Annex B to Decision no. 343/07/CONS

CONSULTATION DOCUMENT

Introduction

1. It has been recently noted, both at European and national level, a growing interest in the potential usage of 900 and 1800 MHz frequencies bands - currently used for second generation radio mobile systems (GSM) - for third generation systems too (3G) and for any other technology equivalent and compatible in accordance with the applicable regulation (the so called *refarming*).

2. The principle of reutilisation of 900 and 1800 MHz bands for third generation mobile systems - upon verification of the actual needs of the market and allowing for any national circumstances to be taken into consideration - has been also assumed in the provisions regarding the use of such bands endorsed at international level by the International Telecommunications Union (ITU). Such a principle has been therefore recalled, at national level, in the National Plan of Frequency Allocation.

3. The re-use, for the advanced mobile systems, of the frequencies currently in use for the 2G, needs anyway a thorough analysis of the current use of the spectral resources under discussion, in the 900, 1800 and 2100 MHz bands.

4. With reference to a possible re-use of 900 and 1800 MHz bands for the 3G technology, it seems useful to highlight that, both at national and international level, operators' interests seem to converge on 900 MHz frequencies.

5. The 900 MHz band re-use, is considered to be favourable because of the wider territory coverage for third generation mobile networks, compared to that reachable in 1800 and 2100 MHz bands. The 900 MHz frequencies band, besides carrying further spectral resources to 3G, shows in fact radio-electric features, in terms of propagation, that make both network development and achievable coverage very interesting if compared to what currently happens in the 2.1 GHz band alone. In fact, the 900 MHz band allows to reach a wider coverage and a better penetration into the buildings. Furthermore, in rural areas the introduction of 3G at 900 MHz would reduce the number of radio base stations needed - the coverage area being equal - compared to 3G operated in the 2.1 GHz band. As a consequence, costs incurred by operators for the 3G mobile networks' development could decrease, and the offer of related services would increase - to the advantage of users and consumers - especially in less densely populated areas, furthermore allowing to limit, in the meanwhile, the environmental impact deriving from the infrastructure development. In urban zones, the higher penetration into the buildings of 900 MHz frequencies, would even ensure mobile networks a good coverage within the building themselves, allowing to maintain the 3G network quality at the same levels as current GSM networks, without enlarging the infrastructures.

6. Moreover, it seems to be close enough the availability of network equipment and UMTS terminals in the 900 MHz band. The interest in the 1800 MHz band usage for 3G instead, appears to be currently smaller as well as the industrial availability of compatible equipment.

The present situation of frequencies assignment for radio mobile systems and of the regulatory framework

7. On the 7th October 2003 the Ministry of Communications notified the Authority to have subscribed an agreement, hereafter referred to as the "procedural agreement", under art. 11 of Law no. 241/90, with the public GSM radio-mobile operators, in order to assign the available frequencies in the 900 MHz band. Such an agreement was founded on art. 6 and 7 of Decision no. 286/02/CONS. In particular, art. 7 of the above mentioned Decision prescribes that public GSM operators - save the provisions set out in art. 2 and 5 of the Decision itself - have the possibility to propose plans aimed at the allocations' reorganization in the 900 MHz band, in order to get a more rational usage of the frequencies themselves.

8. The procedural agreement provided for a division into three phases of the assignment and reorganisation of 900 MHz GSM frequencies. The steps following the first one would have been only reached if the Authority had removed the restraint of spectrum cap of gross 25 MHz GSM - at national level - to the total amount of frequencies that each radio mobile operator can hold, limit provided by Decision no. 286/02/CONS. In case such a condition was not met, the agreement provided for a reserve phase of assignment, the so called "phase 2bis".

9. Following the procedural agreement, the Ministry authorised the assignment of the frequency band left free from TACS and CT1 - according to what provided by the Ministry Decree of April the 1st 2004 – as well as reorganising the allocations of 900 MHz band, by means of decrees of October the 20th 2003 and December the 29th 2004. The last of them resulted in the operators realising the so called "phase 2bis" of the procedural agreement.

10. Decision no. 286/02/CONS furthermore provided that, because of the present provision of GSM frequencies assignment to existing GSM operators – widely justified in the premises of the Decision itself - it was necessary to determine a spectrum cap of overall gross 25 MHz - on a national basis – to frequencies that could be allocated - between 900 and 1800 MHz - on demand and in a non-discriminatory way to single operators, upon achievement of some efficiency requirement, as stated in art. 2 of the Decision itself.

11. The present frequencies assignment, moreover provisional, shows - following the weighting principle provided by Decision no. 286/02/CONS - a slight overrunning of some channels by a single operator, compared with the cap of 25 MHz. However, the possibility of such an overrunning had already been reviewed by the Ministry and the Authority. With the note of July the 29th 2003, in fact, the Ministry requested an opinion to the Authority on the possibility that, given the progressive calendar of TACS and CT1 frequencies liberation, it could be temporarily necessary - due to the delay in any revision of the overall framework of frequencies allocation - to proceed to

an assignment plan that would imply a slight exceeding of the national 25 MHz limit foreseen. The Authority, with the note of September the 12th 2003, provided that, for proved technical reasons, a modest exceeding of the cap that had been set could be feasible, as long as temporarily and provided that such a situation would not constitute any right or expectation for the use of the exceeding band after December the 31st 2005 (which was the date for the final suspension of the frequencies' usage for the TACS service) or whenever the above mentioned technical reasons had ceased.

12. In addition, it has to be pointed out that such an allocation is provisional and justifiable on the basis of the technical needs for a re-allotment and for a first rationalisation of the channels assigned to the three existing GSM operators. Furthermore, efficiency reasons, linked to the overall usage of frequencies, would have made unjustified any lack of use of such a small number of channels.

13. Following the notification of the procedural agreement, under art. 3 of Decision no. 286/02/CONS and art. 29, paragraph 1, lett. b) of the Code, by means of Decision no. 54/04/CONS, the Authority started up a public consultation on the definition of the procedures to be followed in the assignment of the rights of use of the available frequencies, intended for the public GSM service, to the existing operators and any new operators. 12 companies have sent their contributions for this consultation (WIND, TIM, H3G, Vodafone, Tele2, Trans World Communications Italia, ComasmoTel and Iride (jointly), ReteItaly, Startel, Spal Telecommunications, Telecom Italia and the Association AIIP). In particular, WIND, TIM, H3G, Vodafone, Trans World Communications Italia, ComasmoTel, Iride, ReteItaly, Startel and the Association AIIP, also requested to illustrate their response document in the course of a hearing.

14. On the conclusion of the above mentioned public consultation, the Authority noticed there was not enough interest in the entry of an additional GSM operator with the base of its spectrum in the 1800 MHz band, the only one then available, with sufficient width, for the offer of services comparable to those of the incumbent operators, and who would proceed to the realization of a self-owned network.

15. In particular, it has been highlighted that the infrastructural development of a new GSM network, with subsequent considerable investment in a – already by then - completely mature technology, in a context in which already appeared with initial success the new technologies that, over time, should replace GSM itself, would have been at great risk of failure. In such conditions, in fact, investments would have been addressed to a network based on a technology to be considerable almost obsolete, therefore sacrificing potential developments in more promising and efficient technologies. On the other hand, the commercial success of an eventual fourth national GSM operator would have been highly doubtful, taking into consideration that some time before, a fourth national GSM operator (without UMTS license) had closed down – BLU - which had at its disposal a self-owned GSM network sufficiently extended, with coverage duties voluntarily taken during the tender and a considerable number of active clients. No concrete manifestations of interest in the development of such a national network were noticed, without the claim for the introduction of significant asymmetrical measures in charge to the other operators - who should have accompanied and fostered the development of such a new operator - and the request for the absence of any minimum coverage obligations. In particular, the development of a possible new network would have addressed only the most profitable areas;

therefore such a potential new GSM operator would have been marked out by its being substantially a virtual operator, taking also into consideration the Italian market saturation and the absence at date of significant capacity problems on the existent networks, ensured by the band assigned to the existent operators under the Decision of year 2002 and by the start up and development of 3G services in the 2.1 GHz band.

16. On the other hand, the Authority verified - with the above mentioned public consultation – the lack of any convergence amongst radio-mobile operators on the modalities of assignment of the residual 900 MHz band and on the possibility to rationalize the 900 MHz band, and therefore has considered that the most feasible solution, both for the balance of the market and the service development, would be the *status quo*.

17. Furthermore, at European level, the first discussions on the perspective *refarming* of the band and its flexible usage were just started and that was confirming – taking also into consideration that both the allocations following Decision no. 286/02/CONS and the start up and development of third generation radio-mobile services had allowed a significant capacity resource to the operators – that the new band assignment, under the regulatory framework then in force, was not a priority.

18. The 900 MHz frequency band is made by two 35 MHz blocks divided by a 45 MHz duplex separation, corresponding to the 880-915 MHz and 925-960 MHz sub-bands.

19. The 1800 MHz band is made by two 75 MHz frequency blocks, divided by a 95 MHz duplex separation, then corresponding to the 1710-1785 MHz and 1805-1880 MHz frequency sub-bands. The first paired 5 MHz of the above mentioned band are reserved, by the National Plan of Frequency Allocation, for the Defence , then the band available to the radio-mobile systems results in 70 MHz, in accordance with the National Plan of Frequency Allocation.

20. The assignment plan of 900 MHz and 1800 MHz band provides for a division among three GSM operators (Telecom Italia, Vodafone, Wind). In particular, the 900 MHz assignments provide in turn for a division between big cities areas and rest of the territory, which leads to a non-efficient usage of the spectrum and to the breaking up of the band among operators into uneven blocks. Such a situation comes from a definition of the assignment plans which took place over time starting from the first ‘90s, in order to face up to the technological developments and the growing demands of the market in mobile communication services and on the basis of rationed availability.

21. Current total frequency assignment of public operators are reported below. For the computation of the national band, in cases in which the same frequencies are allocated to different operators in different sections of the national territory, it is possible to use the provisions of art. 1, paragraph 4 of Decision no. 286/02/CONS:

Operator	Band allocated at 900 MHz and 1800 MHz, expressed in paired MHz[1]	
	900 MHz Band	1800 MHz Band
TELECOM ITALIA	16 big cities: 12.2 MHz Rest of the national territory: 10.2 MHz	15 MHz
VODAFONE	16 big cities: 10.2 MHz Rest of the national territory: 9.0 MHz	15 MHz
WIND	16 big cities: 4.8 MHz Rest of the national territory: 7.8 MHz	16 big cities: 20 MHz Rest of the national territory: 15 MHz
Guard-Channels	1.6 MHz	
AVAILABLE	6.4 MHz	All national territory: 20 MHz In addition, over all national territory except 16 big cities: 5 MHz
TOTAL	35 MHz	70 MHz

22. The current situation of assignment in Italy, with reference to the band IMT-2000/UMTS at 2.1 GHz (the so called “core-band”), is furthermore reported for the subsequent considerations.

Frequencies band	Usage	Assignment
1900-1920 MHz (20 MHz)	UMTS TDD	H3G (5 MHz) VODAFONE (5 MHz) TELECOM ITALIA (5 MHz) 5 MHz assigned to IPSE2000 now revoked
1920-1980 MHz 2110-2170 MHz (2x60 MHz)	UMTS FDD	TELECOM ITALIA (2x10 MHz) WIND (2x10 MHz) H3G (2x15 MHz) VODAFONE (2x10 MHz). 3 blocks of 2x5 MHz assigned to IPSE2000 now revoked
2010-2020 MHz (10 MHz)	free	
2020-2025 MHz (5 MHz)	UMTS TDD	1 block of 5 MHz assigned to WIND

[1] The 16 biggest cities are the territorial and suburban areas of: Milano, Roma, Napoli, Torino, Palermo, Padova, Genova, Bologna, Firenze, Bari, Cagliari, Catania, Messina, Taranto, Trieste, Verona. The population in such areas constitutes about 18% of the national total amount.

23 In the month of January 2006 the Ministry of Communications provided for the formal withdrawal of the license of the fifth UMTS operator, that is IPSE 2000, with an endowment in the 2.1 GHz range, (specifically 15 MHz, coupled for the FDD use and 15 MHz and non coupled for TDD use) this procedure is still subject to a second degree litigation process in the administrative justice courts.

24 At the European Community Seat, the course of action to start the procedure to withdraw the 1987 GSM Directive , tied to the use of the 900 MHz bands (excluding the so called extended band or the ex TACS) and of the 1800 MHz to the use of the specific GSM technology was initiated . "Council Directive 87/372 CEE of June 25th 1987 on the frequency bands to be assigned for the coordinated introduction of the pan-european digital cellular public service for ground radio mobile systems of the Community." It is anticipated that such a Directive, that ratifies the withdrawal of the GSM directive, will become law in a period between this present year and the beginning of next year.

25 Specifically, the Commission, in the month of May 2007, has obtained the favourable opinion of the Radio Spectrum Committee, in order to issue a decision regarding the flexible use of the bands at 900 and 1800 MHz, which would be open therefore, also to UMTS systems or other equivalent and compatible technologies "Decision on the harmonization of the 900 MHz and 1800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communications services in the Community". Such a decision should become law at the same time of the withdrawal of the GSM directive

26 Both decisions are supported by the following compatibility CEPT studies: ECC Report 096 "Compatibility between UMTS900/1800 and systems operating in adjacent bands" and ECC Report 082 "Compatibility study for UMTS operating within the GSM 900 and GSM 1800 frequency bands".

Frequency 900 MHz bands: Redefinition of the framework regulation

27 The present system of assignments in the 900 MHz band is insufficient because it consents an excessive fragmentation of the channels among the assignees, and on the territory, consequently entailing a subdivision among geographical zones , that brings about respect areas where such frequencies cannot be utilized.

28 Furthermore the present assignment plan is not organized in 5 MHz blocks hence rending it necessary, in order to carry out an eventual refarming plan of technologies that make use of blocks of the afore said dimensions, to modify the present day assignments.

29 A refarming plan could therefore, by and large, involve a slight reduction of the band assigned to the existing GSM operators. This, is inevitable, because the use of 3G systems requires a band of multiples (entire multiples) 5 MHz. Such a reduction would be fully compensated by the increased efficiency resulting from the use of systems such as the 3G, and by the possibility of developing such systems in a band that has the characteristics of propagation that are more advantageous than other bands in use for the 3G technology services. In particular, a slight reduction of the GSM channels will be

greatly compensated by the possibility of utilizing, within a short period, the 3G technologies that consent a greater efficiency in terms of satisfaction of the final users, the option of using guard bands which cannot presently be dedicated to such services and the recuperation the service areas of the respect areas, between the major cities and on the rest of the national territory.

30 On the other hand some of the present assignments, that fall under the regulations set forth by Decision no. 286/02/CONS are temporary, therefore the Authority believes that GSM assignments must be re-examined in the context of a process that should privilege the introduction of an advanced technology, because, as it has been demonstrated, they allow a more efficient use of the spectrum.

31 As far as the development of 900 MHz spectrum assignments plans is concerned, the Authority has identified two possible solutions. The first entails the possibility of promoting, with the agreement of all the existing managers, a reallocation and refarming plan within a short time period (Option A), thus allowing, while safeguarding the sole GSM final user and providing for the transitional technical requirements, the use of a 3g systems band, in a relatively short time span, while the second plan, an alternative option to the first, entails that the overall refarming be executed at the very latest at the expiration date of the licenses of the present day managers and before the possible renewal of new licenses (Option B). The existing GSM licenses have a deadline between the year 2015 and 20018. If this second option is chosen, it would be necessary, in a relatively short period to initiate a procedure to recuperate the GSM channels that were temporarily assigned, in order to start the refarming of least some portions of the 900 MHz spectrum.

32 A possible work hypothesis for an assignment plan, in case the aforementioned hypothesis A can be carried out, entails the full operational channelling of the 900 MHz band in 5 MHz bands on a national basis, and the assignment at multiples of 5 MHz, establishing that no operator can dispose of more than two blocks each, so that a balance in the competition can be achieved .If hypothesis A , is to be carried out a slight readjustment of the gross band designated to each operator may be necessary , keeping in mind, what has already been decided under Decision no. 286/02/ CONS, which allows the present GSM operators to reach, under specific conditions, a maximum of gross 25 MHz, between 900 and 1800 MHz.

33 Under the conditions described in the A hypothesis there should be the identification of two 5 MHz blocks to be assigned on the basis of a competitive selection, with special consideration for those operators who need added resources in order to achieve a renewed equilibrium of the assigned band to all the radio mobile managers. Such blocks could be used for 3G type technologies, eventually taking into consideration, the possibility of introducing roaming obligations to share frequencies for one or both blocks.

34 A slight reduction of the band of the existing GSM operators would occur voluntarily, and at the expense of such operators. No financial compensation is foreseen.

35 As far as the maximum existing limit of the present GSM operator bands is concerned, the Authority believes, that following the aforementioned re-assignment and flexibility plan, such a limit, where necessary should be removed. The ceiling of 25 MHz was set as an indication limit that could be subject to future revisions, and it was also set to

avoid the accumulation of the endowment in few subjects on the basis reserved assignment procedures.

36 If an agreement that will consent the realization of option A cannot be reached, the Authority believes that there may be a need to re-examine the existing GSM assignment conditions, in particular the temporary assignments described in the Decision no. 286/02/CONS. This should be done, also in light of the increased number of GSM customers that has occurred in the meantime, with the aim of liberalizing portions of frequencies of 900 MHz reusable in the short period of time for 3G systems.

37 Such blocks, of which one is certainly identified in 900 MHz band currently free, equal to gross 6.8 MHz, as previously described, could be assigned in a short period of time with competitive selection procedures eventually to be primarily reserved for operators with limited availability in 900 MHz band or that are not in possession of frequencies in the same band, for the immediate use with 3G type technologies.

38 In the case of the B hypothesis, the overall 900 MHz band refarming plan should be re-examined within the deadline of the present day licenses for the existing managers and eventually at the very latest carried out at the time of an eventual renewal. In the meantime, no further change in the use of the already allocated band technology should be authorized.

39 The refarming process, that will have been activated, if either hypothesis is adopted, would not change the length of the licenses of the managers that had previously been authorized. However, when the full operational status has been reached, and the refarming process completely achieved, the present GSM licenses could be converted to a UMTS use and extended until they can be aligned to the present UMTS licenses, in order to have a sole homogenous deadline.

Consultation questions

1.1 Can the proposals, for the full operational status assignment and for the 900 MHz for radio mobile refarming band, described in the two hypotheses, be agreed upon?

1.2 Are the conditions set forth in the realization of the assignments adequate?

1.3 What could be the time period to realize a new assignment plan, whether the hypothesis A or the hypothesis B is adopted?

Frequency bands at 1800 MHz: Redefinition of the framework regulation

40 For the 1800 MHz band it is considered reasonable to proceed to confirm the temporary allocation of the 5 MHz block to Wind. The temporary allocation covers 16 major cities and should be extended to national level. A possible permanent allocation which would allow Wind to develop its services may be based on decision n. 286/02/CONS. Such an allocation would allow a more organized and efficient use of the spectrum.

41 The rest of the non-allocated 1800 MHz band (2x20MHz), which the current National Plan for Frequency Allocation (NPFA) foresees to be allocated, as public radiomobile systems, could be initially destined (2 blocks of 2x5MHz) to operators not disposing of a 1800 MHz licence for the use of 3G technology. This measure is subject to the condition that market demand is verified and that the foreseen conditions are met. Eligible operators include eventual new entrants.

The rest of the band should be used as a "safety buffer" to the end of realising the temporary *refarming* plan. Allocations are then possible in the light of more recent developments in the market.

42 The 1800 MHz band allocations require a previous liberation of frequencies by the department of defence and is subject to the conditions indicated in the NPFA.

43 For already allocated 1800MHz band the refarming plan towards 3G technologies should be examined on the basis of market demand and GSM user needs.

Consultation questions

2.1 Do you agree on the proposal for the allocation of 1800 MHz frequency bands for radiomobile systems?

2.2 Do you think the conditions foreseen for the execution of the allocations are adequate?

2.3 In particular, which could be the time line for the allocation for the last band available? Which could be the time line for the availability of 3G equipment?

2.4 How could a frequency allocation *refarming* plan be organised?

Technical conditions for the refarming of 900 and 1800 MHz band

44 For the technical conditions of the execution of refarming, and hence the possibility of regulation of the transition from GSM to UMTS or other eventual equivalent technologies (compatible according to the law in force) several considerations have to be made.

Referring to the Report 82 of CEPT, according to which coexistence of UMTS and GSM are possible as long as they respect coordination regulations. The distance between the UMTS and the nearest GSM electromagnetical waves is recommended to be at least 2.8 MHz. Consequently, the neighbouring GSM operator could face limitations in using at least one channel when there is no adequate coordination or the introduction of a "safety buffer" band.

45 It is reasonable to consider that operators that dispose of only gross 5 MHz with in the 900 MHz band for the use of UMTS could not use their electromagnetical waves without an agreement with the neighbouring GSM operator. For the 1800 MHz band however, in these circumstances the introduction of UMTS could be simplified because the band is larger and already organised in 5 MHz blocks.

46 It is reasonable that in the considered scenario for the allocation of 900 and 1800 MHz bands the operators interested would foresee an adequate plan for usage and migration from the actual to fully operational situation.

47 The UMTS 900 and 1800 MHz operators and the neighbouring GSM operator should negotiate in good faith the deployment of the UMTS network in order to minimize the need for protection. A GSM operator which intends to operate UMTS waves maintaining other GSM channels should carry out such refarming by using frequencies next to the UMTS operator as far as possible.

48 The costs of *refarming* have to be sustained by the operators and no form of financial compensation is foreseen.

49 The refarming plan from GSM to UMTS must guarantee the protection of users, in particular those still operating GSM devices. The authority is reserving the right to examine and approve the foreseen plan.

Consultation questions

3.1 Do you agree on the technical proposal for the execution of *refarming* for the 900 and 1800 MHz bands?

3.2 At which conditions could a change in technology by a GSM operator by authorised? In particular, how could consumer protection be verified?

3.3 The actual EC decision draft in process of adoption foresees the flexible use of 900 and 1800 MHz bands for pan-European compatible systems of electronic communication, one of which currently is UMTS. Do you intend to propose the introduction of other technologies? If so, in what sense?

Re-allocation of frequency bands of blocks in the 2.1GHz band

50 A variable that can influence also eventual future decisions is the possibility of reallocation of frequency blocks in the 2.1GHz band given the exit of IPSE2000 from the market. It is assumed that the use of this band will occur with IMT2000 systems, as foreseen by the NFAP.

51 It could therefore be proposed a scenario which foresees to auction 3 blocks of 2x5MHz of coupled spectrum and the launch of a competitive selection procedure during which 2 of 3 blocks would be reserved in first instance to new entrants, which could also compete for free 1800 MHz blocks. The third block of 2.1GHz would also be accessible to existing radiomobile operators.

52 For an eventual new entrant coverage obligations similar to those imposed during the last UMTS selection could be introduced. The duration of the licence could be aligned with those of the other UMTS operators in order to homogenize the system of expiry and eventual renewal of licences.

53 The TDD band included in the UMTS core band, should account for the fact that the development of technologies, contrary to expectations, has not led to the efficient use of

this band. It is currently not disused. It can be supposed that an efficient allocation solution would foresees an exchange of Wind's TDD block with the TDD block included in the ex IPSE2000 licence. At the moment this solution is not feasible. Such an exchange would have advantages for Wind as the interference conditions of the ex IPSE block are considered superior. It would also have an advantage for the Administration, given that it could dispose of a additional continuous and fully free 15 MHz band from 2010 to 2025MHz. Such a band could be subject to future decisions by the authority, under the circumstance that there is sufficient interest in the market.

54 Pro-competitive measures in favour of the eventual new UMTS operator would be in line with the provisions of the UMTS licence auction. It would be foreseen that the new operator could benefit from free roaming on the whole range of GSM frequencies (900 and 1800 MHz) for a period of 5 years (starting at the moment when frequencies first become available). It is foreseen that roaming costs covered by existing operators. The authority considers that the particular conditions for this obligation are congruent to the analogous conditions at the indicated UMTS auction.

Consultation questions

4.1 Do you agree on the proposal to allocate the ex IPSE2000 2x15MHz band at 2.1GHz in blocks of 2x5MHz by reserving two of them in a first instance to a new entrant offering 3G services, while making the third one also accessible to existing mobile operators?
4.2. Do you agree on the proposed conditions of allocation?

4.3 If the respondent is a legal person considered to be a new entrant into radiomobile services for public use, it is kindly asked to attach a non-binding letter to express its interest (max. 2 pages) containing indications regarding the project plan and the financial resources foreseen for its implementation.

4.4 Do you agree on the proposal of an exchange of a 5MHz TDD frequency block as mentioned?