

Summary of collaborative activities between CMU and NICT

From 1 November 2012 to present



MOU

Memorandum of Understanding between NICT and CMU in
Information and Communications Technology
(Photonics Communications And Space Environment)

Duration 1 November 2012 – 31 October 2015

Signed on 17 December 2012



Mr. Akira Okubo (NICT Vice President) and Assoc. Prof. Dr. Sermkiat Jomjunyong (CMU Vice President), with Mr. Yasushi Sananaka, Mr. Takashi Sugawara and Dr. Tetsuro Kondo from NICT and CMU engineering faculty members.

Collaborative Research Agreement

NICT and CMU signed a collaborative research agreement in the topic
“Standardization of a method for optoelectronic frequency response measurement”

Scope: 1. Photodiode measurement method

2. International Standardization

- International Electrotechnical Commission (IEC)

 - Transmitting equipment for radiocommunication technical committee (TC 103)

- Asia Pacific Standardization Program forum (ASTAP)

 - Millimeter wave communication system expert group (until Sep 2013)

 - Seamless access communication system expert group (from Sep 2013)

Period: 3 years from 29 January 2013

Meetings concerning the research agreement:

1.Regular meetings over Skype

2.Meetings during visits to either CMU or NICT, and at standardization forums

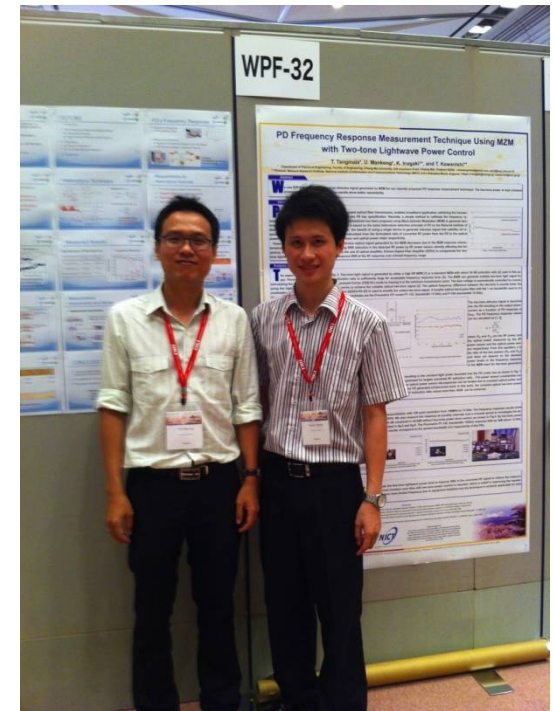
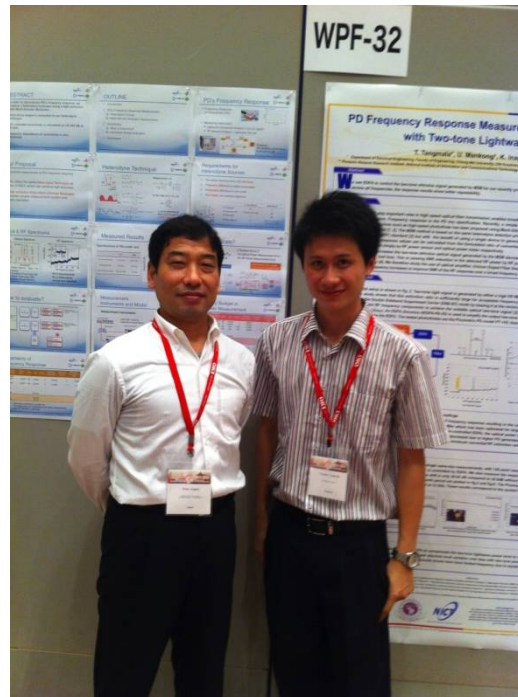


Collaborative Research Agreement

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Publications:
International
Conference papers

- T. Tangmala, U. Mankong, K. Inagaki and T. Kawanishi, “PD frequency response measurement technique using MZM with two-tone lightwave power control,” in ***Lasers and Electro-Optics Pacific Rim (CLEO-PR), 2013 Conference on***, Kyoto, Japan, 30 July – 4 August 2013.



Mr Tanawat, Dr Ukrit and Dr Inagaki presenting
at CLEO-PR, Kyoto



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Publications:

International Conference papers

- K. Inagaki, U. Mankong and T. Kawanishi, “Error Analysis of Optoelectronic Frequency Response Measurement of Photodiodes Using High-Extinction Ratio Mach-Zehnder Modulator,” in ***The 11th International Conference on Optical Communications and Networks (ICO CN2012)***, Pattaya, Thailand, 28-30 November, 2012.
- T. Tangmala, S. Potha, U. Mankong, K. Inagaki and T. Kawanishi, “Optoelectronic Frequency Response Measurement Using Standard Mach-Zehnder Modulator,” in ***The 11th International Conference on Optical Communications and Networks (ICO CN2012)***, Pattaya, Thailand, 28-30 November, 2012.



Dr Kawanishi,
Presenting paper at ICO CN 2012

Collaborative Research Agreement

Standardization Publication and attendance:

Attended 3 meetings of **Asia pacific standardization program forum (ASTAP)**

- ASTAP 20 Expert Group on Millimeter Wave Communication Systems, 20th Asia Pacific Telecommunity (APT) Standardization Program Forum, 30 July – 1 August, 2012
- ASTAP 21 Expert Group on Millimeter Wave Communication Systems, 21st Asia Pacific Telecommunity (APT) Standardization Program Forum, 11 – 15 March, 2013
*Contribute Input document “Realization of Two-tone O/E Characterization Technique”
ASTAP21-INP95*
- ASTAP 22 Expert Group on Millimeter Wave Communication Systems, 22nd Asia Pacific Telecommunity (APT) Standardization Program Forum, 11 – 14 September, 2013

Work published in *APT Report on Characteristics and Requirements of Optical and Electrical Components for Millimeter-wave Radio on Fiber Systems*

[APT/ASTAP/REPT-03 \(Rev.1\)](#)

Documents from Chiang Mai University submitted to ASTAP via invitation of Ministry of Information and Communications Technology, Thailand



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Standardization Publication and attendance:

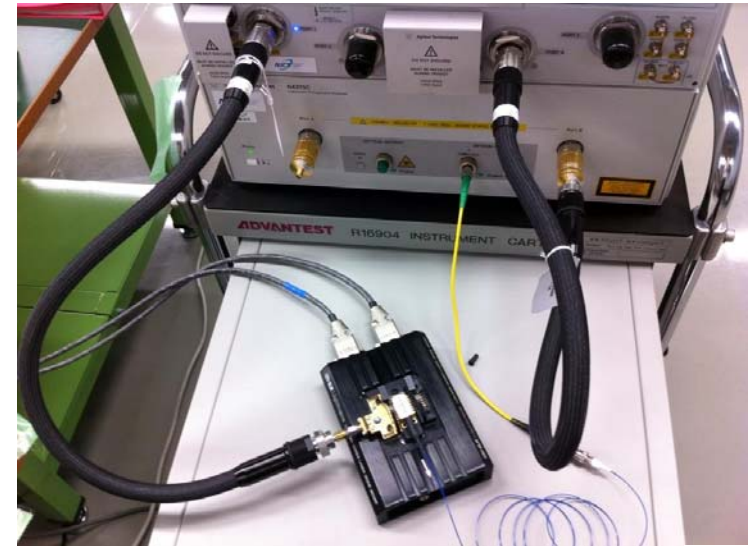
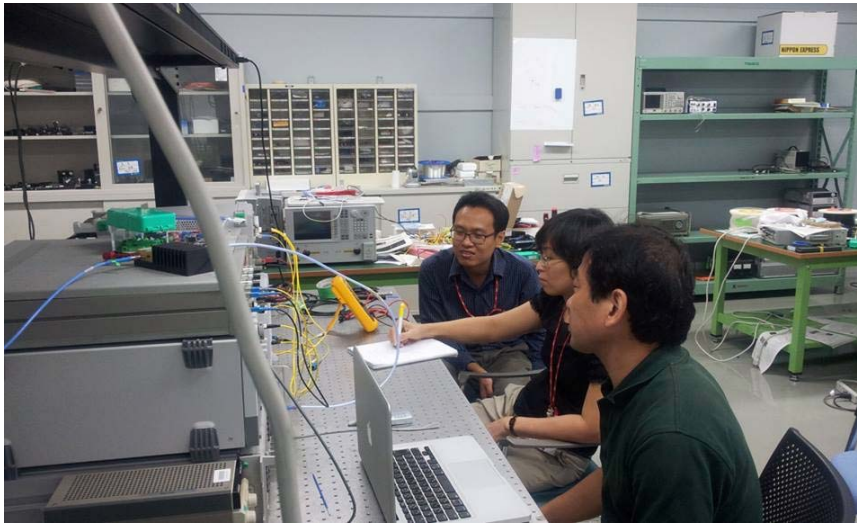
Asia pacific standardization program forum meetings (ASTAP)



ASTAP 21 Meeting in Bangkok

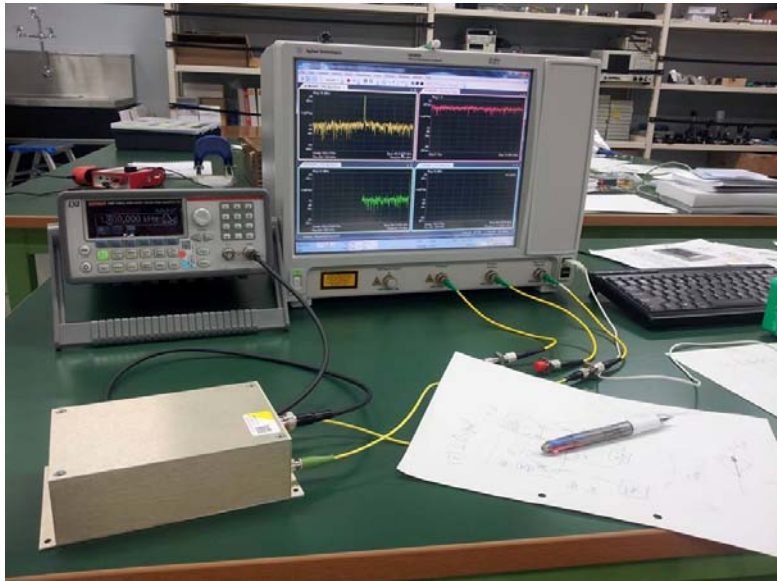
Staff & Student visits to NICT

1. CMU staff members : Asst. Prof. Dr Ukrit Mankong and Asst. Prof. Dr. Nipapon Siripon visit to Lightwave Device Laboratory, NICT, Tokyo
To conduct research in Optoelectronic Measurement
30 June 2013 – 13 July 2013



Staff & Student visits to NICT

- CMU student: Mr Tanawat Tangmala (for MEng degree) visit to NICT
Under NICT Internship program for 2 month period between
May-July 2013
To conduct research in AM&PM Characterization And Frequency
response of EAM



NICT visits to CMU

1. Dr. Keizo Inagaki and Dr. Atsushi Kanno's visit to CMU
30 August 2013
2. Dr. Keizo Inagaki's visit to CMU
25 November 2013

Discussion topics:

- (1) mobile back haul study
- (2) PD's Frequency response measurement system
- (3) EA modulator's experiment.



Space Environment Research Activity

NICT and CMU continue a collaborative research agreement in “*SEALION Project*” (Southeast Asia Low-latitude Ionospheric Network) from 2004



CMU staff members

- Asst. Prof. Tharadol Komolmis, Faculty of Engineering.
- Dr. Siramas Komonjinda, Faculty of Science.

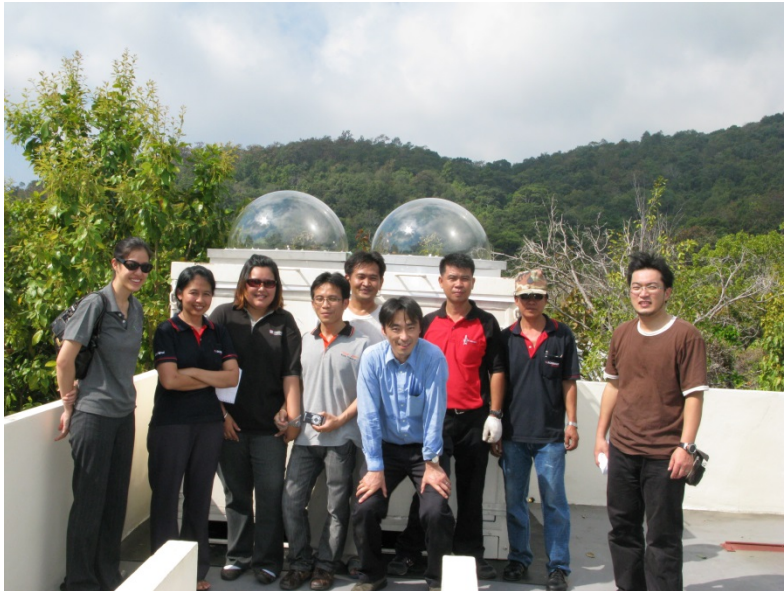
Space Environment Research Activity

- Operate Ionosonde Observation station at Mae Hea campus to collect Ionogram, Total Electron Content (TEC) and GPS data.



Space Environment Research Activity

- Operate an All-Sky Imaging system installed at Sirindhorn Observatory.



NICT visits to CMU

for Space Environment Research Activity

- Dr. Takuya Tsugawa and Dr. Takumi Kondo visit to Ionosonde station and Sirindhorn observatory on 23-25 April 2013.

To Repair FMCW system, Replace PCs, Install JAXA's Multi-GNSS

and antenna at Ionosonde station and check



NICT visits to CMU

for Space Environment Research Activity

- Dr. Takuya Tsugawa and Dr. Takumi Kondo visit to Ionosonde station and Sirindhorn observatory on 6-8 August 2013.

To repair the Ionosonde antenna.



Current & Future Activity

for Space Environment Research

- NICT will replace new Ionosonde system.
- CMU staff are conducting the Customs process.
- NICT Staff are planning to visit CMU on 16-18 Dec 2013