บันทึกข้อความ

ส่วนราชการ สำนักส่งเสริมและพัฒนางานเทคนิค ส่วนสำรวจและวางแผน โทร.๐-๒๖๓๘-๒๓๒๓ ต่อ ๑๙๒๑

ที่ นร ๐๒๒๑.๐๔/ ๑๔๖ **วันที่** ๑๗ กุมภาพันธ์ ๒๕๕๘

เรื่อง รายงานการเข้าร่วมประชุมคณะกรรมการร่วมทางเทคนิคว่าด้วยการประสานและจัดสรรความถี่วิทยุตามบริเวณชายแดนไทย-กัมพูชา ครั้งที่ ๔

เรียน อปส.

ตามที่ สำนักงาน กสทช. ขอให้ กปส. พิจารณาส่งผู้แทนเข้าร่วมประชุมคณะกรรมการร่วมทางเทคนิคว่าด้วยการประสานและจัดสรรความถี่วิทยุตามบริเวณชายแดนไทย-กัมพูชา (JTC) ครั้งที่ ๔ ระหว่างวันที่ ๑ - ๓ ตุลาคม ๒๕๕๗ ณ จังหวัดเสียมราฐ ประเทศกัมพูชา และ อปส. ได้มอบหมายให้ สพท.พิจารณาส่งผู้แทนเข้าร่วมประชุมดังกล่าวนั้น

บัดนี้ การประชุมได้เสร็จสิ้นเรียบร้อยแล้ว สพท. ขอสรุปรายงานการประชุมคณะกรรมการร่วมทางเทคนิคว่าด้วยการประสานและจัดสรรความถี่วิทยุตามบริเวณชายแดนไทย-กัมพูชา ครั้งที่ ๔ จึงเห็นควรให้มีการเผยแพร่ผ่านระบบอินทราเน็ตกรมประชาสัมพันธ์ เพื่อให้หน่วยงานที่เกี่ยวข้องได้รับทราบต่อไป ดังมีรายละเอียดตามเอกสารแนบ

จึงเรียนมาเพื่อโปรดทราบ

(นายชุมพร เครือขวัญ)
ผอ.สพท.

- ทราบ
- ดำเนินการตามเสนอ

(นายอภินันท์ จันทรังษี)
อปส.
๑๗ ก.พ. ๒๕๕๘

อปส. (นายอภินันท์ จันทรังษี) 1033

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ที่ สทช ๓๐๐๒ /ว ๓๕๓๙

สำนักงานคณะกรรมการกิจการ
กระจายเสียง กิจการโทรทัศน์
และกิจการโทรคมนาคมแห่งชาติ
๘๗ ถนนพหลโยธิน กทม. ๑๐๔๐๐

๓๐ มกราคม ๒๕๕๘

เรื่อง ผลการประชุมคณะกรรมการร่วมทางเทคนิคว่าด้วยการประสานและจัดสรรความถี่วิทยุตามบริเวณชายแดนไทย-กัมพูชา ครั้งที่ ๔ (The 4th Joint Technical Committee on Coordination and Assignment of frequencies along Thailand – Cambodia Common border)

เรียน อธิบดีกรมประชาสัมพันธ์

สิ่งที่ส่งมาด้วย
๑. Agreed Minutes of the 4th Joint Technical Committee on Coordination and Assignment of Frequencies along Thailand – Cambodia Common Border Meeting (JTC-4)
๒. Report of Working Group on Mobile and Non-Broadcasting Services (WG1)
๓. Report of Working Group on Broadcasting Services (WG2)

ตามที่ผู้แทนสำนักงานคณะกรรมการกิจการกระจายเสียง กิจการโทรทัศน์ และกิจการโทรคมนาคมแห่งชาติ (กสทช.) และหน่วยงานผู้ให้บริการด้านกิจการกระจายเสียง กิจการโทรทัศน์ กิจการโทรคมนาคม และกิจการวิทยุคมนาคม พร้อมทั้งหน่วยงานเพื่อความมั่นคงของรัฐของประเทศไทย ได้เข้าร่วมการประชุมคณะกรรมการร่วมทางเทคนิคว่าด้วยการประสานและจัดสรรความถี่วิทยุตามบริเวณชายแดนไทย-กัมพูชา ครั้งที่ ๔ (JTC-4) เมื่อวันที่ ๑ – ๓ ตุลาคม ๒๕๕๗ จังหวัดเสียมราฐ ประเทศกัมพูชา ไปแล้ว นั้น

กสทช. ในการประชุม ครั้งที่ ๑/๒๕๕๘ เมื่อวันพุธที่ ๒๑ มกราคม ๒๕๕๘ ได้มีมติเห็นชอบต่อบันทึกความตกลงร่วม (Agreed Minutes) ในส่วนของการประชุมเต็มคณะ การประชุมกลุ่มทำงานที่ ๑ (Working Group 1) ในส่วนที่เกี่ยวข้องกับกิจการเคลื่อนที่และกิจการวิทยุคมนาคมอื่น และการประชุมกลุ่มทำงานที่ ๒ (Working Group 2) ในส่วนที่เกี่ยวข้องกับกิจการกระจายเสียง และกิจการโทรทัศน์ ตามที่สำนักงาน กสทช.เสนอ รายละเอียดปรากฏตามสิ่งที่ส่งมาด้วย

จึงเรียนมาเพื่อโปรดทราบและพิจารณาดำเนินการปฏิบัติตามมติที่ประชุมดังกล่าวอย่างเคร่งครัด พร้อมทั้ง รายงานความคืบหน้าการปฏิบัติตามข้อตกลงร่วมดังกล่าวให้สำนักงาน กสทช. ทราบต่อไปด้วย จักขอบคุณยิ่ง

ขอแสดงความนับถือ

(นายฐากร ตัณฑสิทธิ์)
เลขาธิการ กสทช.

สำนักบริหารคลื่นความถี่
โทร. ๐ ๒๒๗๑ ๐๑๕๑ – ๖๐ ต่อ ๙๐๓
โทรสาร ๐ ๒๒๗๑ ๓๕๑๘

Agreed Minutes of the 4th Joint Technical Committee
on
Coordination and Assignment of Frequencies
along Cambodia – Thailand Common Border Meeting

Siem Reap, Cambodia
01st – 03rd October, 2014

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1. Introduction

1.1 The 4th Joint Technical Committee (JTC) on Coordination and Assignment of Frequencies along Cambodia – Thailand Common Border Meeting was held in Siem Reap, Cambodia from 1st to 3rd October 2014.

1.2 The Cambodian Delegation was led by H.E. Mr. Moa Chakrya, Chairman of the Telecommunication Regulator of Cambodia (T.R.C.), and the Thai Delegation was led by Air Vice Marshal Thanapant Raicharoen Ph.D., Deputy Secretary General, Office of the National Broadcasting and Telecommunications Commission (NBTC). The list of delegates appears in Doc.JTC-4/C-2.

2. Opening Remarks

2.1 In his opening remarks, H.E. Mr. Moa Chakrya, Head of the Cambodian Delegation, welcomed the Thai Delegation to the 4th JTC Meeting in Siem Reap. He expressed his delight to have this collaboration again since last year that we had delayed. In Chiang Mai, both sides have agreed to follow up technology, job of ITU working Group for the new fourth generation, digital dividend, frequency harmonization and learning from experience. He also stated that both sides should share all update and situation about the regulation on frequency arrangement and channel arrangement along common border area. Moreover, the usage of CDMA, GSM, W-CDMA, LTE, Radio and TV Broadcasting should also be shared. He also assured that the close collaboration between the two countries is a key to mutually solve the frequency interfering problem and it will ensure the efficient use of frequency along Cambodia-Thailand common border area.

2.2 The full text of the welcome address appears in Doc.JTC-4/C-3.

2.3 In response, Air Vice Marshal Thanapant Raicharoen Ph.D., Head of the Thai Delegation, presented that Thailand had continued working on ensuring sufficient radio spectrum on equitable basis as well as the roll out of new digital services and migration of analogue services in our countries. He also mentioned that all Thai delegates were pleased to continue improving coordination and assignment of frequencies along the common border at this meeting. He further expressed his appreciation and gratitude to T.R.C. for hosting the JTC-4 Meeting in Siem Reap and also thanked for the warm hospitality extended to the Thai Delegation. He wished to have a very productive meeting ahead.

2.4 The full text of the reciprocal address appears in Doc.JTC-4/C-4.

3. Adoption of Agenda

The Meeting adopted the Agenda as appeared in Doc.JTC-4/C-5.

4. Working Arrangement

4.1 The Meeting adopted the working arrangement as appeared in Doc.JTC-4/C-6.

4.2 The Meeting appointed the Co-Chairmen of the Working Groups as follows:

4.2.1 H.E. Mr. Auk Dorany (Cambodia) and Mr. Saneh Saiwong (Thailand) for Working Group on Mobile and non – Broadcasting Services (WG1).

4.2.2 H.E. Mr. Uy Thuon (Cambodia) and Col. Jiroj Santhit (Thailand) for Working Group on Broadcasting Services (WG2).

5. Exchange of information

5.1 Cambodia presented a paper on 'TRC Information Update' as appeared in Doc.JTC-4/C-7, and it is summarized as follows:

5.1.1 Cambodia presented the structure of telecommunication sectors and the background of Telecommunication Regulator of Cambodia including its structure, role, mission and function.

5.1.2 Cambodia informed the Meeting about the current status on telecommunication services such as the current number of fixed and mobile operators, infrastructure, broadband and subscriber statistic in the last 5 years.

5.1.3 Cambodia further informed the Meeting about the existing spectrum and its plan as follows:

i. ITU Roadmap for analog switch off in 2015 or 2018;
ii. Asia-pacific Wireless Group (AWG) for mobile satellite service (30 MHz uplink at 1980 – 2010MHz and 30 MHz downlink at 2170MHz – 2200 MHz);
iii. Multi-channel Multi-point Distribution Service (MMDS) in frequency band 2.6 GHz;
iv. Bandwidth assigned to the licensed operators;
v. Channel Arrangement for CDMA 450, CDMA2000 (band 800 MHz), E-GSM 900 and GSM 900, and GSM 1800.

The Meeting took note that Cambodia highly considers on the AWG's questionnaire for Mobile Satellite System (MSS).

5.1.4 Cambodia informed the Meeting about previous cases of interference along Cambodia-Thailand common border that T.R.C. and NBTC have coordinated as follows:
i. Interference affected services of CAT Telecom in HSPA 850;
ii. Interference affected services of DTAC in 1800MHz.

5.2 For Thailand information update, Thailand showed a video in which it presented Thailand at a glance in both Telecommunications and Broadcasting aspects. The video explains structure of NBTC, as well as roles as regulator. Main duties of NBTC are to allocate the nation's radio frequency and regulate the broadcasting and telecommunications sectors for the maximum benefit of the public.

S. Saneh

5.3 Spectrum Management in Thailand

Thailand presented a paper on 'Spectrum Management in Thailand' as appeared in Doc.JTC-4/C-8.

This paper included structure of NBTC, NTBC's role and responsibility in relation to spectrum, the usage of spectrum for mobile broadband in Thailand, and the spectrum related activities.

5.4 Frequency Registration

Thailand presented a paper on 'Frequency Registration' as appeared in Doc.JTC-4/C-12. Thailand proposed Registration guideline, Registration form and the distance for the Registration to be implemented.

The Meeting took note of Thailand's proposals and agreed to discuss this issue in WG1 and WG2.

5.5 Cambodia presented a paper on 'Information Update on Broadcasting Policy, Status and Future Development Plan in Cambodia' as appeared in Doc.JTC-4/C-9.

The paper contained broadcasting status, policy and future development plan as follows:

i. Frequency Bands assigned to ATV/DTV broadcasting stations
   - VHF Band I (47 - 68 MHz)
   - VHF Band III (174 - 230 MHz)
   - UHF Band IV (470 - 622 MHz)
   - UHF Band V (622 - 862 MHz)

ii. Radio and TV Frequencies in the Provinces Bordered with Thailand i.e. Koh Kong Province, Pursat Province, Pailin province, Battambang Province, Bantheay Meanchey Province, Oddor Meanchey province and Preah Vihea Province.

6. Report of Working Group on Mobile and Non-broadcasting Services (WG1)

The Meeting agreed to adopt the Report for the WG1 Meeting as appeared in Doc.JTC-4/C-28.

7. Report of Working Group on Broadcasting Service (WG2)

The Meeting agreed to adopt the Report for the WG2 Meeting as appeared in Doc.JTC-4/C-29.

8. Any other matters

8.1 Telecom Cambodia presented a paper on 'TC Backbone' as appeared in Doc.JTC-4/C-27.

Telecom Cambodia presented its network backbone of fiber optic and its connection with Laos, Thailand and Vietnam. He also informed the Meeting that Telecom Cambodia would like to have collaboration from Thailand to ensure that the international cross border connection is done through only the licensed operators.

The Meeting took note of this paper and requested Telecom Cambodia to provide more detail for the ease of collaboration.

8.2 Air Vice Marshal Thanapant Raicharoen Ph.D., Head of Thai Delegation, informed the Meeting that NBTC is planning to organize a training course on spectrum coordination mechanism with the

assistance of ITU next year in Thailand. He then invited T.R.C. to send participants to attend this course which is designed to mutually benefit all participating countries.

In response, the head of Cambodia delegation expressed his gratitude for this offer and saw this course as beneficial. He further added that he would seek assistance from ITU to provide more technical support to the above course.

9. Date and Venue of the Next JTC Meeting

The Meeting agreed that the next JTC Meeting is scheduled to be held in the 3rd quarter of 2015 in Thailand. The actual date and venue are to be confirmed by Thailand through correspondence.

10. Consideration and Adoption Minutes of the Agreed Minutes.

The Meeting agreed and adopted the Minutes of the 4th Joint Technical Committee on Coordination and Assignment of Frequencies along Cambodia - Thailand Common Border Meeting held in Siem Reap, Cambodia from 1st to 3rd October 2014.

H.E. Mr. Moa Chakrya

Chairman of Telecommunication Regulator of Cambodia

CAMBODIA

Air Vice Marshal Thanapant Raicharoen, Ph.D.

Deputy Secretary General
Office of the National Broadcasting and Telecommunications Commission

THAILAND

Date : 03 October 2014
Venue : Siem Reap, Cambodia

LETTER OF TRANSMITTAL

Sir,

We have the honor to transmit herewith the Report of the 4th Joint Technical Committee on Coordination and Assignment of Frequencies along Cambodia – Thailand Common Border Meeting (JTC-4) which was held in Siem Reap, Cambodia during 01 – 03 October 2014 for your consideration.

Accept, Sir, the assurances of our highest consideration.

H.E. Mr. Moa Chakrya
Chairman
Telecommunication Regulator of Cambodia

Head of Cambodian Delegation

Air Vice Marshal Thanapant Raicharoen Ph.D.
Deputy Secretary General
Office of The National Broadcasting and Telecommunications Commission

Head of Thai Delegation

The Joint-Chairmen

Joint Commission for Bilateral Cooperation (JC)

Paper reference	:	**Doc.JTC-4/C–28**
Contribution by	:	**Secretariat**
Subject	:	**Report of Working Group on Mobile and non – Broadcasting Services (WG1)**

1. Introduction

The Working Group on Mobile and non- Broadcasting Services (WG1) of the 4th JTC Meeting was co-chaired by H.E. Mr. Auk Dorany from Cambodia and Mr. Saneh Saiwong from Thailand and comprised of 27 delegates from Cambodia and 26 delegates from Thailand. The list of delegates for WG1 appears in Annex 1.

The following documents were presented and discussed during the WG1 meeting session:

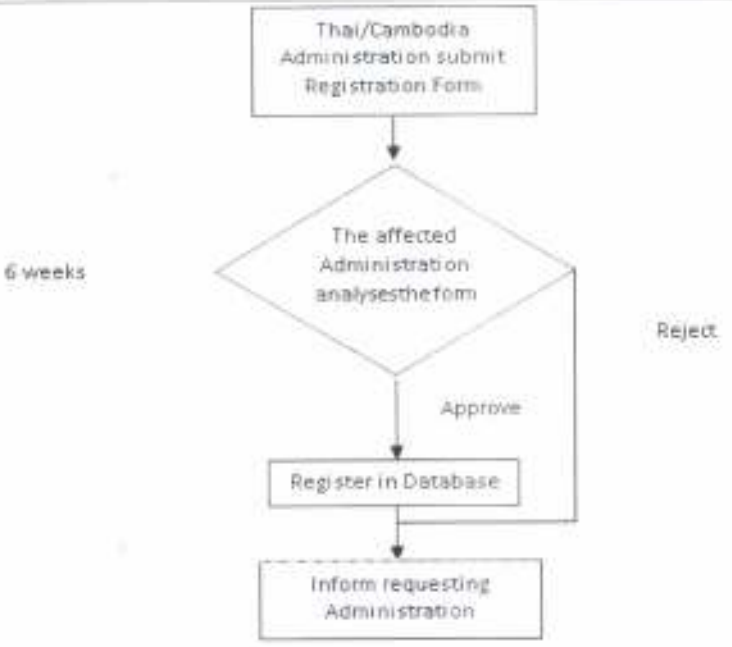
a)	Doc.JTC-4/C-10	:	Frequency Registration Data (XinWei);
b)	Doc.JTC-4/C-11	:	Frequency Registration Data (Sotelco);
c)	Doc.JTC-4/C-12	:	Frequency Registration (NBTC);
d)	Doc.JTC-4/C-13	:	Coordination Parameters (NBTC);
e)	Doc.JTC-4/C-14	:	Company Information (South East Asia Telecom (SEAT));
f)	Doc.JTC-4/C-15	:	Sotelco Frequency presentation (Sotelco);
g)	Doc.JTC-4/C-16	:	Update on Interference Cases (DTAC);
h)	Doc.JTC-4/C-17	:	Update Interference case between CAT Telecom and Sotelco (HSPA 850 MHz & E-GSM 900 MHz) (CAT Telecom)
i)	Doc.JTC-4/C-18	:	Proposal on GSM 900 (AIS);
j)	Doc.JTC-4/C-19	:	GSM 1800 MHz coordination (DTAC);
k)	Doc.JTC-4/C-20	:	Update on 3G 2100 MHz Status (AIS);
l)	Doc.JTC-4/C-21	:	Update on 2100 MHz Plan (DTAC);
m)	Doc.JTC-4/C-22	:	Progress of TOT 3G (TOT);
n)	Doc.JTC-4/C-23	:	2100 Network Plan (Real Future).

2. Frequency Registration

2.1 Thailand presented a paper on 'Frequency Registration' as appeared in Doc.JTC-4/C-12.

In the JTC-3 Meeting, Thailand proposed Frequency Registration Guideline and Registration Form to be used along Cambodia-Thailand common border and Cambodia agreed to study the proposed guideline and respond at the JTC-4 Meeting.

Thailand invited the Meeting to consider the Registration procedure as appeared in the flowchart below.



Thailand has revised the Registration form. The revised form has reduced the numbers of parameters from the previous proposal in JTC-3 to be 35 parameters. The revised Frequency Registration form and the Description for the Frequency Registration Format are attached in Annex 2. This form includes site location and antenna characteristics.

No.	Field name	No.	Field name	No.	Field name	No.	Field name
1	MTG_NO	10	S_6LONGLINK	19	A5_RADPATT	28	F9_STCODE
2	MDATE	11	S6LINK_LOC	20	S7_RADIUS	29	F10_HOUR
3	OAC	12	A1_AGL_M	21	F1_TXRX	30	T1_BW
4	CLIENT	13	A1_AMSL_M	22	F2_POLCODE	31	T3_RFOPPOW
5	S1	14	A2_GAIN_DB	23	F3_TXASFRE	32	T5_TOTALLO
6	S2	15	A3_AZIMUTH	24	F4_TXCRFRE	33	T6_RAD_PWR
7	S_SLAT	16	A8_ELEVATI	25	F5_RXASFRE	34	APPROVAL_DATE
8	S_SLONG	17	A6_MFR	26	F6_RXCRFRE	35	REMARK
9	S_6LATLINK	18	A7_MODEL	27	F8_ITUCODE		

Lastly, Thailand invited the Meeting to consider the distance within which the Registration will be implemented.

2.2 The Meeting agreed to Thailand's proposals for the Registration procedure and the Registration form.

The distance for Cellular E-GSM900, GSM 900, GSM 1800, and UMTS 2100 is agreed to be 8 km from border. If there is a need to accommodate new technologies, the initial distance shall be 8 km and is subjected to future revision.

The distance for HSPA 850 (Thailand side only) is agreed to be 15km. This may be revised according to the result from the discussion among Sotelco, DTAC and CAT Telecom.

However, the distance for non-cellular service has not been discussed and may be considered in the future.

2.3 Xinwei presented a paper on 'Frequency Registration Form' and Sotelco also presented a paper on 'Frequency Registration Form' as appeared in Doc.JTC-4/C-10 and Doc.JTC-4/C-11 respectively.

Xinwei has updated its mobile usage on GSM 1800 (1795-1805 MHz), as well as provided its site information. While Sotelco has updated its mobile usage on E-GSM 900 and GSM 1800.

The Meeting took note of Xinwei and Sotelco information and requested Xinwei and Sotelco to resubmit the information through T.R.C. as the agreement for Registration procedure has been reached.

3. Coordination Parameters

Thailand presented a paper on 'Coordination Parameters' as appeared in Doc.JTC-4/C-13 and invited the Meeting to consider the suitable coordination parameters for various categories of services.

The Meeting took note of the presentation by Thailand and it will be revisited by the parties involved to accommodate new technologies.

4. Discussion of Interference cases along the Cambodia - Thailand Border

4.1 Interference case between South East Asia Telecom (Cambodia) CDMA 800 MHz and CAT Telecom (Thailand) WCDMA 850 MHz

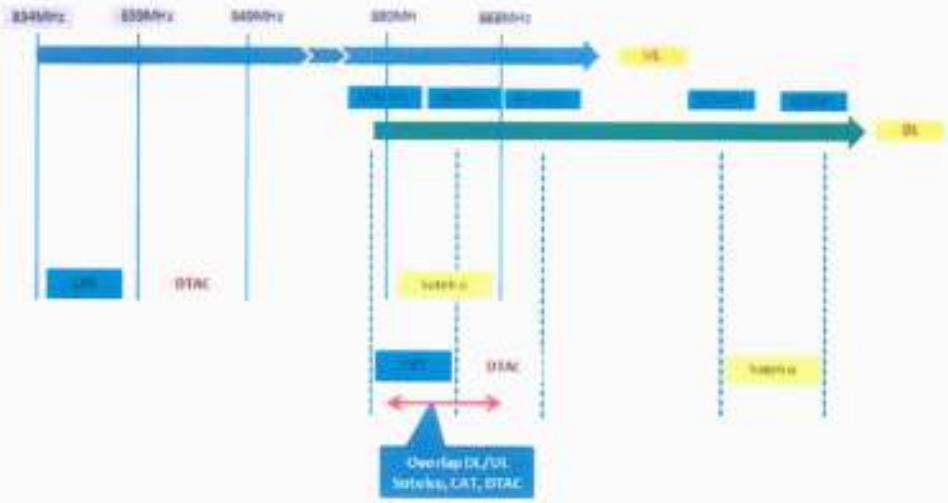
South East Asia Telecom (SEAT) presented a paper on 'Company Information' as appeared in Doc.JTC-4/C-14. SEAT provided its service information and coverage map. SEAT reported that there is no interference from Thailand to its service.

The Meeting took note of the presentation and agreed to close this agenda item. This agenda item may be revisited when interference occurs.

4.2 Interference case between CamGSM (E-GSM 900 MHz), SOTELCO-(E-GSM 900 MHz) and DTAC (WCDMA850 MHz) (reverse duplex)

Sotelco presented a paper on 'Sotelco Frequency Presentation' as appeared in Doc.JTC-4/C-15.

Sotelco frequency usage is overlapping with DTAC and CAT Telecom frequency usage. The frequency usage along the border area is shown in the chart below:



Sotelco is still facing interference on its UL frequency of E-GSM band (880-888 MHz) in PoiPet and O'smach areas.

The frequency usage for W-CDMA 850MHz is shown below:

The frequency partitioning as agreed at JTC-3 is appeared in the table below:

No.	Operator	Useable Frequency (MHz)	Non-Useable Frequency (MHz)
1	DTAC	889-894	884-889
2	SOTELCO	884-888	-
3	CamGSM	894.2-898.6	890-894

DTAC presented a paper on 'Update on Interference Cases' as appeared in Doc.JTC-4/C-16. For the case of interference between HSPA 850 and EGSM 900, DTAC has updated the progress of implementing frequency partitioning along coordination areas, Poipet-O'Smach (Cambodia) and Aranyaprathet-Chong Jom (Thailand), within 15 km from the border. DTAC has not received any interference report from Sotelco since then.

CamGSM reported at the Meeting that there is no interference from Thailand. However, Sotelco claimed that it still receives interference from WCDMA850 in the level of band 3 and band 4.

CAT Telecom presented a paper on 'Update Interference case between CAT Telecom and Sotelco (HSPA 850 MHz & E-GSM 900 MHz)' as appeared in Doc.JTC-4/C-17.

CAT Telecom updated that in order to resolve interference in Poipet-O'Smach areas and has retuned frequency for 70 sites located within 15 km along the common border.

The Meeting agreed that concerned parties, Sotelco, DTAC and CAT Telecom, have a discussion among themselves to find solutions for this interference issue. The results of this discussion appeared in the Annex 3.

The Meeting took note and agreed with the results of the discussion among Sotelco, DTAC and CAT Telecom. The Meeting also requested the concerned parties to follow results of the discussion.

4.3 Interference case between SOTELCO (E-GSM 900) and CAT Telecom (HSPA 850)

This agenda item has already been discussed in the agenda item 4.2.

4.4 Other interference cases

In addition to the cases presented by the operators, 3 other interference cases in the past 2 years were mentioned in the paper on 'Update information' as appeared in Doc.JTC-4/C-07. The mentioned cases were discussed as below:

Case 1/Case2: Interference affected services of CAT Telecom in HSPA 850
The interference has affected to the HSPA 850 services of CAT Telecom in 828.3 MHz and 834.8MHz. The interference was not continuous, so it was difficult to investigate. Since CAT Telecom has already shrunk the bandwidth to avoid the interference, this issue no longer needed any resolution for the time being.

The Meeting agreed to close these two cases. If there is any other interference case, the Meeting will revisit it again.

Case 3: Interference affected services of DTAC in 1800 MHz
DTAC updated the interference case in GSM 1800 MHz band with Latelz (now known as Smart Axiata) as appeared in Doc.JTC-4/C-16. DTAC found interference signal from Latelz in Q4 of 2013, however, the interference case has been solved after coordination among DTAC, Latelz, NBTC and T.R.C.

DTAC confirmed that the quality of service has been improved, so it is no longer an issue.

The Meeting agreed to close this case. If there is any other interference case, the Meeting will revisit this agenda item again.

5. **Cellular Service Coverage**

5.1 GSM 900 & GSM 1800

As part of Thailand's GSM 900 proposal, AIS presented a paper on 'Proposal on GSM 900' as appeared in Doc.JTC-4/C-18, in which it suggested to set the signal strength limit to -85dBm, measured at 5km from the border, for priority channels.

In addition, AIS requested the Meeting to consider unresolved issue from the JTC-3 Meeting, concerning overlapping channels (CH38-44) between AIS and CamGSM.

As part of Thailand's GSM1800 proposal, DTAC presented a paper on 'GSM 1800 MHz Coordination' as appeared in Doc.JTC-4/C-19, in which it also shares a common request to limit the signal strength to -85dBm, measured at 5km from the border, for priority channels.

From the JTC-3 meeting, CamGSM and AIS agreed to implement the frequency partition into 50-50 ratio and priority channels on GSM 900. However, both AIS and CamGSM are still using some overlapping channels ranging from channel 38 to 44 on GSM 900.

AIS and CamGSM discussed and proposed to the Meeting that they will use frequency channels as below:

Operator Name	Channel Number	Total
CamGSM	Ch 38 – 41	4 Channels
AIS	Ch 42 – 44	3 Channels

The Meeting agreed with the result of the discussion between AIS and CamGSM.

The Meeting also agreed on the signal strength, which measured at 2.5 km from border at a height of 1.5m above ground level, for GSM 900 and GSM 1800 as follows:

- Priority channels: -85 dBm
- Non-priority channels: -105 dBm

5.2 W-CDMA 2100

For information update purpose, the operators from Thailand presented a number of papers to provide the information of sites carrying frequency 2100MHz along the common border between Cambodia and Thailand:

- AIS, on behalf of AWN, presented a paper on 'Update on 3G 2100 MHz Status' which appears in Doc.JTC-4/C-20 in which it projects the locations of all its 91 W-CDMA sites along the Cambodia - Thailand common border. The Meeting took note that this number of sites will not be changed until the end of 2014.
- DTAC, on behalf of DTN, presented a paper on 'Update on 2100 MHz Plan' as appears in Doc.JTC-4/C-21 in which it updated the Meeting on its HSPA2100 rollout update with the current 9,073 of sites nationwide.
- TOT presented a paper on 'Progress of TOT 3G' which appears in Doc.JTC-4/C-22 in which it highlighted its 3G services in the 2100 MHz band (1965-1980 MHz/ 2155-2170 MHz (15+15 MHz)) by using the HSPA+ (High Speed Packet Access Plus) technology in Thailand. Further, the Meeting took note on the 5 node B sites, in 3 provinces namely Sa Kaeo, Trat, and Surin, where the distance is 5km from Cambodia-Thailand border.

TOT also reported that there is no complaint and interference report from Cambodia and it has no plan for implementing new site along Cambodia-Thailand border area this year.

- Real Future presented a paper on '2100 Network Plan' which appears in Doc.JTC-4/C-23 in which it reported to the Meeting for the deployment of the first Thailand's 4G LTE in 2100MHz (Uplink: 1935 MHz – 1950 MHz - Downlink: 2125 MHz – 2140 MHz).

The Meeting took note of the presentations and there is no interference reported by both countries' operators. Thus, this agenda item is closed. If there is any interference occurs, this item will be revisited.

5.3 HSPA 850 MHz

Since there is no paper submitted for this agenda item, the Meeting agreed to close this agenda item, and revisit it if necessary.

6. Focal Persons

Cambodia and Thailand agreed to provide the responsible focal persons for the issues on telecommunication services including interference cases. The focal person is shown below:

Cambodia

Telecommunication Regulator of Cambodia	
Name	Mr. Lim Vuthy
Email	limvuthy@trc.gov.kh , talvuthy@yahoo.com
Phone Number	(855) 12 967 795

Thailand

Office of the National Broadcasting and Telecommunications Commission (NBTC)	
Name	Mr. Amporn Deelerdcharoen
Email	amporn.d@nbtc.go.th
Phone Number	(66) 2 2710151-60 Ext. 903

7. Endorsement of Minutes

The Meeting agreed and endorsed the Minutes of the Working Group on Mobile and non – Broadcasting Services (WG1).

H.E. Mr. Auk Dorany
CAMBODIA

Mr. Saneh Saiwong
THAILAND

Date : 03 October 2014
Venue : Siem Reap, Cambodia

Annex 1

List of Delegates in Working Group on Mobile and non- Broadcasting Services (WG1)

Cambodia

No	Name	Organization	Email
1.	H.E. Mr. Auk Dorany	T.R.C.	drn168@gmail.com
2.	H.E. Mr. Song Leng	T.R.C.	s.leng1969@gmail.com
3.	Mr. Sea Nareth	T.R.C.	seanareth@yahoo.com
4.	Mr. Sieng Sithy	T.R.C.	sithy@trc.gov.kh, sithysieng@yahoo.com
5.	Mr. Lim Vuthy	T.R.C.	talvuthy@yahoo.com
6.	Mr. Van Vantha	T.R.C.	vanvantha@trc.gov.kh , vantha8888@gmail.com
7.	Mr. Ray Bunthoeun	T.R.C.	raybunthoeun@trc.gov.kh , ray.bunthoeun@gmail.com
8.	Mr. Tep Bunboren	T.R.C.	boren@trc.gov.kh
9.	Mr. Pum Sothean	T.R.C.	pumsuthean@yahoo.com
10.	Mr. Ly Narith	MPTC	narith-ly@mptc.gov.kh
11.	Maj. Gen. Hoeung Kuchchandara	Ministry of National Defense	kuchchandara@mod.gov.kh
12.	Lt. Col. Mak Sinoeun	Ministry of National Defense	sinoeun.mak@mod.gov.kh
13.	Mr. Horm Pheakdey	Ministry of Interior	hormpheakdey@gmail.com
14.	Mr. Ouk Sambath	Ministry of Interior	ouk.sambath012@gmail.com
15.	Mr. Veth Samnang	Ministry of Interior	samnang_veth@yahoo.com
16.	Mr. Peter Balba	Smart Axiata	peter.balba@smart.com.kh
17.	Mr. Long Rithy	CamGSM	rithy@camgsm.com.kh
18.	Mr. Meng Tann	CADCOMMS	meng.tann@qbmore.com

No	Name	Organization	Email
19.	Mr. Sok Sitha	Sotelco	sisok@beeline.com.kh
20.	Mr. Sergei Zubkov	Sotelco	Sergey.zubkov@gmail.com
21.	Mr. Eric Castaneda	Sotelco	ecastaneda@beeline.com.kh
22.	Mr. Fan Jian Kang	SEAT	28794721@qq.com
23.	Mr. Him Seyha	SEAT	himseyha@excell.com.kh
24.	Mr. Leng Pisan	XinWei (Cambodia)	lengpisan@kh.cootel.com
25.	Mr. Nay Sinat	XinWei (Cambodia)	naysinat@kh.cootel.com
26.	Mr. Kim Pisey	Viettel (Cambodia)	piseyk@metfone.com.kh
27.	Ms. Math Rohany	Viettel (Cambodia)	Rohanym@metfone.com.kh

Thailand

No	Name	Organization	Email
1.	Mr. Saneh Saiwong	NBTC	saneh.s@nbtc.go.th
2.	Mr. Saksri Wongwai	NBTC	saksri.w@nbtc.go.th
3.	Mr. Chetsada Sukniyom	NBTC	chetsada.s@nbtc.go.th
4.	Mr. Sanya Krajangsri	NBTC	sanya.k@nbtc.go.th
5.	Mr. Songyos Rungsa	NBTC	Songyos@nbtc.go.th
6.	Mrs. Patcharaporn Puengtham	NBTC	patcharaporn.p@nbtc.go.th
7.	Mr. Amporn Deelerdcharoen	NBTC	amporn.d@nbtc.go.th
8.	Ms. Bussaba Amnueypornsakul	NBTC	a.bussaba@gmail.com
9.	Miss. Natcha Techachainiran	NBTC	nttnatcha@gmail.com
10.	Mr. Chayawee Angsusingha	NBTC	chayawee.a@nbtc.go.th
11.	Mr. Amnard Riyasu	TOT	riyasu@yahoo.com, amnard@tot.co.th
12.	Mr. Worakin Sutthiphan	TOT	worakrin@tot.co.th
13.	Mr. Pairoj Pansa	CAT Telecom	pairoj.p@cattelecom.com
14.	Mr. Teerawat Ruangtowong	CAT Telecom	teerawat.r@cattelecom.com
15.	Mr. Dheerasak Anantakul	AIS	dheerasa@ais.co.th
16.	Mr. Tanon Ovat	AIS	tanonova@ais.co.th
17.	Mr. Tawee Wangprom	AIS	taweew@ais.co.th

No	Name	Organization	Email
18.	Mr. Atip Keeratipish	DTAC	atip@dtac.co.th
19.	Mr. Sapon Seriburi	DTAC	sapon.seriburi@dtac.co.th
20.	Mrs. Sukrawan Rojanasaksotorn	Real Future	sukrawan_roj@truecorp.co.th
21.	Miss. Weena Sangsiripinyo	Real Future	weena_san@truecorp.co.th
22.	Mr. Chainan Chaisompong	Aeronautical Radio of Thailand	chainan.ch@aerothai.co.th
23.	Mr. Sinchai Nilotbol	Aeronautical Radio of Thailand	sin4701@hotmail.com
24.	Col. Suradech Kaorogcroo	RTAF	suradech@rocketmail.com
25.	Col. Chaiyarith Wannoo	RTAF	chaiyarith@yahoo.com
26.	Lt. JG. Paitoon Poonsawat	RTAF	Ja_toon43@hotmail.com

Annex 2
Revised Frequency Registration Form

	Field name	Data Type	Description
1	MTG_NO	Text	JTC-XX
2	MDATE	Text	DDMMYYYY
3	OAC	Text	OPERATING ADMINSTRATION: NBTC & DAPT ,ETC
4	CLIENT	Text	LICENSEE
5	S1	Text	STATION: 10 - LAND/FIXED STATION (NON-MICROWAVE) 11 - EARTH MICROWAVE STATION 12 - MICROWAVE FIXED STATION 20 - LAND MOBILE STATION (NON-MICROWAVE)
6	S2	Text	NAME OF STATION: A) NAME OF A PLACE
7	S3	Text	OPERATING LOCATION: STATE\PROVINCE\DISTRICT\TOWN NAMES
8	S4	Text	01 – PAGING 02 – LEASED CHANNEL 03 – TRUNKED RADIO SYSTEM 04 – PERSONAL COMMUNICATION NETWORK 05 – RURAL CALL SERVICE 06 – CELLULAR MOBILE RADIO SYSTEM 07 – TELEPOINT (E.G. CT2) 08 – CARPHONE 09 – COUNTRY SET 10 – WIRELESS LAN 11 – MULTI-CHANNEL ANALOGUE-MAIN 12 – MULTI-CHANNEL ANALOGUE-SPUR 13 – MULTI-CHANNEL DIGITAL-MAIN 14 – MULTI-CHANNEL DIGITAL-SPUR 15 – MULTI-ACCESS RADIO SYSTEM (MARS) 16 – SERVICE CHANNEL 17 – TELEMETRY 18 – PRIVATE BUSINESS 19 – BROADCASTING (INCLUDING AUXILIARY TO BROADCASTING 20 – PRESS 21 – LOCALISED NETWORK IS A RADIOCOMMUNICATION NETWORK IN WHICH THE HANDLED EQUIPMENTS ARE INTENDED TO BE OPERATED IN A SMALL SPECIFIC GEOGRAPHICAL AREA E.G. FACTORIES, WAREHOUSES, CAMPUS, HOSPITALS, SHOPS AND OFFICE COMPLEXES FOR SECURITY AND/OR OPERATIONAL

	Field name	Data Type	Description
			~~COMMUNICATION~~ ~~22 – OFFICIAL NETWORK IS RADIOCOMMUNICATION NETWORK OPERATED BY STATUTORY AND GOVERNMENT BODIES~~ ~~23 – RADAR STATION~~ ~~24 – RADIO MOBILE DATA~~ ~~25 – EQUIPMENT OPERATING IN THE ISM BANDS~~ ~~26 – LPD USE FOR REMOTE CONTROL (ALARM &ETC)~~ ~~27 – SATELLITE SYSTEMS (INCLUDING EARTH STATION AND VSAT)~~ ~~28 – RECEIVING SYSTEMS OPERATING IN THE BANDS APPROVED BY AGREEMENTS~~ ~~29 – AMATEUR STATION (TX AND RX)~~ ~~30 – RADIONAVIGATION, DF & SAT-GPS~~
9	S_5LAT	Text	TX STN: 010000N
10	S_5LONG	Text	TX STN: 1030000E
11	S_6LATLINK	Text	FOR FIXED SERVICES, RX STN: POINT TO POINT-010001N
12	S_6LONGLIN	Text	FOR FIXED SERVICES, RX STN: POINT TO POINT-1030001E
13	S6LINK_LOC	Text	LINK LOCATION: NAME OF THE RECEIVING POINT OR NAMES OF THE 2 POINTS
~~14~~	~~S8_AMSL_M~~	~~Number~~	~~ALTITUDE OF THE STATION ABOVE MEAN SEA LEVEL (1) METER~~
15	A1_AGL_M	Number	ANTENNA HEIGHT ABOVE GROUND ~~(2)~~ METER
16	A1_AMSL_M	Number	ANTENNA HEIGHT ABOVE MEAN SEA LEVE: ~~(1) + (2)~~ METER
17	A2_GAIN_DB	Number	ANTENNA GAIN-dB
18	A3_AZIMUTH	Number	AN ANGLE MEASURED FROM TRUE NORTH TO THE DIRECTION OF THE MAXIMUM RADIATION OF THE ANTENNA-DEGREE
~~19~~	~~A4_3DB~~	~~Number~~	~~3 dB BEAMWIDTH: IN THE HORIZONTAL PLANE, THE ANGLE BETWEEN 2 DIRECTIONS IN WHICH THE MAXIMUM RADIATION INTENSITY IS~~
20	A8_ELEVATI	Number	TILT ANGLE: IN THE VERTICAL PLANE, THE ANGLE BETWEEN THE DIRECTION OF THE MAXIMUM RADIATION POINTS TO THE GROUND AND THE HORIZON-DEGREE
21	A6_MFR	Text	ANTENNA MANUFACTURER'S NAME
22	A7_MODEL	Text	ANTENNA MODEL
23	A5_RADPATT	Text	TYPE OF RADIATION-OMNI OR SOMTHING ELSE. ADMINISTRATION BE PERFER THEIR RADIATION CODE IN THAT CASE ADVISES THE SECRETARIAT
24	S7_RADIUS	Number	NOMINAL RADIUS (KM) OF A CIRCULAR

	Field name	Data Type	Description
			TRANSMITTING COVERAGE APPLICABLE ONLY TO MOBILE AND BROADCAST SERVICES-km
25	F1_TXRX	Text	FOR INDICATING THE FREQUENCY IS TRANSMITTING OR RECEIVING OR TRANSMITS/RECEIVES 1 – TRANSMITS ONLY 2 – RECEIVES ONLY 3 – TRANSMITS AND RECEIVES
26	F2_POLCODE	Text	POLARIZATION OF THE RADIO WAVE CL – CIRCULAR LEFT POLARIZED CR – CIRCULAR RIGHT POLARIZED DU – DUAL POLARIZED E – ELIPTICAL POLARIZED H – HORIZONTAL POLARIZED L – LINEAR POLARIZED MX – MIXED POLARIZATION O – OTHER (UNSPECIFIED) POLARIZATION R – ROTATING POLARIZED SL – SLANT LEFT POLARIZED SR – SLANT RIGHT POLARIZED V – VERTICAL POLARIZED
27	F3_TXASFRE	Number	ASSIGNED FREQUENCY OF THE TRANSMITTER (MHz)
28	F4_TXCRFRE	Number	THE CARRIER FREQUENCY OF THE TRANSMITTER (MHz)
29	F5_RXASFRE	Number	ASSIGNED FREQUENCY OF THE RECEIVER (MHz)
30	F6_RXCRFRE	Number	THE CARRIER FREQUENCY OF RECEIVER (MHz)
~~31~~	~~F7_SVCCODE~~	~~Text~~	~~ITU-NATURE OF SERVICE CODES~~ ~~CO – EXCLUSIVE OFFICIAL CORRESPONDENCE~~ ~~CP – PUBLIC CORRESPONDENCE~~ ~~CR – LIMITED PUBLIC CORRESPONDENCE~~ ~~CV – EXCLUSIVE CORRESPONDENCE OF PRIVATE AGENCY~~ ~~FS – LAND STATION (ESTABLISHED SOLELY FOR SAFETY)~~ ~~MX – FIXED STATION USED FOR TRANSMISSION OF METEOROLOGICAL INFORMATION~~ ~~OT – STATION OPEN EXCLUSIVELY TO OPERATIONAL TRAFFICE SERVICE~~ ~~PX – FIXED STATION USED FOR PRESS TRANSMISSION~~ ~~RC – NON-DIRECTIONAL RADIOBEACON~~ ~~RD – DIRECTIONAL RADIOBEACON~~ ~~RG – RADIO DIRECTION FINDING STATION~~ ~~RT – REVOLVING RADIOBEACON~~

	Field name	Data Type	Description
32	F8_ITUCODE	Text	ITU-SERVICE CODES AFX – AERONAUTICAL FIXED AMR – AERONAUTICAL MOBILE-SATELLITE (R) AMS – AERONAUTICAL MOBILE-SATELLITE AMX – AERONAUTICAL MOBILE ARX – AERONAUTICAL RADIONAVIGATION ARS – AERONAUTICAL RADIONAVIGATION-SATELLITE ATX – AMATEUR ATS – AMATEUR-SATELLITE BCX – BROADCASTING BCS – BROADCASTING-SATELLITE EES – EARTH EXPLORATION-SATELLITE FXX – FIXED FXS – FIXED-SATELLITE ISM – INDUSTRIAL, SCIENTIFIC AND MEDICAL APPLICATION LMX – LAND MOBILE LMS – LAND MOBILE-SATELLITE MAX – METEOROLOGICAL AIDS MEX – METEOROLOGICAL-SATELLITE MMX – MARITIME MOBILE MMS – MARITIME MOBILE-SATELLITE MOX – MOBILE MOS – MOBILE-SATELLITE MRX – MARITIME RADIONABIGATION MRS – MARITIME RADIONAVIGATION-SATELLITE POX – PORT OPERATIONS RAX – RADIO ASTRONOMY RCX – RADIOCOMMUNICATION RDX – RADIODETERMINATION RDS – RADIODETERMINATION-SATELLITE RLX – RADIOLOCATION RNX – RADIONAVIGATION RNS – RADIONAVIGATION-SATELLTE SFT – STANDARD FREQUENCY AND TIME SIGNAL SFS – STANDARD FREQUENCY AND TIME SIGNAL-SATELLTIE SMX – SHIP MOVEMENT SOX – SPACE OPERATIONS SRX – SPACE RESEARCH SSX – SAFETY SERVICES SVX – SPECIAL SERVICES

	Field name	Data Type	Description
33	F9_STCODE	Text	ITU-CLASS OF STATION CODES AL – AERONAUTICAL RADIONAVIGATION LAND STATION AM – AERONAUTICAL RADIONAVIGATION MOBILE STATION AT – AMATEUR STATION AX – AERONAUTICAL FIXED STATION BC – BROADCASTING STATION (SOUND) BT – BROADCASTING STATION (TELEVISION) EA – SPACE STATION IN AMATEUR-SATELLITE SERVICE EB – SPACE STATION IN BROADCASTING-SATELLITE SERVICE (SOUND) EC – SPACE STATION IN FIXED-SATELLITE SERVICE ED – SPACE TELECOMMAND SPACE STATION EG – SPACE STATION IN THE MARITIME MOBILE-SATELLTE SERVICE EH – SPACE RESEARCH SPACE STATION EI – SPACE STATION IN THE MOBILE-SATELLITE SERVICE EJ – SPACE STATION IN THE AERONAUTICAL MOBILE-SATELLITE SERVICE EK – SPACE TRACKING SPACE STATION EM – METEOROLOGICAL-SATELLITE SPACE STATION EN – RADIONAVIGATION-SATELLITE SPACE STATION EO – SPACE-STATION (AERONAUTICAL RADIONAVIGATION-SATELLITE) SERVICE EQ – SPACE STATION (MARITIME RADIONAVIGATION-SATELLITE) SERVICE ER – SPACE TELEMETERING SPACE STATION ES – STATION IN THE INTER-SATELLITE SERVICE ET – SPACE-STATION IN THE SPACE OPERATION SERVICE EU – SPACE STATION IN THE LAND MOBILE-SATELLITE SERVICE EV – SPACE STATION IN THE BROADCASTING SATELLITE SERVICE (TV) EW – SPACE STATION (EARTH EXPLORATION-SATELLITE) SERVICE EX – EXPERIMENTAL STATION EY – SPACE STATION I THE TIME SIGNAL-SATELLITE SERVICE FA – AERONAUTICAL STATION FB – BASE STATION (COMMUNICATING WITH MOBILE) FC – COAST STATION FD – AERONAUTICAL STATION [AERONAUTICAL

	Field name	Data Type	Description
			MOBILE (R)] SERVICE FG – AERONAUTICAL STATION [AERONAUTICAL MOBILE (OR)] SERVICE FL – LAND STATION FP – PORT STATION FR –RECEIVING STATION ONLY FX – FIXED STATION LR – RADIOLOCATION LAND STATION MA –AIRCRAFT STATION ML – LAND MOBILE SATION MO – MOBILE STATION MR – RADIOLOCATION MOBILE STATION MS – SHIP STATION NL - MARITIME RADIONAVIGATION LAND STATION NR – RADIONAVIGATION MOBILE STATION OD – OCEANOGRAPHIC DATA STATION OE – OCEANOGRAPHIC DATA INTERROGATING STATION PL – COMBINATION OF 2 OR MORE CLASSES OF SATIONS RA – RADIO ASTRONOMY STATION RM – MARITIME RADIONAVIGATION MOBILE STATION RN – RADIONAVIGATION LAND STATION SM – METEOROLOGICAL AIDS STATION SS – STANDARD FREQUENCY AND TIME SIGNAL STATION TA – SPACE OPERATION EARHT STATION IN AMATEUR-SATELLITE SERVICE TB – AERONAUTICAL EATRH STATION TC – EARH STATION IN THE FIXED-SATELLITE SERVICE TD – SPACE TELECOMMAND EARTH STATION TE – SATELLITE EPRIB IN THE MOBILE-SATELLITE SERVICE TF – FIXED EARTH STATION IN RADIODETERMINATION-SATELLTIE SERVICE TG – SHIP EARH STATION TH - EARTH STATION IN SPACE RESEARCH SERVICE TI – COAST EARTH STATION TJ – AIRCRAFT EARTH STATION TK – SPACE TRACKING EARTH STATION TL – MOBILE EARTH STATION IN RADIODETERMINATION-SATELLITE SERVIE TM – EARTH STATION IN METEOROLOGICAL-SATELLITE SERVICE TN - EARTH STATION IN RADIONAVIGATION-

	Field name	Data Type	Description
			SATELLITE SERVICE TO – MOBILE EARH STATION (AERONAUTICAL RADIONAVIGATION-SATELLITE) SERVICE TP – RECEIVING EARTH STATION TQ – MOBILE EARTH STATION (MARITIME RADIONAVIGATION-SATELLITE) SERVIE TR – SPACE TELEMETERING EARTH STATION TS – TELEVISION (SOUND CHANNEL) TT – EARTH STATION IN SPACE OPERATION SERVICE TU – LAND MOBILE EARTH STATION TV – TELEVISION (VIDEO CHANNEL) TW – EARTH STATION (EARTH EXPLORATION-SATELLITE) SERVICE TX – FIXED EARTH STATION (MARITIME RADIONAVIGATION-SATELLITE) SERVICE TY – BASE EARTH STATION TZ – FIXED EARTH STATION (AERONAUTICAL RADIONAVIGATION-SATELLITE) SERVICE UA – MOBILE EARTH STATION UD – SPACE TELECOMMAND MOBILE EARTH STATION UH – MOBILE EARTH STATION IN THE SPACE RESEARCH SERVICE UK – SPACE TRACKING MOBILE EARTH STATION UM – MOBILE EARTH STATION (RADIONAVIGATION-SATELLITE) SERVICE UN – MOBILE EARTH STATION (METEOROLOGICAL-SATELLITE) SERVICE UR – SPACE TELEMETERING MOBILE EARTH STATION UT – MOBILE EARTH STATION (SPACE OPERATION) UW – MOBILE EARTH STATION (EARTH EXPLORATION-SATELLITE) SERVICE VA – LAND EARTH STATION YY – REPEATER STATION
34	F10_HOUR	Text	ITU-HOURS OF OPERATION CODES H – SCHEDULED H24 – 24 HOURS OPERATION HJ – DAY USE HN – NIGHT USE HT – TRANSIT PERIOD OPERATION HX – INTERMITTENT USE DURING 24 HOURS OPERATION
35	T1_BW	Number	BANDWIDTH-kHz: THE NECESSARY BANDWIDTH IS IN ACCORDANCE WITH RR APP 1 - SECTION I
~~36~~	~~T2_EMCLASS~~	~~Text~~	~~EMISSION SHALL BE CLASSIFIED AND SYMBOLISED IN ACCORDANCE WITH RR APP 1 - SECTION II~~

	Field name	Data Type	Description
37	T3_RFOPPOW	Number	THE OUTPUT POWER OF THE TRANSMITTER-WATTS
38	T5_TOTALLO	Number	TOTAL SYSTEM LOSS (dB): THE TOTAL ATTENUATION BETWEEN THE TRANSMITTER (OUTPUT) OR RECEIVER (INPUT) AND THE INPUT OF THE ANTENNA. THESE LOSSES ARE DUE TO INSERTION LOSS CAUSES BY CONNECTING PASSIVE DEVICES LIKE FEEDER, COMBINER AND FILTER
39	T6_RAD_PWR	Number	ERP OR EIRP IN dBW
40	T8_MODTYPE	Text	A OR D TO DENOTES ANALOGUE OR DIGITAL EMISSION RESPECTIVELY
41	R3_MODTYPE	Text	A OR D TO DENOTES ANALOGUE OR DIGITAL EMISSION RESPECTIVELY
42	T9_MODSCHE	Text	MODULATION SCHEME - DENOTING A METHOD THAT IS USED TO THE INFORMATION MODULATED THE CARRIER
43	R4_MODSCHE	Text	MODULATION SCHEME - DENOTING A METHOD THAT IS USED TO THE INFORMATION MODULATED THE CARRIER
44	T10_MODFAC	Number	MODULATION FACTOR WAS ONLY FOR DIGITAL MODULATION: 8PSK, 8 IS THAT FACTOR.
45	R5_MODFACT	Number	MODULATION FACTOR WAS ONLY FOR DIGITAL MODULATION: 8PSK, 8 IS THAT FACTOR.
46	T11_VOICHA	Number	VOICES CHANNELS THAT ARE SEND
47	R6_VOICHAN	Number	VOICES CHANNELS THAT CAN BE RECEIVED
48	T12_BITRAT	Number	BIT RATE (MB/S)
49	R7_BITRATE	Number	BIT RATE (MB/S)
50	R1_PMIN	Number	MINIMUM FIELD STRENGTH FOR THE SERVICE
51	A5_TXES_PA	Text	TRANSMITTING EARTH STATION ANTENNA PATTERN CODE WITH REFERENCE TO RR APP 8 ANNEX III
52	A5_RXES_PA	Text	RECEIVING EARTH STATION ANTENNA PATTERN CODE WITH REFERENCE TO RR APP 8 ANNEX III
53	A9_FRMAZIM	Number	THE STARTING OPERATING RANGE OF THE EARTH STATION AZIMUTH
54	A10_TOAZIM	Number	THE ENDING OPERATING RANGE OF THE EARTH STATION AZIMUTH
55	T7_PWRDENS	Number	POWER FLUX DENSITY(dBW/Hz) SUPPLIED TO AN EARTH STATION ANTENNA
56	R2_NSETEMP	Number	LOWEST NOISE TEMPERATURE OF THE FRONT END OF A RECEIVING EARTH STATION (DEGREE KELVIN)
57	REMARKS	Text	OTHER INFORMATION
58	APPROVAL_DATE	Date/Time	THE RECORD NUMBER OF A FREQUENCY IN THE FACSMAB MASTER REGISTER
57	REMARKS	Text	OTHER INFORMATION

Description for the Frequency Registration Format

DATA ITEM	DATA NAME	FIELD NAME	DATA TYPE	CODE	DESCRIPTION
1	JTC Meeting Number	MTG_NO	Char(6)	-	The Number of JTC Meeting that approves frequency registration records or Online submission e.g. JTC-4, Online
2	Submission Date	MDATE	Char(8)	-	Date of frequency submission e.g. DD/MM/YYYY
3	Operating Administration	OAC	Char(3)	NBTC TRC	National Broadcasting and Telecommunications Commission Telecommunication Regulator of Cambodia
4	Client Name	CLIENT	Char(40)	-	Full name of operators
5	Station Type	S1	Char(2)	10 11 12 20	Land/Fixed Station (Non-Microwave) Microwave Earth Station Microwave Fixed Station Land Mobile Station (Non-Microwave)
6	Station Name	S2	Char(40)	-	The name of the locality of the Station
7	Station Coordinates Latitude	S_5 LAT	Char(7)	-	a) Latitude and Longitude of the station b) Mobiles-to-mobiles communication: Latitude and Longitude of the centre of coverage is to be given c) Mobiles-to-base stations communication: Latitude and Longitude of the base station is to be given Lat(N/S) Long(E/W) deg (00-90) deg (000-180) min (00-59) min (00-59) sec (00-59) sec (00-59) e.g. 065439N, 1004523E
8	Station Coordinates Longitude	S_5 LONG	Char(8)	-	
9	Link Coordinates Latitude	S_6 LATLINK	Char(7)	-	Microwave Link: Latitude and Longitude of the target of the main beam link (the receiving station's coordinates or of a geographic point) Lat(N/S) Long(E/W) deg (00-90) deg (000-180) min (00-59) min (00-59) sec (00-59) sec (00-59) e.g. 065439N, 1004523E
10	Link Coordinates Longitude	S_6 LONG LINK	Char(8)	-	
11	Link Location	S6LINK_LOC	Char(40)		Name of the geographic location where the radio link terminates
12	Height Above Ground (m)	A1_AGL_M	Number (6,2)	-	Height of the antenna above ground level at the location e.g. 0.00
13	Antenna Height AMSL (m)	A1_AMSL_M	Number (6,2)		Height of the antenna above mean sealevel e.g. 0.00
14	Gain (dB)	A2_GAIN_DB	Number (4,2)	-	Maximum radiation to that of a reference antenna for equal power (Ratio of radiation)

					e.g. 0.00
15	Azimuth (deg)	A3_AZIMUTH	Number (3,2)	-	a) The direction to which the antenna points, measured at an angle clockwise from true North in degrees b) Non-directional radiation antenna pattern, 0.00 is to be indicated e.g. 0.00
16	Elevation Angle (deg)	A8_ELEVATI	Number (3,2)	-	Microwave Earth Stations and Microwave Fixed Stations: from the horizontal plane, the angle of the antenna which provide maximum radiation to the target (endpoint) e.g. 0.00
17	Manufacturer	A6_MFR	Char(10)	-	Name of the manufacturer of the antenna
18	Model Code	A7_MODEL	Char(25)	-	Model number of the antenna provided by the manufacturer
19	Radiation Pattern	A5_RADPATT	Char(2)	D ND	Directional radiation Non-Directional radiation
20	Radius (km)	S7_RADIUS	Number (4,2)	-	Nominal radius (km) of the circular transmitting area e.g. 0.00
21	Tx/Rx Indicator	F1_TXRX	Char(1)	1 2 3	Transmits only Receives only Transmits and Receives
22	Polarization	F2_POLCODE	Char(2)	C CL CR D E H HV L M O R SL SR V	Circular Circular Left Polarized Circular Right Polarized Dual Polarized Elliptical Polarized Horizontal Polarized Horizontal/ Vertical Linear Polarized Mixed Other (unspecified polarization) Rotating Slant Left Polarized Slant Right Polarized Vertical Polarized
23	Tx Assigned Frequency (MHz)	F3_TXASFRE	Number (6,4)	-	Frequency assigned to the transmitting station e.g. 0.0000
24	Tx Carrier Frequency (MHz)	F4_TXCRFRE	Number (6,4)	-	a) Frequency on which the signal is modulated to facilitate transmission b) To be provided only if it is different from the assigned frequency. e.g. 0.0000
25	Rx Assigned Frequency (MHz)	F5_RXASFRE	Number (6,4)	-	Frequency assigned to the receiving station e.g. 0.0000
26	Rx Carrier Frequency (MHz)	F6_RXCRFRE	Number (6,4)	-	Frequency on which the signal is modulated to facilitated reception of the transmission e.g. 0.0000

27	ITU Service Code	FB_ITUCODE	Char(3)	AFX	Aeronautical Fixed
				AMR	Aeronautical Mobile-Satellite(R)
				AMS	Aeronautical Mobile-Satellite
				AMX	Aeronautical Mobile
				ARS	Aeronautical Radionavigation-Satellite
				ARX	Aeronautical Radionavigation
				ATX	Amateur
				ATS	Amateur-Satellite
				BCS	Broadcasting-Satellite
				BCX	Broadcasting
				EES	Earth Exploration-Satellite
				FXS	Fixed-Satellite
				FXX	Fixed
				ISM	Industrial, Scientific and Medical Application
				ITS	Intersatellite Service
				LMS	Land Mobile-Satellite
				LMX	Land Mobile
				MAX	MeteorologicalAids
				MES	Meteorological-Satellite
				MMX	Maritime Mobile
				MMS	Maritime Mobile-Satellite
				MOS	Mobile-Satellite
				MOX	Mobile
				MRS	Maritime Radionavigation-Satellite
				MRX	Maritime Radionavigation
				POX	Port Operations
				RAX	Radio Astronomy
				RCX	Radiocommunication
				RDS	Radiodetermination-Satellite
				RDX	Radiodetermination
				RLX	Radiolocation
				RNS	Radionavigation-Satellite
				RNX	Radionavigation
				SFS	Standard Frequency and Time Signal-Satellite
				SFT	Standard Frequency and Time Signal
				SMX	Ship Movement
				SOX	Space Operations
				SRX	Space Research
				SSX	Safety Services
				SVX	Special Services
28	Class of Station Code	F9_STCODE	Char(2)	AL	Aeronautical radionavigation land station (transmitting station in the service)
				AM	Aeronautical radionavigation mobile station(receiving station in the service)
				AT	Amateur station
				AX	Aeronautical fixed
				BC	Broadcasting station, sound
				BT	Broadcasting station, television
				EA	Space station in the amateur-satellite service
				EB	Space station in the broadcasting-satellite service (sound broadcasting)
				EC	Space station in the fixed-satellite service
				ED	Space telecommand space station
				EE	Space station in the standard frequency-satellite service
				EF	Space station in the radiodetermination-satellite service
				EG	Space station in the maritime mobile-satellite service
				EH	Space research space station
				EI	Space station in the mobile-satellite service
				EJ	Space station in the aeronautical mobile-satellite service
				EK	Space tracking space station
				EM	Space station in the meteorological-satellite service
				EN	Space station in the radionavigation-satellite service
				EO	Space station in the aeronautical radionavigation-

					satellite service
				EQ	Space station in the maritime radionavigation-satellite service
				ER	Space telemetering space station
				ES	Station in the inter-satellite service
				ET	Space station in the space operation service
				EU	Space station in the land mobile-satellite service
				EV	Space station in the broadcasting-satellite service (television)
				EW	Space station in the earth exploration-satellite service
				EX	Experimental Station
				EY	Space station in the time signal-satellite service
				FA	Aeronautical station
				FB	Base station
				FC	Coast station
				FD	Aeronautical station in the aeronautical mobile (R) service
				FG	Aeronautical station in the aeronautical mobile (OR) service
				FL	Land station
				FP	Port station
				FR	Receive only station
				FX	Fixed station
				LR	Radiolocation land station
				MA	Aircraft station
				ML	Land mobile station
				MO	Mobile station
				MR	Radiolocation mobile station
				MS	Ship station
				NL	Maritime radionavigation land station
				NR	Radionavigation mobile station
				OD	Oceanographic data station (RX)
				OE	Oceanographic data interrogation station (TX)
				PL	Combination of two or more classes of station (limited to collective entries made under the terms of RR2184)
				RA	Radio astronomy station
				RM	Maritime radionavigation mobile station
				RN	Radionavigation land station
				SA	Meteorological aids mobile station (Rx)
				SM	Meteorological aids station (Tx)
				SS	Standard frequency and time signal station
				TA	Amateur Earth Station (Space operation earth station in the amateur-satellite service)
				TB	Aeronautical earth station
				TC	Earth station in the fixed-satellite service
				TD	Space telecommand earth station
				TE	Satellite EPIRB in the mobile-satellite service
				TF	Fixed earth station in the radiodetermination-satellite service
				TG	Ship earth station
				TH	Earth station in the space research service
				TI	Coast earth station
				TJ	Aircraft earth station
				TK	Space tracking earth station
				TL	Mobile earth station in the radiodetermination-satellite service
				TM	Earth station in the meteorological-satellite service
				TN	Fixed earth station in the radionavigation-satellite service
				TO	Mobile earth station in the aeronautical radionavigation-satellite service
				TP	Receiving earth station
				TQ	Mobile earth station in the maritime radionavigation-satellite service
				TR	Space telemetering earth station
				TS	Television, sound channel (audio)
				TT	Earth station in the space operation service

				TU TV TW TX TY TZ UA UB UD UH UK UM UN UR UT UV UW VA YY	Earth station in the land mobile service Television, vision channel (visual) Earth station in the earth exploration-satellite service Fixed earth station in the maritime radionavigation-satellite service Base earth station Fixed earth station in the aeronautical radionavigation-satellite service Mobile earth station Earth station in the broadcasting-satellite service (sound broadcasting) Space telecommand mobile earth station Mobile earth station in the space research service Space tracking mobile earth station Mobile earth station in the meteorological-satellite service Mobile earth station in the radionavigation-satellite service Space telemetering mobile earth station Mobile earth station in the space operation service Earth station in the broadcasting-satellite service (television) Mobile earth station in the earth exploration-satellite service Land earth station Repeater
29	Usage Period	F10_HOUR	Char(3)	H HB H16 H24 HJ HN HT HX	Scheduled 8 hours service provided by a ship station of the third category 16 hours service provided by a ship station of the second category 24 hours operation Day use Night use Transit period operation Intermittent use during 24 hours operation
30	Bandwidth (kHz)	T1_BW	Number (6,2)	-	Size of bandwidth e.g. 0.00
31	TX Output Power (Watt)	T3_RFOPPOW	Number (6,2)	-	Radiated power of the transmitter e.g. 0.00
32	Total System Loss (dB)	T5_TOTALLO	Number (6,2)	-	Total reduction in the signal strength through the signal path including insertion and line loss e.g. 0.00
33	Effective Radiated Power (dBW)	T6_RAD_PWR	Number (6,2)	-	Effective radiated power e.g. 0.00
34	Approval Date	APPDATE	Char(8)	-	Date for which the registration was confirmed by affected administration e.g. DD/MM/YYYY
35	Remarks	REMARKS	Char(40)	-	Any comments or special consideration to be noted.

Annex 3

DATE:	02 Oct 2014
PLACE:	Siem Reap, Cambodia
SUBJECT:	Result of Discussion between Sotelco (Cambodia), DTAC (Thailand), CAT Telecom (Thailand) to address the common border interference
STAKEHOLDERS:	Representatives of SOTELCO Representatives of CAT Representatives of DTAC

RESULT OF DISCUSSION

- Stakeholders acknowledge the fact that after Thai operators made some adjustments and optimization on their network, interference still persists in Sotelco Network within the common borders of Poipet & O'Smach.

- With this development, Stakeholders agreed to tackle issues on a case-by-case basis.

- As agreed, Sotelco will send teams to collect and gather the latest & newest data in sites and/or areas still affected by interference. All this new set of the site information will be shared to DTAC & CAT. Sotelco also requested Thai operators to perform corresponding test on their side of the border if at all possible. Parameters to be collected during the drive tests shall be agreed & shared between Stakeholders in order to get a more comprehensive set of information.

- Set of the site information to be shared must be in a readable format for as long as the log files include the following parameters;

    - Cell ID
    - Scrambling Codes
    - Signal Strength
    - MNC
    - Site Location
    - UARFCN
    - Others Deemed Useful

- DTAC & CAT will then make further analysis on the new sets of information and agreed to further optimize their network wherever possible.

- Time frame for activities are as follows;

Activities	Schedule	Group In Charge
Exchange Information	Oct 6 – 12, 2014	Stakeholders
Drive Tests	Oct 6 – 12, 2014	Sotelco

Results Sharing	Oct 13– 19, 2014	Sotelco
Results Analysis	Oct 20 – 28, 2014	DTAC/CAT
Network Optimization	Oct 29 – Nov 15, 2014	DTAC/CAT
Post Optimization DT	Nov 15 – 20, 2014	Sotelco
Results Sharing	Nov 21 – 28, 2014	Sotelco
Iterations (If necessary)	TBD	Sotelco/DTAC/CAT

- After fine-tuning of networks, all tests necessary will then be carried out where results are to be shared with all Stakeholders and to determine whether interference is resolved or at least minimized to acceptable levels.

- Stakeholders agreed to perform all the above mentioned activities within the month of November 2014.

- All Stakeholders acknowledge the fact that because of the nature of interference, efforts to be done may not be enough to resolve the problem. If that happens, a more strategic approach shall be sought after and mutually agreed by Stakeholders to be defined at a later stage and a proposal of a joint operators meeting.

Paper reference	:	**Doc.JTC-4/C-29**
Contribution by	:	**Secretariat**
Subject	:	**Report of Working Group on Broadcasting Service (WG2)**

1 Introduction

The Working Group on Broadcasting Service (WG2) of the 4th JTC Meeting comprised of 10 delegates from Cambodia and 15 delegates from Thailand. The list of delegates is as per Annex 1. This meeting was co-chaired by H.E. Mr. Uy Thuon from Cambodia and Col. Jiroj Santhit from Thailand.

The following documents were presented and discussed during the WG2 meeting session:

a) Doc.JTC-4/C-24 : Status Update for Radio Services;
b) Doc.JTC-4/C-25 : Status Update for DTT;
c) Doc.JTC-4/C-26 : Coordination Distance and Frequency Arrangement; and
d) Doc.JTC-4/C-12 : Frequency Registration.

2 Information on the existing broadcasting stations along the common border

The meeting noted that Cambodia already presented the current status of broadcasting service in Cambodia at Plenary level. The topics covered both Radio Services and Television Services.

Thailand proposed to close this agenda item. Any information on existing stations of Radio Services and Television Services will be updated and discussed under the agenda items on Status Update for Radio Services and Television Services, respectively.

Both Cambodia and Thailand agreed to close this agenda item.

3 Status Update for Radio Service

Thailand presented a paper on 'Status Update for Radio Services' as appeared in Doc.JTC-4/C-24.

Thailand informed the meeting about the pre-qualifications including technical standards and license conditions for Trial F.M. Radio Service stations. The transmitter of each Trial F.M. Radio Service stations is required to pass the following technical standards:

i. Rated carrier power;
ii. Conducted spurious emission;
iii. Out-of-band emission;
iv. Frequency error; and
v. Frequency deviation.

Thailand further informed the meeting that the Trial F.M. Radio Service stations in 7 provinces, which are along the common border, consist of 241 stations as shown in the Table below.

Provinces	Number of Stations
1. Burirum	46
2. Chanthaburi	28
3. Sakaeo	17
4. Sisaket	43
5. Surin	49
6. Trat	2
7. Ubon Ratchathani	56
Total Stations	241

Cambodia took note of the presentation from Thailand.

4 Status Update for Digital Terrestrial Television (DTT)

Thailand presented a paper on 'Status Update for Digital Terrestrial Television (DTT)' as appeared in Doc.JTC-4/C-25.

Thailand provided an update on the status of digital terrestrial television in the following topics:

i. Digital transition milestones;
ii. Policy on DTTB technology;
iii. Digital broadcasting licensing scheme;
iv. Key activities;
v. Network operators and commercial services; and
vi. Web application and mobile applications for DTTB coverage checking.

Thailand also informed the meeting regarding the frequency planning for DTTB in Thailand, which was based on DVB-T2 system and using the frequency range 510-790 MHz with 8 MHz channel bandwidth. The frequency plan was designed to serve 39 service areas with 5 multiplexes per area. The 6th multiplex will be available after Analogue Switched-Off. The coverage target was set to be 95% of households within June 2017.

In addition, Thailand emphasized the deployment schedule and technical characteristics of four main sites located in the provinces along the common border as shown in the Table below. However, those four main sites are outside the coordination distance of 30 km from the common border.

Name	Frequency channels for each multiplex						Date of bringing into use
	#1	#2	#3	#4	#5	#6	
Sakaeo	54	50(42)	46	38	57	34	1 August 2014
Trat	33	37	41	49	30	27	1 February 2015
Surin	26(42)	32	40	36	44	29	1 October 2014
Si Sa Ket	41	30(52)	33(58)	27(37)	49	37	1 June 2015

Note: The frequency channels in the blanket are the temporary channels to be used before Analogue Switched-Off.

Both Cambodia and Thailand took note of the presentation. Thailand will provide more information on the frequency planning of additional stations at the next JTC.

5 Coordination Distance and Frequency Arrangement

Thailand presented a paper on 'Coordination Distance and Frequency Arrangement' as appeared in Doc.JTC-4/C-26.

Thailand informed the meeting that NBTC is currently reviewing the frequency plan for F.M. radio. The implementation of 100 kHz spacing will be considered taking into account the technical and operational conditions. Thailand will update the relevant studies at the next JTC meeting.

The meeting took noted of the presentation from Thailand.

In addition, Thailand proposed the interim solution for frequency coordination for digital terrestrial television as follows:

i. exchange the information of the frequency plan with technical characteristics, and DTT station information along Cambodia-Thailand common border (especially the stations located within the coordination area); and
ii. protect the DTT stations and avoid interference on case-by-case basis.

The meeting agreed on the proposal from Thailand. Furthermore, Telecommunication Regulator of Cambodia and Ministry of Information will further discuss specifically on frequency requirement/ frequency planning for Digital Television Terrestrial along Cambodia - Thailand common border and inform to Thailand later.

The meeting confirmed the coordination distance of 30 km from Cambodia-Thailand common border.

Thailand also proposed the Google Earth file (.kmz) as appeared in 'Coordination_area_30km_JTC_Thailand-Cambodia.kmz' to be used for checking the stations located within the coordination area and to facilitate the coordination procedure.

6 Other Matters

6.1 Frequency Registration

Thailand presented a paper on 'Frequency Registration' as appeared in Doc.JTC-4/C-12.

Both Cambodia and Thailand agreed in principle on the frequency registration procedure and the frequency registration form.

7 Focal Persons

Cambodia and Thailand agreed to provide responsible focal persons for the issues on broadcasting service including interference cases. The focal persons are as shown below.

Cambodia

Ministry of Information (MOI)	
Name	Mr. Yem Noy
Email	noyyem@gmail.com
Phone Number	(855) 12 967 795

Thailand

Office of the National Broadcasting and Telecommunications Commission (NBTC)	
Name	Mr. Supatrasit Suansook
Email	supatrasit.s@nbtc.go.th
Phone Number	(66) 2 2717600 Ext. 5303

8 **Endorsement of Minutes**

The Meeting agreed and endorsed the Minutes of the Working Group on Broadcasting Service (WG2).

H.E. Mr. Uy Thuon	Col. Jiroj Santhit
CAMBODIA	THAILAND

Date : 03 October 2014

Venue : Siem Reap, Cambodia

Annex 1

List of Delegates in Working Group on Broadcasting Service (WG2)

Cambodia

No	Name	Organization	Email
1	H.E. Mr. Uy Thuon	Ministry of Information (MOI)	uythuon@gmail.com
2	Mr. Yem Noy	Ministry of Information (MOI)	noyyem@gmail.com
3	Mr. Men Satha	Ministry of Information (MOI)	mensatha11@gmail.com
4	Mr. Tey Maly	Ministry of Information (MOI)	tey_maly@yahoo.com
5	Mr. Heng Exc	MPTC	hengexc199@gmail.com
6	Mr. Sambath Narith	T.R.C.	sambath.narith@yahoo.com
7	Mr. Vann Vantha	T.R.C.	vantha8888@gmail.com
8	Mr. Chea Prakab	T.R.C.	prakab_chea@yahoo.com
9	Mr. Sunly Theara	T.R.C.	sunlytheara@yahoo.com
10	Mr. Song Serey Vuth	T.R.C.	songsereyvuth@trc.gov.kh

Thailand

No	Name	Organization	Email
1	Col. Jiroj Santhit	RTA, TV 5	Pomjirot17@hotmail.com
2	Mr. Supatrasit Suansook	NBTC	supatrasit.s@nbtc.go.th
3	Mr. Chinaprapha Pinkaew	NBTC	Chinaprapha.p@nbtc.go.th
4	Mr. Saksri Wongwai	NBTC	saksri.w@nbtc.go.th
5	Mr. Sanya Krajangsri	NBTC	sanya.k@nbtc.go.th
6	Mr. Chalermchai Kaewchalerm	RTA	k.chalermchai@hotmail.com
7	Mr. Pulsawat Insuwan	RTA	pulsawat_i@yahoo.com
8	Mr. Kachan Kannika	PRD	kachankzy@gmail.com
9	Mr. Banphot Phuensaen	BEC	banphot_p@thaitv3.com
10	Mr. Apichit Wongkeeratikul	BEC	apichit_w@thaitv3.com
11	Mr. Tassanai Wanitrabruen	MCOT	tassanai.wa@mcot.net
12	Mr. Taweesak Suebin	MCOT	taweesak.su9@gmail.com
13	Mr. Kantachai Srisukhon	TPBS	kantachais@thaipbs.or.th
14	Mr. Pornsak Tabtieng	TPBS	pornsakt@thaipbs.or.th
15	Mr. Charin Bantukul	BBTV	charin1958@yahoo.com