

(2) Facilities and services such as electricity, water supply, telephone fax machine, photocopy machine, personal computer, desk, chair and cabinet and necessary items for the project activities.

(3) Other facilities mutually agreed upon as necessary

ANNEX V JOINT COORDINATING COMMITTEE

1. Functions

The Joint Coordinating Committee will be held at least once a year and when the necessity arises in order to fulfill the following functions:

(1) To authorize the annual work plan of the project;

(2) To review the progress of the annual work plan;

(3) To review and exchange opinions on major issues that may arise during the implementation of the Project; and

(4) To discuss any other issues related to efficient implementation of the Project.

2. Composition

(1) Chairperson

Director General, STAMEQ, MOST

(2) Members

1) Vietnamese Side

Deputy Director General, STAMEQ, MOST

Acting Director, International Cooperation Department, STAMEQ, MOST

Director, BOA, MOST

Director, QUACERT, STAMEQ, MOST

Director, QUATEST 1, STAMEQ, MOST

Director, QUATEST 3, STAMEQ, MOST

Director, VSQC, STAMEQ, MOST

2) Japanese Side

- Experts assigned to the Project
- Chief Representative of JICA Viet Nam Office

(3) Notes

1) Chairperson of the Joint Coordinating Committee can invite any relevant person to discuss on specific issues.

2) Chief Representative of JICA can invite relevant staff members of Embassy of Japan and JICA to the Joint Coordinating Committee.

MINUTE OF MEETING
BETWEEN
JAPAN INTERNATIONAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED OF THE GOVERNMENT
OF THE SOCIALIST REPUBLIC OF VIETNAM
ON
JAPANESE TECHNICAL COOPERATION PROJECT
FOR
STRENGTHENING THE SYSTEM AND OPERATION
ON STANDARDS AND CONFORMANCE

Japan International Cooperation Agency (hereinafter referred to as "JICA") and Vietnamese authorities concerned (hereinafter referred to as "Vietnamese side") signed the Record of Discussions (hereafter referred to as "R/D") for the Project on strengthening the system and operation on standards and conformance.

The attached document hereto is intended to specify the contents of the Project agreed between both sides in regard to the descriptions stipulated in the R/D

Hanoi, November 26, 2009

Mr. Motonori Tsuno
Chief Representative
JICA Viet Nam Office
Japan International Cooperation Agency
Japan

Mr. Ngo Quy Viet
General Director
Directorate for Standards, Metrology and Quality
Ministry of Science and Technology
The Socialist Republic of Vietnam

Mr. Vu Xuan Thuy
Director
Bureau of Accreditation
Ministry of Science and Technology
The Socialist Republic of Vietnam

Witnessed by:

Mr. Nguyen Xuan Tien
Deputy Director
Foreign Economic Relations Department
Ministry of Planning and Investment
The Socialist Republic of Vietnam

THE ATTACHED DOCUMENT

1. Placement of the Previous Minutes of Meeting

Both sides agreed that the understanding of the items other than those mentioned in this Minutes of Meetings remains unchanged from the one mutually confirmed in the Minutes of Meetings signed on 11 September, 2009.

2. Materials for Project Planning and Management

Both sides confirmed and agreed on the following materials to be used for the purpose of project planning and management.

(1) Project Design Matrix (PDM) (Annex 1)
(2) Plan of Operation (PO) (Annex 2)

ANNEX 1

Project Design Matrix (PDM)

PROJECT NAME: Project on Strengthening the System and Operation on Standards and Conformance PROJECT DURATION: November 2009 – April 2013 (Three years and five months) Version: 1

TARGET AREA: Hanoi, Ho Chi Minh TARGET GROUP: Staff of Directorate for Standards, Metrology and Quality, Ministry of Science and Technology (STAMEQ) and other related organizations

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal The quality of electrical and electronic equipment manufactured in Vietnam is improved, and the consumers' safety is ensured.	1. Decrease in the number of accidents caused by electrical and electronic equipment	Data gathered by STAMEQ	
Project Purpose The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.	1. Improvement of capabilities of STAMEQ on standards and conformance as compared with international MRA requirements	- Records of the project activities - Report of STAMEQ	1. The manufacturers of the electrical and electronic equipment observe the standards and conformance. 2. The organizations related to the project remain as government bodies.
Outputs 1. The capacity of planning the standards and conformance policy in the field of electrical and electronic equipment is strengthened.	1-1 Number of seminars held by JICA experts and ex-JICA trainees	- Records of the project activities	
2. The capacity of developing standards and regulations in the field of electrical and electronic equipment is improved.	2-1 Increase in the number of Vietnam national standards(TCVN) based on the latest IEC standards	- Records of the project activities -Records of TCVN	
3. The capacity of accreditation is improved.	3-1 Decrease non conformities of APLAC MRA evaluations 3-2 Status of PAC MLA application preparation for product program	- Records of the project activities - The report of re-evaluation by MRA	
4. The capacity of certification in the field of electrical and electronic equipment is improved.	4-1 Accumulated number of product certificates by QUACERT 4-2 Status of IECEE CB scheme application preparation	- Records of the project activities	
5. The capacity of testing in the field of electrical and electronic equipment is improved.	5-1 Execution situation of test to 13 electrical and electronic appliance 5-2 Expansion of the accreditation scope for the EMC testing laboratory of QUATEST 3	- Records of the project activities	
Activities	**Inputs**		
1-1 To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy. 1-2 To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.	Viet Nam side 1. Counterpart personnel 1) Project Director 2) Project Manager 3) Full-time Counterpart personnel 4) Supporting staff 2. Project Office in Hanoi and Ho Chi Minh 3. Necessary budget for the implementation of the project 4. Necessary installation of testing equipment	Japanese side 1. Dispatch of Experts 1) Chief Advisor 2) Coordinator 3) Other relevant fields 2. Training of counterpart personnel in Japan 3. Provision of testing equipment	The C/Ps remain at STAMEQ.
2-1 To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.			
3-1 To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.			
4-1 To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.			**Pre-Conditions** The policy toward to strengthen on standards and conformance does not

5-1 To provide training and technical advice for testing in the field of electrical and electronic equipment.			change.

ANNEX 2

Tentative Plan of Operation (PO)

Title of the Project

Project on Strengthening the System and Operation on Standards and Conformance

Project Purpose

The system and operation of the STAMEQ and other related organizations on standards and conformance in the field of electrical and electronic equipment are strengthened.

Operational period

Outputs & Activities		Schedule															
		2009	2010				2011				2012				2013	
		Nov.-Dec.	Jan.-March	Apr.-June	July- Sep.	Oct.-Dec.	Jan.-March	Apr.-June	July- Sep.	Oct.-Dec.	Jan.-March	Apr.-June	July- Sep.	Oct.-Dec.	Jan.-March	April
[illegible]																
1-1	To provide training and technical advice to staff members of STAMEQ about planning the standards and conformance policy.	━		━	━	━	━	━	━	━	━	━	━	━	━	━
1-2	To hold seminars regarding the standards and conformance policy by JICA experts and ex-JICA trainees.				━		━		━		━		━			
[illegible]																
2-1	To provide training and technical advice for developing standards and regulations in Viet Nam based on checking the terms of IEC.	━			━				━				━			
[illegible]																
3-1	To provide training and technical advice for accreditation in the field of electrical and electronic equipment including preparation for PAC MLA membership for products program.	━		━	━	━	━	━	━	━	━	━	━	━	━	━
[illegible]																
4-1	To provide training and technical advice for certification in the field of electrical and electronic equipment including preparation for IECEE CB scheme membership.	━			━	━			━	━						
[illegible]																
5-1	To provide training and technical advice for testing in the field of electrical and electronic equipment.	━		━	━	━	━	━	━	━			━	━		

資料収集リスト

番号	名称	形態：図書・ビデオ・地図など	オリジナル・コピー	発行機関	発行年
1	業務紹介パンフレット	図書	オリジナル	STAMEQ	2009
2	アニュアルレポート（ベトナム語）	図書	コピー	STAMEQ	2009
3	財務諸表（B/S および収入に関する詳細項目）（ベトナム語）	図書	コピー	STAMEQ	2008
4	説明用 PP	図書	コピー	STAMEQ	2009
5	業務紹介パンフレット	図書	オリジナル	BOA	2009
6	BoA 組織体制変更に関する首相決定（ベトナム語）	図書	コピー	MOST	2009
7	アニュアルレポート〈ベトナム語〉	図書	コピー	BOA	2008
8	組織図	図書	コピー	BOA	2009
9	組織図	図書	コピー	QUACERT	2009
10	財務諸表（ベトナム語）	図書	コピー	QUACERT	2008
11	認証件数実績（2007 年及び 2008 年）	図書	コピー	QUACERT	2008
12	業務紹介パンフレット	図書	オリジナル	Quatest1	2009
13	アニュアルレポート（ベトナム語）	図書	コピー	Quatest1	2008
14	組織図	図書	コピー	Quatest1	2009
15	CAPABILITY DOCUMENT:ELECTRIC-ELECTRONIC TESTING LABO	図書	オリジナル	Quatest1	2009
16	業務紹介パンフレット（和）	図書	オリジナル	Quatest3	2009
17	業務紹介パンフレット（英）	図書	オリジナル	Quatest3	2009
18	業務紹介 PDF	図書	コピー	Quatest3	2009
19	DECREE(No. 115/2005/ND-CP) for autonomy and self-management	図書	コピー	Quatest3	2005
20	業務紹介パンフレット（英語）	図書	オリジナル	VSQC	2009
21	業務紹介パンフレット（ベトナム語、ベトナム語版は組織図含む）	図書	オリジナル	VSQC	2009
22	ベトナム・ホーチミン市近郊ビジネス情報 2009	図書	オリジナル	JETRO	2009
23	業務紹介パンフレット(Corporate Profile)	図書	オリジナル	日本電計㈱	2009

24	CALIBRATION & GENERAL SERVICES PROFILE（パンフレット）	図書	オリジナル	日本電計㈱	2009
25	VMI(Vietnam Metrology Institute)との MOU	図書	コピー	日本電計㈱	2005
26	QUATEST3 との MOU	図書	コピー	日本電計㈱	2009
27	Certificate of Accreditation (BoA 発行)	図書	コピー	日本電計㈱	2009

ベトナムの試験機関について

(財)電気安全環境研究所　田中喜一 理事　コメント

（１）QUATEST1、QUATEST3 とも、試験所の規模は大きいが、電気・電子分野は、ほとんど活動していない状況で、電気・電子分野の試験設備についても両者に大きな差はないように感じた。ただ、両機関ともに試験品と思われる市販品の扇風機（ベトナム製を含む）が試験室に置かれていた。また、電球の試験を行っているようで、光束測定用の積分球（新品）が両機関に配備されていた。電球の口金のサイズは、E27（日本は、E26）とのこと。

（２）QUATEST１では、試験済みと思われる電線が山積みされていたが、いずれも断面積が大きく、配電用の電線と思われる。また、試験品と思われる分電盤らしきものが積み上げられていた。QUATEST１のスタッフの話によると、１３品目の電気製品が強制品目になっても業務量が増加するとは思えないとのこと。理由までは確認できなかったが、輸入製品が相当数あると思われることから、規格適合性を徹底させるには、税関との連携が重要になろう。

（３）両機関とも ISO/IEC 17025 の認定を受けているとのことであるが、校正期限切れの計測器が目につき、認定後のフォローアップの実施状況が気になった。また、両機関ともにダストチャンバーとアーチシャワー〔IEC 60529 に基づく固形物及び水の侵入に対する保護等級（ＩＰコード）の判定に使用する設備〕が配備されていたが、ダストチャンバーについては、保守が十分に行われていないように見受けられた。いずれにしても、日常業務としての試験業務に使用されない設備、計測器の維持・管理まで手が回らないということかも知れない。

（４）QUATEST3 は、3ｍの電波暗室を所有しており、2 年以内に 10ｍの電波暗室を建設する予定をもっているようだが、現在の 3m電波暗室の維持管理（校正等）にかかる費用の捻出が厳しいとのこと。

（５）QUATEST1 及び 1 は、BOA の認定(ISO/IEC 17025)を取得している。また、認証業務（バイク用ヘルメット等）も実施しており、今後、業務（電気製品に限らず）を拡大しようとしている様子がうかがえる。特に、QUATEST3 は、試験的に独立採算性への移行をしており、国からの補助が段階的に減少される予定があることも影響しているのかも知れない(QUATEST3 では、日本の家具量販店からの依頼を受けて椅子の強度試験を行っていた)。

(財)日本品質保証機構　総務部 国際課 桜井邦夫 参与　所感

適合性評価行為実施のために使用される試験機材、設備等については、その代表的な試験機関であるQUATEST1～3（MRA指定CAB）を例にとってみると、当該機関は科学技術省の下部機関として設置され北部、中部、南部に支所をもち11試験所を電気、機械、化学等の分野別（カテゴリーごと）に所有しており、BOAの認定取得済みである。この試験機関QUATEST3はホーチミン市に所在し、まさに総合試験機関という印象が強い。ファンクション（役割）としては官の業務と民の業務をそれぞれに行っており、事業予算は国庫予算と事業収益からの予算で事業がなされている。日本の独立行政法人に似た組織であるといえる。

① 化学試験については化学分析に力点が置かれていることがうかがえる。バイオ、重金属等の分析が可能であることから電気分野への関心としては近々法制化されるとみられる ROHS 指令への対応が可能となっている。
② 計量校正においてもレファレンススタンダードとしてのマルチメーターが設備されており DC からギガ Hz 以下の高周波領域に至るまでの機器校正が可能である。QUATECT3 としての内部校正は可能であるがレファレンスをトレーサビリティー体系に乗せるための上位からの値付けがなされていないことが問題点として残る。
③ 電気試験について IEC60335 関係はおおむね試験できる環境にあると見受けられるが、基本規格であるところの同規格 IEC60335-1 についての技術的知見の度合いが十分であるかは疑問があるところである。
④ 電子試験については製品に正弦波信号を入力して通常状態をつくり試験を行うのであるが、そのための周波数発信機とかオシロスコープが試験ブースには設備されてなく試験をできる環境にはなっていない。ただし信号系を使わない電源等の試験については可能である。使用規格は IEC60065 の 1985 年版を使っていた。VN 国家規格に採用するまではその規格に準拠することが求められており規格局の対応の遅さを試験実施者は問題点として認識していた。日本の電気用品安全法の IEC 規格採用の手順と同様な状況にある。
⑤ EMC試験については専門家として調査した結果報告によることとするが、電波暗室についての状況を見てきた限りの報告にとどめることとする。「EMC試験所」という大きな建物があるがシャッターを開けて内部に入ると70％がいまだ広い空間であった。左手には3m暗室（TDK製）が既に設備されており「試験中」となっていた。一方建屋右手には10m暗室が建設できるように場所が整備されていた。加えて被試験機器用ターンテーブルの設置位置等が既に現場に表示されておりあとは機材としての暗室を建屋内部で組み立てれば良いところまで計画がなされている。設備された暁には電気電子機器のみならず自動車等からの不要輻射の測定までができるように設計がなされている。大きなターンテーブルの設置予定位置からそれをうかがい知ることができる。現在はそのためのバジェットが申請され政府で認可されるのを待つ段階であるが、今回のプロジェクトの大きな部分を占めるであろう電波無反射室が早期に建設されることが期待される。

製品認証は VN certification (QUACERT)が行っており、QUATECT3 は試験所機能だけを有する機関である。したがって試験結果報告書を作成して提出することを本務とし IEC／ISO17025 の世界だけに準じれば良いこととなり IEC ガイド 65 は求められない機関である。

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

SUMMARY

Products category	Standards	Estimated cost for additional equipments
Houshold appliances	Household and similar electrical appliances IEC60335-1 – General requirements IEC60335-2-3 – Electric irons IEC60335-2-6 – Cooking ranges, hobs, ovens and similar IEC60335-2-15 – Appliances for heating liquids IEC60335-2-21 – Storage water heaters IEC60335-2-23 – Appliances for skin or hair care IEC60335-2-25 – Microwave ovens, including combination microwave ovens IEC60335-2-35 – Instantaneous water heaters IEC60335-2-74 – Portable immersion heaters IEC60335-2-80 – Fans	¥39,050,000 (¥41,050,000)
Cables	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V IEC60227-1 – General requirements IEC60227-2 – Test methods IEC60227-3 – Non-sheathed cables for fixed IEC60227-4 – Sheathed cables for fixed wiring IEC60227-5 – Flexible cables (cords)	¥13,300,000 (¥38,300,000)
Lighting lamps	IEC60968 Self-ballasted lamps for general lighting services – Safety requirements IEC61195 Double-capped fluorescent lamps – Safety specifications	¥6,600,000 (¥6,600,000)
TOTAL:		**¥58,950,000** (¥85,950,000)

Note: The values in parentheses include the cost of the equipment purchase program for next year.

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#1 Houshold appliances

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next year

60335-1 Household and similar electrical appliances – General requirements

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
2	Normative References	Access to copies of listed standards	R		---	---	
4	General requirement	None			---	---	
5	General conditions for the tests	None			---	---	
6	Classification	None			---	---	
7	Marking and instructions	Spirit,	R		---	---	
		Water			---	---	
8	Protection against access to live parts	Test probe B of IEC61032,	R	Jointed test finger	X	X	¥1,000,000
		Test probe 13 of IEC61032,		Conical pin: φ3 to 4 - length 15 (for class II)	X	X	---
		Test probe 41 of IEC61032,		Probe φ30 (for visibly glowing heating elements)	X	X	---
		voltmeter mill ammeter,			X	X	---
		force gauges,			X	X	---
		2000ohm non-inductive resister			X	X	---
9	Starting of motor-operated appliances	None			---	---	
10	Power input and current	Voltmeter,	R		X	X	¥300,000
		ammeter,			X	X	¥900,000
		wattmeter			X	X	---
11	Heating	Temperature controlled room,	R	for tropical climate testing	/	/	¥500,000
		Temperature Recorder,			X	X	¥1,000,000
		fine wire thermocouples,			X	X	---
		test corners,			X	X	---
		Winding resistance measurement system,			X	X	¥300,000
		Loading as required by part 2's		see part 2's	---	---	
12	Void				---	---	
13	Leakage current and electric strength at operating temperature	Leakage current meter,	R		X	/[a)]	¥400,000
		isolation transformer,			X	X	¥1,000,000
		HV test supply,			X	X	---
		Network(Fig.4 of IEC60990)		Included Leakage current meter	---	---	---
14	Transient overvoltage	Inpulse voltage test generator	R	1.2/50μs	X	X	¥5,000,000
		Inpulse voltage test monitor			X	X	
15	Moisture resistance	Oscillating hoop IP test equipment,	R		X	X	¥7,000,000
		measurement beaker,			X	X	
		spray nozzle			X	X	---
16	Leakage current and electric strength	Environmental chamber capable of 93%RH at selected temp	R		X	X	¥2,000,000
		HV test facilities		4kV, 200mA, 800VA	/	/	¥1,000,000
17	Overload protection of transformers and associated circuits	Included above			---	---	
18	Endurance	As required by part 2's	R if assessed	see part 2's	---	---	

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#1 Houshold appliances

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next year

19	Abnormal operation	As above with suitable protection against damage to equipment, personnel and property in event of abnormal failure	R		X	X	---
		Electrostatic discharge test apparatus (IEC 61000-4-2), Radiated field test apparatus (IEC 61000-4-3), Fast transient burst test apparatus (IEC 61000-4-4), Voltage surge test apparatus (IEC 61000-4-5), Injected current test apparatus (IEC 61000-4-6), Voltage dip and interruption test apparatus (IEC 61000-4-11), Mains signal test apparatus (IEC 61000-	S		/	X	---*
20	Stability and mechanical hazards	Inclined plains,	R	10/15deg	X	X	¥400,000
		masses,			X	X	---
		force gauges			X	X	---
21	Mechanical strength	Impact hammer,	R	0.5J	X	X	¥500,000
		Hardened steel pin,			X	X	
		Force gauges			X	X	---
22	Construction	Test rig for torque on pin supported appliance,	R		X	X	¥500,000
		Heating cabinet(70 ±2℃)			X	X	¥500,000
		Test probe 11 of IEC61032,	R	Unjointed test finger	X	X	---
		Test fingernail	R		X	X	¥250,000
		Force gauge, Test finger nail	R	50/30/10N	X	X	¥200,000
		Oxygen bomb	S		/	/	¥3,500,000
		Methylated spirits and Pressure appratus	S		/	/	---
		Water pressure test apparatus	R	≥15MPa	X	X	¥2,000,000
23	Internal wiring	Flexing test apparatus	R		X	X	¥6,500,000
24	Components	Laboratory may or may not have facilities for testing to component standards.	S		/	/	---*
		Certification by specialist laboratories is accepted for compliance		If possible	---	---	
25	Supply connection and external flexible cords	Flexing test apparatus,	R	45degx2 10/5N	X	X	¥5,000,000
		Cord anchorage force & torque tester		30/60/100N & 0.1/0.25/.35Nm	X	X	---
26	Terminals for external conductors	Torque screwdriver	R		X	X	¥100,000
27	Provision for earthing	Earth continuity tester,	R		X	X	¥400,000
		access to ISO2178 and 1463 testing			X	X	
28	Screws and connections	Torque gauge	R	0.2-1.25Nm	X	X	¥200,000
29	Creepage distances, clearances and distance through insulation	Mechanical measurement tools, Rod and ball gauges	R		X	X	¥500,000
		Proof tracking test apparatus	R	Annex N	---	---	

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#1 Houshold appliances

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next year

30	Resistance to heat and fire	Ball Pressure test apparatus,	R		X	X	¥200,000
		Glow wire test apparatus,			X	X	¥2,500,000
		Needle flame test apparatus,		Annex E	---	---	
		Apparatus for low power circuit determination.			X	X	
		Horizontal and vertical burning test apparatus			/	/	¥4,000,000
31	Resistance to rusting	Part2 requirements			---	---	
32	Radiation, toxicity and similar hazards	Part2 requirements			---	---	
Annex A	Routine tests	None			---	---	
Annex B	Appliances Powered by rechargeable batteries	Free fall test apparatus (IEC60068-2-32)	R		/	X	¥500,000
Annex C	Ageing Test on Motors	Nothing special			---	---	
Annex D	Alternative requirements for protected	Nothing special			---	---	
Annex E	Needle flame test	Needle flame test apparatus (IEC 60695-2-2)	R		X	/	¥3,000,000
Annex F	Capacitors	Impulse voltage test apparatus,	S		/	/	---*
		Endurance test apparatus (IEC 60384-14)			/	/	---*
Annex G	Safety isolating transformers Circuit for measuring leakage current	Nothing special			---	---	
Annex H	Switches	Endurance test apparatus (61058-1)	S		X	X	
Annex I	Motors having basic insulation that is inadequate for the rated voltage of the appliances	Nothing special			---	---	
Annex J	Coated printed circuit boards	Coated printed circuit boards test apparatus (IEC60664-3)	S		/	/	---*
Annex K	Overvoltage categories	None			---	---	
Annex L	Guidance for the measurement of clearances and creepage distances	None			---	---	
Annex M	Pollution degree	None			---	---	
Annex N	Proof tracking test	Proof tracking test apparatus (IEC 60112)	R		X	X	¥1,100,000
Annex O	Selection and sequence of the test of clause 30	None			---	---	
Annex P	Guidance for the application of this standard to appliances used in warm damp equable climates	None			---	---	
Annex Q	Sequence of tests for the evaluation of electronic circuits	None			---	---	
Annex R	Software evaluation	Capability for Soft ware evaluation (IEC 60730-1)	S		---	---	
Additional	To reinforce test capacity	Oscilloacope			X	X	¥1,000,000
		Regulated AC power supply		2kVA x2	/	/	¥2,500,000
		Temperature recorder		30ch x2	/	/	¥1,000,000

Note: * Excluding the equipments for components and EMC immunity test

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#1 Houshold appliances

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next year

60335-2-3 Electric irons

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
11	Heating	Pointed support	R	three pointed metallic support (h≥100mm)	X	X	
21	Mechanical strength	Drop test apparatus	R	sling, cheesecloth, hardwood oard	X	X	
22	Construction	Water pressure apparatus	R		---	---	

60335-2-6 Cooking ranges, hobs, ovens and similar

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
3	Definitions	Normal load (Load for rotating spits,	R	4.5kg, φ100mmx85mm (Fig.103)	/	/	¥50,000
		Standard test pans,		(Fig.101)	/	/	¥300,000
		Vessel for induction hob element)		(Fig.102)	/	/	¥200,000
8	Protection against access to live parts	Test probe 12 of IEC 61032	R	Cylindrical pin: φ4 - length 50	/	/	¥100,000
11	Heating	Probe for measurement of surface	R	φ5mm, type K, 4N (Fig.104)	/	/	¥100,000
15	Moisture resistance	Funnle for pouring saline solution	R	Outlet φ8mm = 60335-2-15	---	---	
21	Mechanical strength	1.8kg test vessel	R	Cupper vessel, φ120±10mm base, R≥10mm edg	/	/	¥50,000
22	Construction	Iron bar(2mmx100mmx20mm)	R		X	X	
		Spark generator		≥0.5J, 3mm	X	X	
		Cloth having a mass between 140g/m2 and 170 g/m2(400mmx400mm)			X	X	
29	Creepage distances, clearances and distance through insulation	Test probe 41 of IEC 61032	R	Probe φ30 (for visibly glowing heating elements)	---	---	

60335-2-15 Appliances for heating liquids

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
15	Moisture resistance	Funnel as described in DSH-555	R	φ8mm tube (DSH-555: H=30mm)	X	X	
19	Abnormal operation	Pressure gauges(350kPa)	R		X	X	
22	Construction	Pressure test apparatus	R	100N	X	X	---

60335-2-21 Storage water heaters

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
22	Construction	Water pressure apparatus			X	X	

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#1 Houshold appliances

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next year

60335-2-23 Appliances for skin or hair care

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
3	Definitions	Wooden sphere	R	D=200mm	/	/	¥100,000
		Wire frame	R	φ200mmxH110mm	/	/	
11	Heating	Flexing test apparatus for swivel connection	R	50rev/min	X	X	
19	Abnormal operation	Glass fibres insulation	R	2.5m2K/W	X	X	
21	Mechanical strength	Hardwood board	R	for drop test	X	X	¥100,000

60335-2-25 Microwave ovens, including combination microwave ovens

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
3	Definitions	Cylindrical borosilicate glass vessel	R	t=3mm, D=190mm	/	/	
8	Protection against access to live parts	Test probe 18 of IEC 61032	R	Small finger probe: φ8.6 - length 57.9	/	/	¥100,000
16	Leakage current and electric strength	High frequency power supply	R	Twice or greater frequency and voltage of mains supply voltage	/	/	¥3,000,000
		High voltage probe	R	High voltage probe up to approx. 10kV	/	/	¥200,000
18	Endurance	Door endurance tester	R		/[b)]	/	¥2,000,000
22	Construction	Test rod for interlock concealment	R	φ3x100+φ10x20mm (Fig.101)	X	X	
		Steel armature (80 mm x 50 mm x 8 mm)	R		X	X	
		Steel rod, 1mmφ	R		X	X	
32	Radiation toxicity and similar hazards	Survey meter	R		/	/[a)]	¥150,000

60335-2-35 Instantaneous water heaters

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
22	Construction	Water pressure apparatus	R		X	X	---
		Plastic cylindrical receptacle(30mm x 12mm)	R		X	X	---

60335-2-74 Portable immersion heaters

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
21	Mechanical strength	Hardwood board			X	X	

60335-2-80 Fans

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
		Nothing special	R		---	---	

Subtotal ¥17,350,000 ¥21,700,000
Total ¥39,050,000
Subtotal (include purchase program for next year) ¥19,350,000 ¥21,700,000
Total (include purchase program for next year) ¥41,050,000

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#2 Cables

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next year

60227-2 Test Methods

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
1.8	Checking of the durability of colors and markings.	Piece of cotton wool or cloth and water.	R		---	---	
1.9	Measurement of insulation thickness.	Profile projector or measuring microscope of at least 10 x magnification.	R		X	X	¥5,000,000
1.10	Measurement of sheath thickness.	Profile projector or measuring microscope of at least 10 x magnification.	R		---	---	
1.11	Measurement of overall dimensions and ovality.	Profile projector, dial micrometer, vernier caliper, diameter measuring tape.	R		X	X	
2.1	Electrical resistance of conductor.	Measuring bridge or equivalent electronical equipment.	R		X	X	¥500,000
		Thermometer or temperature compensation to 20°C.			X	X	
2.2	Voltage test carried out on completed cables.	AC voltage source (AC 0...2500 V).	R		X	X	¥500,000
		Water bath.			X	X	
2.3	Voltage test on cores.	AC voltage source (AC 0...2500 V).	R		---	---	
		Water bath.			---	---	
2.4	Insulation resistance.	Insulation resistance tester with DC source between 80 V and 500 V	R	Super Megohm tester	X	X	¥1,000,000
		Heated water bath, thermometer.			X	X	
3.1	Flexing test.	Flexing apparatus, pulleys made of metal with different diameters.	R		/[b)]	/[a)]	¥15,000,000
		Weights.			X	X	
		For current load a low voltage or a voltage about 230/400 V to be used			X	X	
		For voltage load between conductors, about 230 V ac (two-core) and/or about 400 V ac (more cores).			X	X	
		Fault detection facilities: current interruption; short circuit between conductors and short circuit between test sample and pulleys			X	X	
		Carrier speed: 0,33 m/s.		Specification of flexing apparatus	---	---	
3.2	Bending test.	Bending test apparatus moving through 180° angel and flexing rate of 60 per minute, - weight 0,5 kg, current load 0,1 A.	R		/	X*	¥300,000
3.3	Snatch test.	Weight 0.5 kg, current load 0,1 A, rigid	R		X	X	
3.5	Static flexibility test.	Device for fixing the test sample.	R		X	X	
		Ruler.			X	X	

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#2 Cables

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next year

3.6	Tensile strength of the central heart of lift cables.	Freely hanging weight or a suitable mechanical strength testing machine.	R		---	---	
IEC 60811-1-1 Sub Clause 9.1 and IEC 60811-1-2 Sub Clause 8.1	Tensile test before and after ageing.	Tensile machine,	R		X	X	¥5,000,000
		equipment for punching dumb-bell test pieces			X	X	¥700,000
		and equipment for cutting or grinding the insulation or/and sheath to obtain 2 parallel surfaces.			X	/	¥7,000,000
		Optical measuring device / dial gauge.			X	X	
		Air oven with natural air flow, airflow rate: 8...20 complete air changes per hour. A fan shall not be used inside the oven.			/	/	¥2,000,000
IEC 60811-3-2 Sub Clause 8.1	Loss of mass test.	Air oven with natural air flow, airflow rate: 8...20 complete air change per hour.	R		---	---	
		Analytical balance with a sensitivity of 0,1 mg.			X	X	¥500,000
		Punching dies for dumb-bell test pieces.			---	---	
		Desiccator with silica gel or similar material.			X	X	
IEC 60811-3-1 Sub Clause 8.1 and Sub Clause 8.2	Pressure test at high temperature for insulation and sheath.	Indentation device with a blade 0,7 ± 0,01mm wide, loads (weights), supports, air oven, microscope or profile projector with two decimal places.	R		X	X	¥600,000
IEC 60811-1-4 Sub Clause 8.1 and Sub Clause 8.2	Cold bending test for insulation and sheath.	Cold bend test apparatus consisting essentially of a revolving mandrel and guiding devices for the test pieces.	R		/[b)]	X	¥1,000,000
		Refrigerator, mandrels with different			/[b)]	X	
IEC 60811-1-4 Sub Clause 8.4	Cold elongation test for insulation and sheath. (Only applicable if the overall diameter of the cable exceeds the limit specified in the test method)	Tensile machine with a cooling device or elongation machine installed in a cooling chamber.	R		/[b)]	X	¥8,000,000
IEC 60811-1-4 Sub Clause 8.5	Impact test at low temperature.	Impact test apparatus, refrigerator, hammers, pad of sponge rubber.	R		/[b)]	X	¥1,000,000
IEC 60811-3-1 Sub Clause 9.1 and Sub Clause 9.2	Heat shock test for insulation and sheath.	Mandrels with different diameters.	R		X	X	¥1,000,000
		Air oven.			X	X	
IEC 60332-1	Test of flame retardance.	Propane gas burner: a) 1 kW pre-mixed flame – b) diffusion flame, 3-sided metallic screen 1200 mm high, 300 mm wide and 450 mm deep with open front and closed top and	R		X	X	¥3,000,000

Note: * Fixing jigs are lacked

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#2 Cables

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next year

60227-3 Non sheathed cables for fixed wiring

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
In general		Testing equipment according to IEC 60227-2 and additional tests.			---	---	
IEC 60811-3-2 Sub Clause 9	Thermal stability for insulation.	Glass tubes made of AR-glass closed at one end, length: 110 mm, outer diameter approx. 5 mm, inner diameter 4,0 ± 0,5 mm.	R		/	/	¥1,000,000
		Universal indicating paper with a pH range of 1 to 10.			/	/	
		Thermostatically controlled heated oil bath for 200 ± 0,5°C.			/	/	
		Calibrated thermometer with divisions of 0,1 ° C, stopwatch.			X	X	

60227-4 Sheathed cables for fixed wiring

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
In general		Testing equipment according to IEC 60227-2 and additional tests.			---	---	
IEC 60811-1-2 Sub Clause 8.1.4	Test of non-contamination.	Tensile machine, equipment for punching dumb-bell test pieces equipment for cutting or grinding the insulation to obtain 2 paralle	R		---	---	
		Optical measuring device / dial gauge.			---	---	
		Air oven with natural air flow, airflow rate: 8...20 complete air changes per hour. A fan shall not be used inside the oven.			---	---	

60227-5 Flexible cables (cords)

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
In general		Testing equipment according to IEC 60227-2 and additional tests.			---	---	
IEC 60811-1-2 Sub Clause 8.1.4	Test of non-contamination.	Tensile machine, equipment for punching dumb-bell test pieces equipment for cutting or grinding the insulation to obtain 2 paralle	R		---	---	
		Optical measuring device / dial gauge.			---	---	
		Air oven with natural air flow, airflow rate: 8...20 complete air changes per hour. A fan shall not be used inside the oven.			---	---	
IEC 60811-3-2 Sub Clause 9	Thermal stability for insulation and sheath.	Glass tubes made of AR-glass closed at one end, length: 110 mm, outer diameter approx. 5 mm, inner diameter 4,0 ± 0,5 mm.	R		---	---	
		Universal indicating paper with a pH range of 1 to 10.			---	---	
		Thermostatically controlled heated oil bath for 200 ± 0,5 °C, calibrated thermometer with divisions of 0,1 °C, stop-watch.			---	---	

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#2 Cables

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next year

60227-6 Lift cables and cables for flexible connections <excluded from mandatory appliances>**

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
In general		Testing equipment according to IEC 60227-2 and additional tests.			---	---	
IEC60227-6 Sub Clause 3.4.1.1	Flexing test for lift cables	Flexing test apparatus, carriages reach a maximum relative acceleration of 4m/s^2 and complete(1500±10) cycles with in an hour	R		/	/	¥1,000,000
		12V DC supply.			X	X	
		Facilities: to monitor the continuity of each core and to stop the test apparatus automatically in the event of an open circuit occurring in the cable cores.			X	X	
		AC voltage source (AC 0...1500 V) or DC voltage source (DC 0...2500 V), Water bath.			---	---	

60227-7 Flexible cables screened and unscreened with two or more conductors <excluded from mandatory appliances>**

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
In general		Testing equipment according to IEC 60227-2 and additional tests.			---	---	
IEC 60096-1 Sub Clause A.5.1 + A.5.2	Transfer impedance for screened cables.	Equipment for measuring transfer impedance.	S		---	---	
IEC 60811-1-2 Sub Clause 8.1.4	Compatibility test.	Tensile machine, equipment for punching dumb-bell test pieces, equipment for cutting or grinding the insulation and sheath to obtain 2 parallel surfaces.	R		---	---	
		Optical measuring device / dial gauge.			---	---	
		Air oven with natural air flow, airflow rate: 8...20 complete air changes per hour. A fan shall not be used inside the oven			---	---	
IEC 60811-2-1 Clause 10	Mineral oil resistance of sheath or oversheath.	Tensile machine, equipment for punching dumb-bell test pieces, equipment for cutting or grinding the sheath to obtain 2 paralle	R		---	---	
		Oil no. 2 (IRM 902), oil bath (heated).			/	/	¥1,000,000

Note: ** Excluding the equipments for IEC60227-6 and 60227-7

Subtotal	¥3,300,000	¥10,000,000
Total	¥13,300,000	
Subtotal (include purchase program for next year)	¥28,300,000	¥10,000,000
Total (include purchase program for next year)	¥38,300,000	

REPORT OF TEST EQUIPMENT SURVEY (Safety of electrical appliance)

#3 Lighting lamps

Explanatory note: X Already equiped / easily to equip
/ Not equiped
--- No requirements / Overlapped equipment

Remarks: a) Already orderd to purchase
b) Included in purchase program for next yea

60968 Self-ballasted lamps for general lighting services - Safety requirements

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
4	Marking shall be durable and easily legible	Hexane, water, piece of cloth	R		---	---	
5	Interchangeability and dimensions	Gauges according to IEC 60061-1 and IEC 60061-3	R		/	/	¥1,000,000
6	Protection against electric shock	Test finger with indicating device and with force meter	R		---	---	
		Gauges according IEC 60061-3: - 7006-51A for E27 caps - 7006-55 for E14 caps			---	---	
7	Humidity treatment	Humidity cabinet	R		---	---	
7.1	Insulation resistance	Mega ohmmeter	R		X	X	
7.2	Electric strength test	High voltage transformer	R		---	---	
8	Mechanical strength	Torque levels with test holders according fig 2 and 3	R		/	/	¥250,000
9	Cap temperature rise	Temperature measuring device, according to IEC 60360	R		/	/	¥250,000
10	Resistance to the heat	Heating cabinet. Ball pressure test apparatus	R		---	---	
11	Resistance to flame and ignition	Glow-wire test apparatus, timer	R		---	---	
12	Fault conditions	High frequency spark generator, mega ohmmeter , voltmeter	R		---	---	

61195 Double-capped fluorescent lamps - Safety specifications

Clause	Measurement/testing	Testing / measuring equipment / material needed	Subcontracting	spec.	Equiped in QUATEST1	Equiped in QUATEST3	Estimated cost
2.2	Marking shall be durable and easily legible	Water, piece of cloth	R		---	---	
2.3.1	Construction and assembly	Angle measuring device, torque tester, heating cabinet, equipment to apply axial pull and bending moment	R		/	/	¥500,000
2.3.2	Dimensions	Gauges according IEC 60061-1 and 60061-3	R		/	/	¥1,000,000
2.4	Insulation resistance	Mega ohmmeter	R		---	---	
2.5	Electric strength test	High voltage transformer	R		---	---	
2.7	Resistance to heat and fire	Heating cabinet, glow-wire test apparatus,	R		---	---	
2.8	Creepage distances	Digital calliper (or equivalent)	R		---	---	
2.9	Lamp cap temperature rise	Draught-proof enclosure, thermocouples, temperature measurement device, reference ballast, voltmeter	R	reference ballast according to IEC60921 annex C	/	/	¥300,000
2.1	Lamp minimum overall length	Length measurement	R		---	---	

Subtotal	¥3,300,000	¥3,300,000
Total	¥6,600,000	
Subtotal (include purchase program for next year)	¥3,300,000	¥3,300,000
Total (include purchase program for next year)	¥6,600,000	

QUATEST3(EMC)

1. QUATEST3のEMC担当者

EMCエンジニア3名(SAFETY16名)

2. 1年間の申請145件(49社)

1) 試験の申請はすべてベトナム規格での試験。

2) 試験品は、ほとんどが情報処理機器(ITE:Information Technology Equipment)

*CE(欧州)規格、FCC(米国)、日本(電安法、VCCI)の試験依頼はない。

3 現在所有しているEMC測定機器の一覧

別紙 (No.1) 参照

*問題点

*所有している試験のための測定機器は、何も校正されていない。

例

1) EMI Test Receiver (Rohde & Schwarz, ESCI)

Last calibration: 2 July 2005 (購入時の校正データのみであり、4 年間校正なし。)

2) EPM Series Power Meter(Agilent E4419)、Power Sensor

(Agilent E9304A)については校正期限が切れていなかったが、ISO/IEC17025の認証機関でないデータであった。)

3) Conducted Common mode disturbance at the telecommunication 試験で用いる

ISN(Impedance stabilization network)が最新規格に合致していない。

但し、現行規格(TCVN7189:2002(CISPR22:1997)では試験対象外のため問題なし。

4) ILAC および APLIC の認証機関として登録しているBoA(Bureau of Accreditation)が

ISO/IEC17025の認可を取得しています。しかし、校正データも不確かさの算出されておりません。

通常ISO/IEC17025の5. 6項で、機器のトレーサビリティが要求されています。トレーサビリティを確保するには、ISO/IEC17025の認定を取得した校正機関に校正を依頼するか、または、自社で内部校正をしたものに不確かさを算出しておくことが条件となっています。

4 校正ができない理由

1) 国内で校正できる機関がない。(トレーサビリティに必要な標準機器もない。)
2) 海外に校正を依頼すると１ヶ月以上の時間有するため、測定に余裕ないため
試験ができなくなる。
3) 自社での内部校正についても実施した経験がなくノウハウも不明である。
今年度、強制規格に関わる測定器(下記参照)は KRISS(韓国)に校正依頼する予定。
(EMI Test Receiver, AMN, Antenna, Absorbing Clamp)

5 強制規格の改定

現行のベトナム規格 TCVN7189:2002(CISPR22:1997)が改訂され、
国際規格 CISPR22:2007(EN55022:2006＋AI:2007)に変更される予定。

変更内容:

Radiated Emission 試験の測定の範囲拡大
現行の Radiated Emission 試験周波数範囲:30－1000MHzから最大6000MHzまで
拡大される。*
*試験周波数の範囲は試験品の内部使用最高周波数(クロック周波数)で変わります。

試験品内部使用周波数の最高周波数が108MHz 未満であれば、測定は1G Hzまで実施する。
試験品内部使用周波数の最高周波数が108MHz以上500MHz未満の間であれば、測定は2GHzまで実施する。
試験品内部使用周波数の最高周波数が500MHz以上1GHz未満の間であれば、測定は5GHzまで実施する。
試験品内部使用周波数の最高周波数が1GHz以上であれば、測定は最高周波数の5倍の周波数または
6GHzのどちらか低い周波数まで実施する。

問題点:1000MHz(1GHz)以上を測定する試験設備がない。
優先的に 1000MHz(1GHz)以上を測定する試験設備を整える必要である。

別紙(No.1):現在 QUATEST3 で所有しているEMC測定機器の一覧

QUATEST3 Electromagnetic Compatibility(EMC)Testing Lab.		Equipment List	Period				
			Checking	Calibration year			
				1/2	1	2	5
No.	Name of Equipment	Range / Division Accuracy					
1	3m Anechoic Chamber	26MHz-18GHz 10x8.0x7.5(m) ±4dB	X				
2	Control Room	10kHz - 10GHz 6.0x3.0x3.0(m) 100dB					
3	Shield Room	10kHz - 10GHz 6.0x3.0x3.0(m) 100dB					
4	EMI Test Receiver	9kHz-3GHz	X				X
5	2 Line V-Network	9kHz-30MHz 50μH+5Ω+50Ω	X				X
6	Line Impedance Stabilization Network	9kHz-30MHz 50μH+5Ω+50Ω	X				
7	Line Impedance Stabilization Network	150kHz-30MHz 150Ω±20Ω					
8	Hybrid Log Periodic Antenna	30MHz-3GHz	X				X
9	System Controller						
10	Antenna Positioning Tower	1m-4m					
11	Turntable	Diameter:1.5m, Up to 500kg in weight					
12	Transtent Limiter	9kHz-200MHz					
13	Video Camera System						
14	Camera Interface						
15	Click Meter	150kHz-30MHz IF:9kHz RF:50Ω	X				
16	Absorbing Clamp	30MHz-1000MHz	X				X
17	Gride Rail	6m					
18	Triple Loop Antenna System	9kHz-30MHz 50μH+5Ω+50Ω					
19	Balance to unbalance transformer	50Ω-150Ω					
20	Signal Generator	9kHz-2000MHz	X				

QUATEST3 Electromagnetic Compatibility(EMC)Testing Lab.		Equipment List	Period				
			Checking	Calibration year			
				1/2	1	2	5
21	Amplifer	80MHz-1000MHz 150W					
22	Amplifer	10kHz - 250MHz					
23	Log Periodic Dipole Antenna	80MHz-3GHz	X				
24	Current Probe	10kHz-400MHz					
25	Bulk Current Injection Probe	10kHz-230MHz					
26	Injection Probe Calibration Fixture	0.01MHz-250MHz					
27	Load	50Ω 25W					
28	Attenuator	3dB 20W					
29	Attenuator	10dB 100W					
30	Coupling / Dcouling Network	150kHz-230MHz					
31	Passive Impedance Adaotor	150kHz-230MHz 50Ω-150Ω					
32	Passive Impedance Adaotor	150kHz-230MHz					
33	Electric Field Probe	0.5V/m - 800V/m	X				X
34	Probe Interface						
35	Remote Switch Module						
36	EPM Serise Power Meter	9kHz- 110GHz	X				X
37	Power Sensor	9kHz-6GHz 50Ω	X				X
38	Power Sensor	9kHz-6GHz 50Ω	X				X
39	Directional Couple	10kHz-250MHz 600W					
40	Directional Couple	10kHz-250MHz 600W					

QUATEST3 Electromagnetic Compatibility(EMC)Testing Lab.		Equipment List	Period				
			Checking	Calibration year			
				1/2	1	2	5
41	Isolation Transformer	220V/50A/10KVA					
42	Isolation Transformer	220V/50A/10KVA					
43	Isolation Transformer	220V/40A/8KVA					
44	Isolation Transformer	110V/50A/5KVA					
45	Isolation Transformer	110V/50A/5KVA					
46	EMI Power Line Filter						
47	Radio Frequency Cable	50Ω					
48	Ultra compact simulator	CDN 250V/16A	X				X
49	Motorized Variac Transformer	260V16A max					
50	Capacity coupling clamp						
51	EUT monitoring sensor						
52	EFT Pule Verification Kit						
53	PFS Verification Load Resistor	240V 100Ω±10%					
54	High Voltage Differential Probe	DC-70MHz					X
55	Magnetic field antenna						X
56	Current Probe	30A/m:100A/m:1000A/m					
57	Field strength Meter	1V/m-199kV/m					X
58	Electriostatic Discharge System	0.5kV-25kV ±5%					X
59	Comparision Noise Emitter	9kHz-1GHz				X	X
60	Digital Multimeter	4000mV-1000V				X	
61	Thermo Hygrometer						
62	Coupling network	150kHz-30MHz(EMI), 150kHz-80MHz(EMS),150Ω±20Ω (EMI)					
63	Coupling network	150kHz-30MHz(EMI), 150kHz-80MHz(EMS),150Ω±20Ω					X
64	Adapter sets for functional tests on ISN						
65	Current Probe						X
66	Active Voltage Probe						
67	Passive Voltage Probe						X

今後、EMC 試験について必要なもの

１．設備

１）1-18GHz 放射エミッション測定

２）SVSWR 測定システム

３）通信用 ISN 及び電流プローブ

４）NSA 用ダイポール及びスイープ法アンテナ

５）現地調整及び技術説明

１．1-18GHz 放射エミッション測定

	品名	仕様	単価	数量	価格
1	EMIテストレシーバー	20Hz-40GHz	¥15,709,000	1	¥15,709,000
2	トラッキング・ジェネレータ用アッテネータ	100kHz-3.6GHz	¥1,545,000	1	¥1,545,000
3	トラッキング・ジェネレータ		¥369,000	1	¥369,000
4	プリアンプ	1-18GHz, Gain 36dB, NF 2.8dB	¥900,000	1	¥900,000
5	ダブルリッジド・アンテナ	1-18GHz	¥611,000	1	¥611,000
6	RFセレクタ	5 channel	¥950,000	1	¥950,000
7	放射エミッション自動測定ソフトウェア		¥1,500,000	1	¥1,500,000
8	システムケーブル		¥400,000	1	¥400,000
9	GPIBインターフェイス		¥88,000	1	¥88,000
10	システムコントローラ	19inch LCD, Printe	¥150,000	1	¥150,000
11	CAL (IEC/ISO 17025校正)	CAL ISO17025	¥350,000	1	¥350,000
12	CAL (IEC/ISO 17025校正)	CAL ISO17025	¥67,000	1	¥67,000
13	CAL (IEC/ISO 17025校正)	CAL ISO17025	¥218,800	1	¥218,800
				小計	¥22,857,800

:ISO17025 の校正費用。

２．SVSWR測定システム

	品名	仕様	単価	数量	価格
14	ネットワーク・アナライザー		¥245,452	1	¥245,452
15	2ポートテストセット	300kHz-20GHz	¥6,255,249	1	¥6,255,249
16	3．5mmエコノミキャリブレーション	26.5GHz	¥668,910	1	¥668,910
17	POD16,POD618	1-6, 6-18GHz	¥1,603,000	1	¥1,603,000
18	レーザー墨出し器		¥188,000	1	¥188,000
19	精密アンテナポジション、測定ソフトウェア		¥1,200,000	1	¥1,200,000
20	システムケーブル		¥400,000	1	¥400,000
21	GPIBインターフェイス		¥88,000	1	¥88,000
22	システムコントローラ	19inch LCD, Printe	¥150,000	1	¥150,000
23	電波吸収体		¥23,000	20	¥460,000
24	CAL (IEC/ISO 17025校正)	CAL ISO17025	¥35,099	1	¥35,099
				小計	¥11,293,710

:ISO17025 の校正費用。

3. 通信用ISN及び電流プローブ

	品名	仕様	単価	数量	価格
25	ISN 非シールド平衡　2線式		¥305,000	1	¥305,000
26	ISN 非シールド平衡　4線式		¥554,000	1	¥554,000
27	ISN 非シールド平衡　8線式 Cat 3/5		¥565,000	1	¥565,000
28	ISN 非シールド平衡　5線式 Cat6		¥385,000	1	¥385,000
29	ISN 8線式		¥151,000	1	¥151,000
30	電流プローブ		¥301,000	1	¥301,000
31	伝導エミッション自動測定ソフトウェア		¥1,000,000	1	¥1,000,000
32	簡易自動測定ソフトウェア		¥250,000	1	¥250,000
33	システムケーブル		¥100,000	1	¥100,000
34	GPIBインターフェイス		¥88,000	1	¥88,000
35	システムコントローラ	19inch LCD, Printe	¥150,000	1	¥150,000
36	ISN T2A ISO 17025校正	CAL ISO17025	¥56,000	1	¥56,000
37	ISN T4A ISO 17025校正	CAL ISO17025	¥108,000	1	¥108,000
38	ISN T8 ISO 17025校正	CAL ISO17025	¥56,000	1	¥56,000
39	ISN T8 Cat6 ISO 17025校正	CAL ISO17025	¥56,000	1	¥56,000
40	ISO 17025校正	CAL ISO17025	¥23,000	1	¥23,000
41	ISO 17025校正	CAL ISO17025	¥46,000	1	¥46,000
				小計	¥4,194,000

:ISO17025 の校正費用。

4. NSA用ダイポール及びスイープ法アンテナ

	品名	仕様	単価	数量	価格
42	VHF精密ダイポール	30-300MHz	¥253,000	1	¥253,000
43	UHF精密ダイポール	300-1000MHz	¥253,000	1	¥253,000
44	シグナル・ジェネレータ		¥247,355	1	¥247,355
45	周波数レンジ	100kHz-20GHz	¥2,132,471	1	¥2,132,471
46	ステップアッテネータ		¥398,826	1	¥398,826
47	AM/FM/位相変調		¥341,851	1	¥341,851
48	パルス変調		¥410,221	1	¥410,221
49	アンテナホルダ/バラン		¥202,000	2	¥404,000
50	バイコニカルエレメント	30-300MHz	¥79,000	2	¥158,000
51	ログペリ・アンテナ	250-2400MHz	¥293,000	2	¥586,000
52	サイトアッテネーション自動測定ソフトウェア		¥800,000	1	¥800,000
53	システムケーブル		¥400,000	1	¥400,000
54	GPIBインターフェイス		¥88,000	1	¥88,000
55	システムコントローラ	19inch LCD, Printe	¥150,000	1	¥150,000
56	ISO 17025校正	CAL ISO17025	¥105,000	1	¥105,000
57	ISO 17025校正	CAL ISO17025	¥135,500	2	¥271,000
58	ISO 17025校正	CAL ISO17025	¥220,000	2	¥440,000
				小計	¥7,438,724

:ISO17025 の校正費用。

5. 現地調整及び技術説明

59	エンジニアリング費	14日×¥120,0000-/日×2人		¥3,360,000	1	¥3,360,000
	システム据付調整	4日				
	取扱説明・検収作業	2日				
	NSA＆SVSWR測定	4日				
	予備日	1日				
60	渡航費＆滞在費	(¥1000,000- ＋ ¥10,000×13日)× 2人		¥460,000	1	¥460,000
	渡航費	¥100,000-				
	滞在費	¥10,000- ×13日			小計	¥3,820,000

設備の合計金額:¥49,604,234

２．研修

Quatest3(クオーテスト３)EMC エンジニア技術研修。

Quatest3(クオーテスト３)EMC エンジニア２名に対して１ヶ月～2ヶ月間の OJT の実施。

問題点:

・ 機器の校正について、費用を今後どのように対応していくかが
課題である。