

衛星通信システム委員会事務局 御中

平成 25 年 6 月 12 日

エリクソン・ジャパン株式会社

衛星通信システム委員会での提案に関する質問への回答

3GPP での 2GHz 帯 (1980-2110/2170-2200MHz) の検討状況について、下記のように回答いたします。

1. 衛星・地上共用の検討の可能性

3GPP で現在検討中の関連 Study Item は、以下の 2 つになります。

- 1) Study on LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz
- 2) Study on 2GHz FDD for UTRA and LTE in Region 1 (1980-2010 MHz and 2170-2200 MHz Bands)

1) は、韓国および適用可能な第三地域の国で、2GHz 帯 (1980-2010/2170-2200MHz) を地上系 LTE FDD システムで使用するための検討を行っております。またこの Study Item の説明 (SID: Study Item Description) には、「韓国政府は、この帯域を地上系 IMT で使用することを考慮・計画中である」ことが示されています。

2) は、適用可能な第一地域の国で、地上系 UMTS または LTE FDD システムを 2GHz 帯 (1980-2010/2170-2200MHz) で運用する場合の検討を行っています。本 SID には、「本帯域は、同じ帯域上の MSS の CGC (Complementary Ground Component) として運用される地上系モバイルネットワークで使用可能である」としています。なお、衛星系コンポーネントは、本 Study Item の対象外であり、地上系と衛星系の共用についても検討対象外となっています。

結論として、3GPP の上記 Study Item では、衛星・地上共用の検討は行っておりません。

2. 標準化の詳細 (内容、スケジュール等)

Study Item の 1) および 2) のスコープ、作業計画および作業状況については、それらの Study Item Description および 6 月 11-14 日の 3GPP 会合 (Technical Specification Group-RAN 会合) に提出された報告書案 (添付) をご覧ください。

	Study Item 名称	Study Item Description	Status Report
1)	Study on LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz	RP-130659	RP-130586
2)	Study on 2GHz FDD for UTRA and LTE in Region 1 (1980-2010 MHz and 2170-2200 MHz Bands)	RP-122031	RP-130579

参考資料

RP-130659: 3GPP Study Item Description - LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz

RP-130586: Status Report - Study on LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz

RP-122031: 3GPP Study Item Description - Study on 2GHz FDD for UTRA and LTE in Region 1 (1980-2010 MHz and 2170-2200 MHz Bands)

RP-130579: Status Report - Study on 2GHz FDD for UTRA and LTE in Region 1 (1980-2010 MHz and 2170-2200 MHz Bands)

以上

Source: KT
Title: Revised Study Item Description: LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz
Document for: Approval
Agenda Item: 12.4.5

3GPP™ Work Item Description

For guidance, see [3GPP Working Procedures](#), article 39; and [3GPP TR 21.900](#).

Title * : LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz

Acronym * : FS_LTE_1980_2170_Korea

Unique identifier * 570022

1 3GPP Work Area *

X	Radio Access
	Core Network
	Services

2 Classification of WI and linked work items

2.0 Primary classification *

This work item is a ... *

X	Study Item (go to 2.1)
	Feature (go to 2.2)
	Building Block (go to 2.3)
	Work Task (go to 2.4)

2.1 Study Item

Related Work Item(s) (if any]		
Unique ID	Title	Nature of relationship

Go to §3.

2.2 Feature

Related Study Item or Feature (if any) *		
Unique ID	Title	Nature of relationship

Go to §3.

2.3 Building Block

Parent Feature (or Study Item)		
Unique ID	Title	TS

This work item is ... *

	Stage 1 (go to 2.3.1)
	Stage 2 (go to 2.3.2)
	Stage 3 (go to 2.3.3)
	Test spec (go to 2.3.4)
	Other (go to 2.3.5)

2.3.1 Stage 1

Source of external requirements (if any) *		
Organization	Document	Remarks

Go to §3.

2.3.2 Stage 2 *

Corresponding stage 1 work item		
Unique ID	Title	TS

Other source of stage 1 information		
TS or CR(s)	Clause	Remarks

If no identified source of stage 1 information, justify: *

Go to §3.

2.3.3 Stage 3 *

Corresponding stage 2 work item (if any)		
Unique ID	Title	TS

Else, corresponding stage 1 work item		
Unique ID	Title	TS

Other justification		
TS or CR(s) Or external document	Clause	Remarks

If no identified source of stage 2 information, justify: *

Go to §3.

2.3.4 Test spec *

Related Work Item(s)		
Unique ID	Title	TS

Go to §3.

2.3.5 Other *

Related Work Item(s)			
Unique ID	Title	Nature of relationship	TS / TR

Go to §3.

2.4 Work task *

Parent Building Block		
Unique ID	Title	TS

3 Justification *

The frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz was allocated for the satellite component of IMT in most countries, while it does not preclude the use of these bands for mobile services which are co-allocated to these bands as primary services in the Radio Regulations. In fact, Korea government is planning to take these bands into account to use for terrestrial IMT.

Furthermore, the efficient spectrum utilization may be expected if the band 1 980-2 010 MHz and 2 170-2 200 MHz are allocated for the mobile service because the adjacent band 1 (1 920-1 980 MHz and 2 110-2 200 MHz) are used or will be used for LTE in many countries.

The purpose of study item on LTE FDD in the bands 1 980-2 010 MHz and 2 170-2 200 MHz is to facilitate and harmonize the efficient use of these bands for terrestrial IMT, especially LTE, for Korea and other applicable countries in Region3.

The terrestrial network equipment will adhere to all 3GPP emission masks to protect adjacent band services. It is expected that the impacts on the co-existence with adjacent bands will be studied during the study item progress.

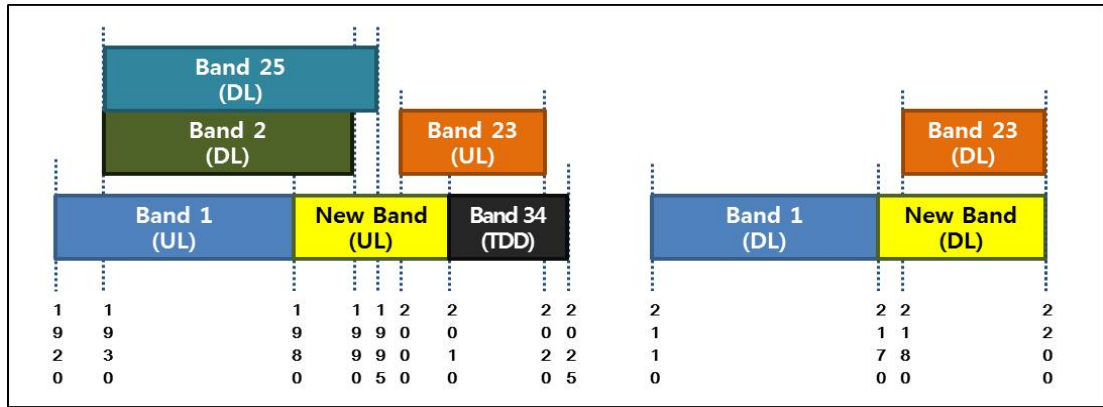


Figure 1: 3GPP Operating Bands in 2.1GHz

This study item, targeted for completion by RAN#60, proposes studying the implication of adding the bands 1980-2010 MHz and 2170-2200 MHz to the 3GPP specifications

4 Objective *

The purpose and objectives of this study item are:

- Study related aspects of adding a FDD band into E-UTRA that covers the frequency range of UL: 1980-2010/DL: 2170-2200 MHz
- Study coexistence issues with adjacent bands (~~e.g. Band 34~~)
- Identify regulatory issues
- Study the possibility of defining the bands UL: 1920-2010/DL: 2110-2200MHz
- Study the possibility of harmonization of this band

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts *

Affects:	UICC apps	ME	AN	CN	Others
Yes		X	X		
No	X			X	X
Don't know					

10 Expected Output and Time scale *

New specifications *						
[If Study Item, one TR is anticipated]						
Spec No.	Title	Prime rsp WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
TR36. xxx <u>861</u>	Technical Report for Study Item: Study on LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz	RAN4		RP#58	RP#62	
Affected existing specifications *						
[None in the case of Study Items]						
Spec No.	CR	Subject		Approved at plenary#	Comments	

11 Work item rapporteur(s) *

[Chungwoo Hwang](#)[Dongjun LEE](#), KT Corp. (ewhwang@kt.comdj.lee@kt.com)

12 Work item leadership *

RAN4

13 Supporting Individual Members *

Supporting IM name
KT Corp.
LG Uplus
SK Telecom
ETRI
LG Electronics
LG-Ericsson
Samsung
DISH Network

Status Report to TSG

Agenda item: 12.4.5

Work Item Name	
Study Item Name	Study on LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz
Acronym	FS_LTE_1980_2170_Korea
Unique ID	570022

Source:

Leading WG	TSG RAN WG4	
Rapporteur	Name	Chungwoo HWANG
	Company	KT Corp.
	Email	cwhwang@kt.com

1 Work plan related evaluation

1.1 History

TSG meeting #	TSG Tdoc number of status report	TSG Tdoc number of work/study item description sheet as approved by TSG (if any)	overall level of completion as decided by TSG	completion date as decided by TSG
57	WI/SI started	RP-121420	0%	June 2013
58	RP-121652		5%	June 2013
59	RP-130135		20%	December 2013

NOTE: The table covers all TSG meetings from the start of the WI/SI.

1.2 Status at this TSG meeting

NOTE: This status reflects the conclusion of the leading WG (e.g. achieved by email). In case there was no consensus a corresponding range has to be provided and reason for missing consensus has to be mentioned.

1.2.1 Estimated of the level of completion of the work/study item

overall (mandatory to be provided): 25 %

per WG (optional information): RAN WG4: 25%

additional comments:

1.2.2 Estimated completion date of the work/study item

The work/study item is planned to be 100% complete in: December 2013 **which is:** RAN #62

additional comments:

The Work Item Sheet was updated and approved in RAN# 59 meeting(RP-130200). Estimated completion date of the study item was updated from June 2013 to December 2013.

2. Technical status related evaluation

2.1 Detailed progress report since last TSG meeting (for all involved WGs)

TSG RAN WG4 #66 bis : Chicago

TR 36.861(v.0.1.0) [1] has been presented and approved. It updated TR 36.861 in Section 6 based on TP (List of band specific issues for LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz) agreed in RAN4 #66. It provided frequency bands and issues for new 2.1GHz terrestrial operation in Korea.

It has been proposed the UE-to-UE coexistence using deterministic analysis and the RF simulation in suitable deployment scenarios for S-band MS UE[2]. In discussion, it was issued that expanded Band1 was considered and it was requested vendors' view if it has been possible to expand Band 1. TP[3] has been presented and approved. It proposed the text proposal discussed in [2] which contains the preliminary UE-to-UE coexistence requirements for S-band UE in Korea.

An evaluation of UE RF requirements considering with IMD analysis for FS_LTE_1980_2170_Korea has been presented [4]. It provided the analysis the harmonic and IMD products considering all deployed bands in Korea. It also included text proposal for TR 36.861 in section 8 (Study of E-UTRA specific issues). In discussion, there were issues for method and results.

TSG RAN WG4 #67 : Fukuoka

TR 36.861(v.0.2.0) [5] has been presented and approved. It updated TR36.861 includes the agreed TP(R4-131390) at RAN4#66bis and editorial changes.

It has been proposed the Transmitter/Receiver RF requirements of S-band UE [6] and also TP [7] for S-band UE Tx/Rx RF requirements for FS_LTE_1980_2170_Korea. In discussion, there were still issues for co-existence analysis also in other countries and necessity for new or extend the existing band and so on.

2.2 List of completed elements (compare with open issues of last TSG)

- The list of band specific issues for LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz
- The preliminary UE-to-UE coexistence requirements for S-band UE in Korea

2.3 List of open issues

NOTE: Usually this list is empty when the work/study item is 100% complete otherwise please justify why an open issue is not essential for the work/study item.

- S-band UE Tx/Rx RF requirements for FS_LTE_1980_2170_Korea
- co-existence analysis also in other countries
- necessity to specify new band or extend the existing band

3. References

NOTE: This can be e.g. a list of all related Tdocs in the affected WGs since last TSG, references to LSs, produced TRs/TSS, the work/study item description or status reports of previous TSGs.

- [1] R4-130992 TR(v.0.1.0) for LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz, KT/ SK Telecom/ LG U+/ LG Electronics,/ Samsung/ ETRI, 3GPP RAN4#66 bis
- [2] R4-131386 Evaluation of UE-to-UE coexistence for FS_LTE_1980_2170_Korea, LG Electronics, 3GPP RAN4 #66bis
- [3] R4-131390 TP for TR ab.cde : General issue for FS_LTE_1980_2170_Korea, LG Electronics, 3GPP RAN4

#66bis

- [4] R4-131391 Evaluation of UE RF requirements considering with IMD analysis for FS_LTE_1980_2170_Korea, LG Electronics, 3GPP RAN4 #66bis
- [5] R4-132400 36.861 v0.2.0: LTE FDD in the bands 1980-2010 MHz and 2170-2200 MHz, KT/SK Telecom/LG Uplus/LG Electronics/LG-Ericsson/Samsung/ETRI/TTA, 3GPP RAN4 #67
- [6] R4-132502 Revised Evaluation of UE RF requirements considering with IMD analysis for FS_LTE_1980_2170_Korea, LG Electronics, 3GPP RAN4 #67
- [7] R4-132506 TP for S-band UE Tx/Rx RF requirements for FS_LTE_1980_2170_Korea, LG Electronics, 3GPP RAN4 #67

Source: Solaris Mobile Ltd
Title: New Study Item Proposal: 2GHz FDD for UTRA and LTE in Region 1
Document for: Approval
Agenda Item: 13.2

3GPP™ Work Item Description

For guidance, see [3GPP Working Procedures](#), article 39; and [3GPP TR 21.900](#).

Title * : Study on 2GHz FDD for UTRA and LTE in Region 1
(1980-2010 MHz and 2170-2200 MHz Bands)

Acronym * : FS_2GFDD

Unique identifier * :5800xy

1 3GPP Work Area *

X	Radio Access
	Core Network
	Services

2 Classification of WI and linked work items

2.0 Primary classification *

This work item is a ... *

X	Study Item (go to 2.1)
	Feature (go to 2.2)
	Building Block (go to 2.3)
	Work Task (go to 2.4)

2.1 Study Item

Related Work Item(s) (if any]		
Unique ID	Title	Nature of relationship

Go to §3.

2.2 Feature

Related Study Item or Feature (if any) *		
Unique ID	Title	Nature of relationship

Go to §3.

2.3 Building Block

Parent Feature (or Study Item)		
Unique ID	Title	TS

This work item is ... *

	Stage 1 (go to 2.3.1)
	Stage 2 (go to 2.3.2)
	Stage 3 (go to 2.3.3)
	Test spec (go to 2.3.4)
	Other (go to 2.3.5)

2.3.1 Stage 1

Source of external requirements (if any) *		
Organization	Document	Remarks

Go to §3.

2.3.2 Stage 2 *

Corresponding stage 1 work item		
Unique ID	Title	TS

Other source of stage 1 information		
TS or CR(s)	Clause	Remarks

If no identified source of stage 1 information, justify: *

Go to §3.

2.3.3 Stage 3 *

Corresponding stage 2 work item (if any)		
Unique ID	Title	TS

Else, corresponding stage 1 work item		
Unique ID	Title	TS

Other justification		
TS or CR(s) Or external document	Clause	Remarks

If no identified source of stage 2 information, justify: *

Go to §3.

2.3.4 Test spec *

Related Work Item(s)		
Unique ID	Title	TS

Go to §3.

2.3.5 Other *

Related Work Item(s)			
Unique ID	Title	Nature of relationship	TS / TR

Go to §3.

2.4 Work task *

Parent Building Block		
Unique ID	Title	TS

3 Justification *

Within the European Union (EU), the frequency bands 1 980-2 010 MHz and 2 170-2 200 MHz can be used for terrestrial mobile networks operated as a complement to mobile satellite services in the same frequency band.

A highly efficient spectrum utilization and deployment may be expected if the band 1 980-2 010 MHz and 2 170-2 200 MHz are used for such complementary terrestrial services because the adjacent band 1 (1 920-1 980 MHz and 2 110-2 170 MHz) are used for UMTS and may be used for LTE within certain countries in Region 1.

The purpose of study item on FDD in the bands 1 980-2 010 MHz and 2 170-2 200 MHz is to facilitate and harmonize the efficient use of these bands for UMTS and LTE technologies in applicable countries in Region 1. The satellite component is not within the scope of 3GPP, and will therefore not be within the scope of this study.

The terrestrial network equipment will adhere to all 3GPP emission masks to protect adjacent band services. It is expected that the impacts on the co-existence with adjacent bands will be studied during the study item progress.

This study item, targeted for completion by RAN#61, proposes studying the implication of adding the bands 1980-2010 MHz and 2170-2200 MHz, for use in applicable countries in Region 1, to the 3GPP specifications. The new Study Item complements the on-going study item FS_LTE_1980_2170_Korea considering the use of this band for terrestrial IMT in Korea and other parts of ITU Region 3, and may lead to a common Work Item.

4 Objective *

The purpose and objectives of this study item are:

- Study related aspects of adding a FDD band into UTRA/E-UTRA that covers the frequency range of UL: 1980-2010/DL: 2170-2200 MHz in applicable countries in Region 1.
- Study coexistence issues with adjacent bands in applicable countries in Region 1
- Identify regulatory issues applicable to deploying the proposed band in applicable countries in Region 1.

This study addresses only the case of a terrestrial LTE network operating in the MSS frequency band 1 980 - 2 010 MHz / 2 170 - 2 200 MHz. Inter-operation and coexistence between the terrestrial LTE network part of the complementary ground component and the satellite component are not part of this study.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts *

Affects:	UICC apps	ME	AN	CN	Others
Yes		X	X		
No	X			X	X
Don't know					

10 Expected Output and Time scale *

New specifications *						
[If Study Item, one TR is anticipated]						
Spec No.	Title	Prime resp WG	2ndary resp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
TR 36.8xy	Technical Report for Study on 2GHz FDD for UTRA and LTE in Region 1 (1980-2010 MHz and 2170-2200 MHz Bands)	RAN4		RP#60 Jun 2013	RP#61 Sep 2013	
Affected existing specifications *						
[None in the case of Study Items]						
Spec No.	CR	Subject		Approved at plenary#		Comments

11 Work item rapporteur(s) *

Solaris Mobile Ltd, alexander.geurtz@solarismobile.com

12 Work item leadership *

RAN4

Status Report to TSG

Agenda item: 12.3.5

Work Item Name	
Study Item Name	Study on 2GHz FDD for UTRA and LTE in Region 1 (1980-2010 MHz and 2170-2200 MHz Bands)
Acronym	FS_UTRA_LTE_1980_2170_REG1
Unique ID	580049

Source:

Leading WG	TSG RAN WG4	
Rapporteur	Name	Colin Thomson on behalf of Alexander Geurtz (rapporteur)
	Company	Solaris Mobile Ltd.
	Email	colin.thomson@solarismobile.com

1 Work plan related evaluation

1.1 History

TSG meeting #	TSG Tdoc number of status report	TSG Tdoc number of work/study item description sheet as approved by TSG (if any)	overall level of completion as decided by TSG	completion date as decided by TSG
58	WI/SI started	RP-122031	0%	September 2013
59	RP-130129		0%	September 2013

NOTE: The table covers all TSG meetings from the start of the WI/SI.

1.2 Status at this TSG meeting

NOTE: This status reflects the conclusion of the leading WG (e.g. achieved by email). In case there was no consensus a corresponding range has to be provided and reason for missing consensus has to be mentioned.

1.2.1 Estimated of the level of completion of the work/study item

overall (mandatory to be provided): 20%

per WG (optional information): RAN WG4: 20%

additional comments: No documents submitted at RAN4#66, still in analysis/study phase prior to in-meeting discussions and contributions, planned for upcoming meeting cycles.

1.2.2 Estimated completion date of the work/study item

The work/study item is planned to be 100% complete in: September 2013 **which is:** RAN #61

additional comments: Indicated completion date still is accurate.

2. Technical status related evaluation

2.1 Detailed progress report since last TSG meeting (for all involved WGs)

- Text proposal addressing regulatory status of 2GHz bands in Europe was approved and included in TR 37.846 during the last RAN study cycle [1].
- Text proposal for band plan options was noted by RAN4 during the last study cycle [2].
- Text proposal for adjacent band protection was noted in past RAN4 study cycle [3].

2.2 List of completed elements (compare with open issues of last TSG)

- Regulatory background covering ITU Region 1, EU regulatory framework for MSS with complementary ground components (CGC), and CEPT Harmonisation added to TR 37.836.

2.3 List of open issues

NOTE: Usually this list is empty when the work/study item is 100% complete otherwise please justify why an open issue is not essential for the work/study item.

Main open issues:

- Band specific issues for 2GHz FDD for UTRA and LTE in Region 1
- Potential commonalities with FS_LTE_1980_2170_Korea
- UTRA and LTE specific issues
- MSR specific issues
 -

3. References

NOTE: This can be e.g. a list of all related Tdocs in the affected WGs since last TSG, references to LSs, produced TRs/Ts, the work/study item description or status reports of previous TSGs.

- [1] RP-132612
- [2] RP-132617
- [3] RP-132619