CEPT ECC
Electronic Communications Committee

ECC PT1

Mr François Courau
Chairman 3GPP TSG RAN

ALCATEL MCG
7/9, avenue Morane Saulnier
BP. 57
F-78141 Vélizy CEDEX
Email : francois.courau@alcatel.fr

Mainz, 12 May 2005
Our ref.: Reg TP/221-5

Your ref.:

900 MHz UMTS and GSM Sharing study results

Dear François,

ECC PT1 would like to thank 3GPP for its response(ref: RP-050031) to ECC PT1's request on additional simulation scenarios for UMTS900. ECC PT1 notes the UMTS900 work item is delayed to December 2005. The UMTS900 work item technical report containing the complete simulation assumptions and results for all of the 6 scenarios, as well as UMTS900 technical specifications are expected by December 2005.

In order to make progress on ECC PT1's sharing study report and channelisation work, ECC PT1 would like to ask 3GPP, to make the preliminary study results available for 6-8 September 2005.

ECC PT1 has started the sharing studies between UMTS900 and UMTS1800 and systems operating in adjacent bands. Enclosed are the UMTS900 and UMTS1800 system characteristics which will be used for the adjacent band system sharing study. ECC PT1 would like to know if these assumptions for UMTS900 are realistic from 3GPP's point of view.

ECC PT1(05)077_F_UMTS

For information, ECC PT1 plans to perform the sharing studies between UMTS900 and UMTS 1800 and the following adjacent band systems: 1) GSM-R; 2) PMR/PAMR (e.g. TETRA, TAPS, CDMA); 3) DME/TACAN; 4) MIDS.

Note

Peter Scheele
Regulatory Authority for Telecommunications and Posts
P. O. Box 80 01
D - 55003 Mainz

Telephone: +49 6131 18-3115
Telefax: +49 6131 18-5604
E-mail: peter.scheele@regtp.de

Annex A has been provided by France in order to offer some background information on the need for UMTS 900 in France.

Best regards,
Peter Scheele
Chairman ECC PT1

Cc: Mr Howard Benn
Chairman 3GPP TSG RAN WG4

Mr Cesar Gutierrez
Secretary RAN & RAN4
E-mail: cesar.gutierrez@etsi.org

ANNEX A

17th ECC PT1 MEETING
Biel/Bienne, 9 – 12 May 2005

Date issued: 3 May 2005

Source: France

Subject: Background information on the need for UMTS at 900 MHz in France

Password protected: yes ☐ no ☒

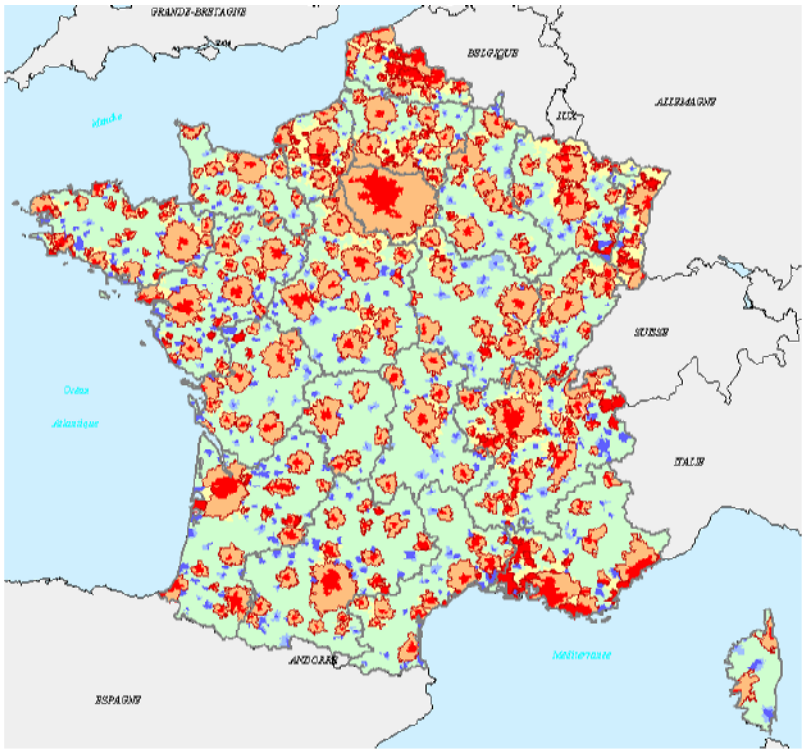
Introduction

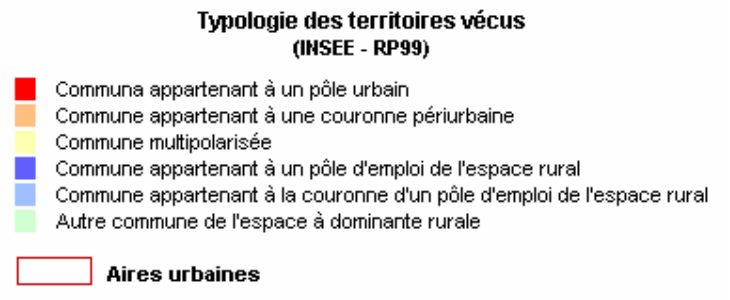
This contribution provides some background information on the need for UMTS 900 in France. It deals with the distribution of the population, the GSM and UMTS coverage obligations, and provides a quantitative analysis of the number of GSM900 cells which could possibly be used for GSM and UMTS in parallel in the 900 MHz band.

Distribution of the population in France

In France, a large percentage of the population lives in rural areas. The French national statistics institute INSEE has published a typology of living areas, which are divided in urban (red), suburban (orange), multipolar communes (yellow), and dominantly rural areas (blue and green).

According to INSEE, approximately 25% of the French metropolitan population live in rural areas, which represent 70% of the territory as shown below :





Coverage obligations for GSM and UMTS in France

In the case of GSM, the coverage obligations have been reviewed in the process of the renewal of the 2G authorizations. The first two metropolitan GSM authorizations (Orange France and SFR) expire on March 25th, 2006, and the third one (Bouygues Telecom), expires on December 8th, 2009. The French Ministry for Telecommunications has already notified the conditions of the renewal to Orange France and SFR, and it is likely that the same conditions will apply to Bouygues Telecom when its own GSM authorization will be renewed.

The new GSM authorizations stipulate that the operator has to cover 98% of the metropolitan population individually by March 25th 2007. Within the framework of the "white zones" negotiations the operators have to jointly cover 99% of the metropolitan population by 2007.

In the case of UMTS, the initial coverage obligations were very high as a result of the beauty contests. Only Orange France and SFR applied for a 3G authorization in the first round of the beauty contest. Their initial coverage obligations are summarized below :

	Coverage obligations Percentage of the French metropolitan population T1 = August 21st, 2001		
	T1+2	**T1+5**	**T1+8**
Orange France	58%	94%	>98%
SFR	75%	98.9%	99.3%

These coverage obligations apply for a bidirectionnal data rate of 144 kbit/s in a packet mode.

The coverage obligations of Orange France and SFR for T1+2 have already been reviewed by ART in March 2004. ART agreed to postpone the verification of these coverage obligations by 28 months to December 31st 2005, and to align them to 58% of the metropolitan population for both Orange France and SFR.

However, ART recognized in its public communication on UMTS (March 9th, 2004) that the mid-term objective of a national coverage, enabling all French citizens to access 3G services has to be maintained.

Bouygues Telecom applied for a 3G license one and a half year later. Their initial UMTS coverage obligations are summarized below :

	Coverage obligations Percentage of the French metropolitan population T1 = December 12th, 2002		
	T1+2	**T1+5**	**T1+8**
Bouygues Telecom	20%	60%	75%

The coverage obligations of Bouygues Telecom at T1+2 are currently being analyzed by ART.
The new GSM authorizations allow the operator to ask for a reuse of all or part of its 2G frequency bands for the deployment of its 3G network. Further information on the conditions for the renewal of the 2G authorizations in France can be found on the ART website:

http://www.art-telecom.fr/dossiers/auto-gsm/index-d.htm

Quantitative analysis

In France, the three mobile operators have each access to at least 2x10 MHz of spectrum in the GSM900 band 880-915 MHz / 925-935 MHz, including the GSM 900 extension band.

10 MHz duplex corresponds to 50 x 200 kHz GSM radio channels. In rural areas, the network is designed for maximum coverage, not capacity.

For illustration purpose, it can be assumed a frequency planning in rural areas based on large reuse patterns, such as the 4/12 frequency plan or the 7/21 frequency plan. The 7/21 frequency plan for example uses a cluster of 7 sites, subdivided into 21 sectors.

In such scenario, the 7/21 and 4/12 frequency plans make it possible to plan one TRX (transmitter/receiver) layer in 21, or two TRX layers in 24 radio channels respectively, thus leaving 2x5.2 MHz or more for a possible UMTS900 use.

In the case of one French GSM network (covering 98% of the metropolitan population and 87% of the territory), approximately 7% of the GSM900 cells are configured with 1 TRX, and 40% of the GSM900 cells are configured with 2 TRX.

This means that approximately half of all GSM900 cells will be able to use GSM900 and UMTS900 in parallel.

The areas which are currently planned in GSM with 4 or more TRX layers will most certainly be covered by UMTS in the 2.1 GHz core band by the year 2007.

The only areas where further engineering is needed are the ones which are currently planned in GSM with 3 TRX layers.

Conclusion

It is not yet clear what the final coverage obligations for UMTS will look like. However, the mid-term objective of a national 3G coverage is likely to be maintained by ART.

The quantitative analysis showed that it is possible to introduce UMTS900 in parallel to GSM900 on nearly half of the cells in the 900 MHz band.