



**Ministry for
Competitiveness and
Communications**



Policy and Implementation Strategy re:

- **Digital Terrestrial Television (DTTV)**
- **3rd Generation Mobile Telephony (3G)**
- **Broadband Wireless Access (BWA)**

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1. Executive Summary

In July of 2004 the Ministry for Competitiveness and Communications launched a concurrent consultation process on three proposed Strategies relative to:

- Digital Broadcasting
- 3rd Generation Mobile telephony, and
- Fixed Wireless Access¹

In the explanatory memorandum that introduced the three proposed Strategies it was mooted that:

All three strategies can live and be addressed independently of each other. However it has been deemed more feasible to issue these concurrently. All three media, which the respective strategies address, carry the potential for so called 'triple play', that is the ability to carry sound, vision and data. It is therefore ideal to present existing operators and prospective investors with as comprehensive a picture as possible as to the potential shape of the market and the envisaged networks and services that should be available in the foreseeable future. This should facilitate forward planning and investment decisions on the part of market players.

All three strategies were launched for consultation concurrently with a two-month plus timeframe for responses. Notwithstanding the 30th September closure deadline, a number of responses were received after this date and were accepted on the basis that the Ministry needed as wide a spectrum of opinions as possible. The assessment of responses and discussion in Cabinet have also taken place concurrently.

For the purposes of this document the proposed strategies are deemed and referred to as one overarching strategic exercise with respect to the implementation in Malta of these wireless technologies.

The submissions made and other feedback on all three fronts has been valuable to the extent that it has, in several instances, been instrumental in reshaping a number

¹ The terms 'Fixed Wireless Access' and 'Broadband Wireless Access' will be used interchangeably throughout this document to emphasise point to multipoint access networks.

of key features. Beyond the narrower aspect, the national debate that these consultation documents has generated is healthy and ongoing.

Following these deliberations, Government has been able to chart the way forward with an overarching policy for these wireless technologies. As regards strategies and implementation 'on the ground', the Malta Communications Authority (MCA) is now charged with the mandate for spectrum assignment. Notwithstanding this, it is also envisaged that other institutional bodies such as the Broadcasting Authority and the MEPA will also play key roles as developments unfold.

The Strategy has been drawn up in accordance with the Electronic Communications (Regulation) Act. As far as spectrum assignment is concerned a number of key principles are espoused in this framework, notably that spectrum, once available, should be assigned in the most efficient manner, within specified time-frames and in a transparent and non-discriminatory manner, following a request by a prospective operator. If demand for spectrum exceeds supply, then a competitive assignment process should be followed.

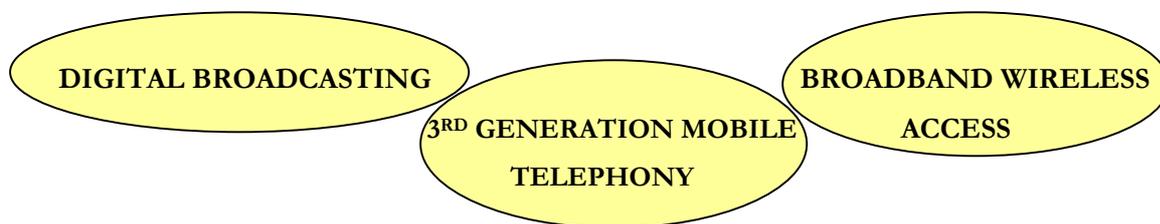
The European Commission has shown interest in the consultation exercise and has commented accordingly in the Tenth Implementation Report, which highlights the state of play in the rollout of electronic communications networks and services throughout the European Union.

A series of interactions has also taken place between the respective representatives of the Ministry/MCA and the European Commission with a view to clarifying, among other topics, certain principles and related measures that were being considered in the proposed Strategy. The exchanges have proven fruitful and have resulted in some modifications and clarification to ensure that the eventual Strategy is better aligned to the principles of competition, technology neutrality, efficiency and speed in radio spectrum assignment as set out in the relevant EU Directives and transposed into Maltese Law. The gist of these discussions and their impact on the proposed Strategy are addressed separately in this document.

The overall picture that emerges from this consultation is one of significant interest in the market for the launching of new networks and services to the extent that a competitive selection process will need to be adopted in respect of each of the three technologies in question. The strategy being adopted leaves room for a fine tuning of

the competitive process being envisaged with respect to two of the three technologies. This is being done in order to ensure that the eventual outcomes are of most benefit to the Maltese public.

This document reflects Government's final policy direction on each of the three technologies that are addressed. It also provides details of the spectrum assignment process, which will be undertaken by the MCA, with respect to each of the three technologies. It therefore serves a dual purpose and should be construed as a joint Ministry for Competitiveness and Communications/Malta Communication Authority policy and strategy document.



2. Introduction

The Purpose of this document is twofold. In the first instance it is intended to inform the public of Government's final policy intentions relative to:

- Digital Broadcasting
- 3rd Generation Mobile telephony, and
- Broadband Wireless Access

In this context the document highlights the impact of the responses and other inputs on the outcome of the policy that government intends pursuing in respect of each of these three technologies.

This document is also intended to provide information as to planned next steps by the MCA in the assignment of frequencies relative to each of the above mentioned technologies.

Given its dual purpose, this document is to be construed as a joint Ministry for Competitiveness and Communications/MCA statement of policy and strategic direction. It serves to bring to a conclusion the consultation process initiated by the Ministry last year and sets out a clear course for the selection of prospective operators/service providers and assignment of relevant spectrum by the MCA.

3. Principles Underpinning Spectrum Assignment

The assignment of spectrum with respect to the three technologies in question is based on a set of fundamental principles to the effect that:

- Spectrum is a limited national resource and must be used efficiently
- Operators have time-bound rights of use of spectrum & NOT ownership
- If spectrum is available, it must be assigned if requested by an undertaking which can prove its ability to comply with the conditions attached to the right of use
- If demand exceeds supply a fair, transparent and non-discriminatory competitive assignment process is necessary
- A competitive selection process for the award of radio spectrum can be based on either qualitative (beauty contest) or quantitative (auction) criteria depending on circumstances
- Spectrum must be fairly priced

The above principles underpin, to a significant extent, the proposals that were put forward in the draft Strategy, namely:

- The granting of rights of use for spectrum to deliver Digital Terrestrial Television (DTTV), 3rd Generation Mobile Telephony (3G) and Fixed Wireless Access (FWA) services against payment
- The determination of an appropriate fee to be charged for such rights of use
- The methodology to be used in each case in order to assign such rights of use
- The number of service providers to be granted rights of use
- The definition of roll-out obligations to be imposed on service providers
- The selection of an appropriate analogue television switch-off by which date all local analogue terrestrial transmissions must cease

4. Digital Broadcasting

4.1. Overview

The part of the strategy relating to Digital Broadcasting was tailored in support of the following policy objectives:

- Consumer choice
- Interoperability of systems
- Competitive market
- Efficient use of spectrum

The document also identified the key implications of introducing digital television and digital radio transmissions and identified specific measures that would need to be implemented.

The public consultation document thus focused on terrestrial transmission, however in the formulation of this strategy Government has taken into consideration all technology platforms. The policy objectives and the policy measures stated therein, where not specific to digital terrestrial transmissions, are applicable to all platforms.

In total seven submissions were received in response to the public consultation. The submissions were made by the following:

- Maltacom plc
- Media.link Communications Company Ltd
- Melita Cable plc
- Multiplus Ltd
- ONE Productions Ltd
- Smash Communications Ltd
- Techinvest Ltd



This document presents the outcome of the consultation process and the final position that is being adopted.

4.2. Forward Strategy

4.2.1. Applicability

Some of the submissions received implied an unclear understanding of the applicability of the Electronic Communications (Regulations) Act (ECRA). It is clarified that the ECRA stipulates that all networks used for radio and television broadcasting are classified as electronic communications networks to the extent that they are used for the purpose of transmitting signals, irrespective of the type of information conveyed.

A general authorisation for network provision and the associated administrative fees are therefore applicable to such networks. It should be clarified that the ECRA does not extend to content provision as provided for by article 5.

4.2.2. State Aid

It is pertinent to point out that the analysis of the market drivers did not indicate the need to provide subsidies as an incentive for migration of households to digital TV.

No subsidies on set-top boxes or integrated DTV sets are therefore envisaged. The measures contemplated in respect of integrated DTV sets and set-top boxes and that will be pursued are not linked to subsidies but are limited to consumer information campaigns and the requirement for clear equipment labelling.

Subsidies or financial aid may be considered only in respect of households qualifying for social assistance. A final decision on whether such a subsidy is required and the form of subsidy will be taken towards the end of the simulcast period envisaged for 2010.

4.2.3. Indoor / Portable Reception

The consultation document highlighted the need for indoor / portable reception for two reasons. Indoor / portable reception is a distinguishing feature of DTTV transmissions which could in itself serve as a market driver. Another consideration is the negative aesthetic impact of roof top antennae that outdoor reception entails.

Cognisance has been taken of the constraints that are related to the realisation of such reception, including transmission parameters, transmission sites, the topography of the islands and building materials predominately in use. Implications on infrastructure cost and spectrum usage have also been taken into consideration, however for the reasons mentioned above, the option for indoor reception continues to be considered the preferred option.

In this context indoor reception is not being mandated but has been identified as a preferred feature of any terrestrial network. The networks' capability of providing a degree of indoor / portable reception will be taken into consideration in the event of a comparative assessment of applications leading to the award/assignment of rights of use of spectrum.

4.2.4. Technical Standards

It is essential that any transmission networks are rolled out with a view to ensuring interoperability of services and to improve freedom of choice for users. Digital transmission networks may therefore be required to conform to standards as may be established in accordance with the Electronic Communications (Regulations) Act or other applicable legislation. All transmissions will have to conform to the relative DVB standards

The following are the main features relative to DTTV technical standards:

- Transmission standard will be DVB-T
- Conditional access systems across the DTTV platform will be such that consumers will not need to change set-top box if they opt to change service provider
- DVB-MHP will be the preferred standard
- Channels in the UHF band will be reserved for DTTV transmissions
- Channels in the VHF band will be reserved for new services

4.2.5. Transmissions Networks

There have been mixed responses to the options that were presented in the consultation document. These are succinctly captured below.

Current broadcasting licence holders were of the opinion that they should not be required to negotiate carriage over third party infrastructure and that they should be assigned a frequency for the transmission of DTTV. A number of limitations and commercial hurdles in respect of carriage by a government or third party infrastructure were highlighted.

At the same time respondents who are potential network operators were of the opinion that a network operated by a third party should be the only path pursued and a number of issues and concerns were raised in respect of a network operated by a consortium of broadcasters.

The European Commission, in the course of discussions held, expressed its opinion that analogue broadcast content providers (also owning transmission networks) should not have an automatic right to frequencies in the digital environment.

It is premised that where broadcast content providers would qualify as falling in the ambit of general interest objectives on the basis of a set of clearly defined, pre-determined criteria, an assignment of rights of use of frequency spectrum can still be made, although this would not equate to the exclusive use of a full frequency on the part of such broadcast content providers.

In view of the comments received it is felt critical to highlight here the context within which the preferred options were identified. Of primary relevance in this context is the need to ensure that the implementation strategy is premised on providing an environment which allows for maximisation of spectrum utility as well as providing consumers with choice in terms of operators, content providers and range of services.

Spectrum is a finite resource and whilst the latest co-ordination of an additional 15 frequency channels to Malta may prove adequate for today's demand, we need to be vigilant to ensure that capacity is not dissipated over time, through inefficient assignment by the Authority or subsequent inefficient utilisation by network operators. Such a development will severely limit the potential of the terrestrial platform.

The retention by current broadcasters of a full frequency channel in the digital environment will result in the assignment of considerably more bandwidth over and

above what broadcasters require to meet their obligations under their current licence. Such a situation will result in inefficient spectrum use.

This notwithstanding, and taking into account that there are currently four operating broadcasters, all of which are operating a self-owned analogue transmission infrastructure, the strategy affords such broadcasters options for simultaneous transmission (simulcasting) of their own content in digital format.

To this end three (3) frequencies are being reserved for the transmission of local broadcast content in digital format. Eligibility for use of this transmission capacity will be determined by the Broadcasting Authority, who will establish the criteria for assignment on the basis of general interest objectives.

Discussions have taken place and will continue to do so between the BA, the MCA and interested parties as to the practical model that can be adopted for sharing these frequencies, keeping in mind the rights of prospective broadcast content providers to also reside on these frequencies. The existing (analogue) model whereby broadcast content providers have full control over the transmission part of their operation will no longer prevail.

The summary chart below shows the final strategy position relative to the number of channels to be assigned to commercial networks and those to be utilised for the purposes of local content broadcast provision. The reason for the changes from the initial strategy proposal is mainly due to the fact that it is now confirmed that 15 frequencies (in addition to the existing ones) have now been co-ordinated with neighbouring countries. This event has had a significant bearing on the final digital broadcasting scenario.

Strategy relating to:	Initial Proposal	Final Strategy
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Assignment of spectrum to networks	Conditional on available frequencies	Two blocks of 8 channels
Channels to assign to Broadcasters	Two to be shared	Three to be shared

4.2.6. Analogue Turn Off (ATO)

Analogue channel frequencies presently assigned, by the Broadcasting Authority, to existing broadcasters will be surrendered to the Malta Communications Authority on the Analogue Turn Off date - 31st of December 2010.

No analogue turn off date is being proposed for the cable network operator since there is no compelling issue such as the need to maximize efficiency in spectrum use. It is also premised that this operator will be driven towards the adoption of digital transmission by commercial considerations.

4.2.7. Other Efficiency Considerations

The establishment of a realistic analogue turn-off date represents an important efficiency consideration. Other measures that make for the efficient use of spectrum are highlighted below.

- In view of the foreseen technological change underway no further licences for analogue transmission should be issued
- All Spectrum will be priced. Spectrum will carry an annual charge of Lm2,500 per frequency channel as proposed in the draft strategy. However it was proposed that spectrum reserved for local broadcast content should be free. There is no economic argument to support this contention and such a measure may not withstand the test of equitability

4.2.8. “Must Carry” Obligations

Consideration has been given to the implications of “must-carry” obligations as currently applicable at law² within the context of the new digital scenario. The following aspects are worth highlighting:

1. Given the high viewership of local stations, it would be ideal to apply must-carry obligations to digital networks in support of an early migration to digital.

² LN 412 of 2004, Reg 51

2. The assignment of transmission capacity to local broadcast content providers (on the basis of general interest objectives) would remove any need to impose must carry obligations on terrestrial networks.
3. The issue of new broadcast content provider licences by the Broadcasting Authority could translate into a possible extension of the must-carry obligation beyond the current four channels.
4. Must-carry obligations should only apply to promote 'general interest objectives'.

In view of the above, the Malta Communications Authority, together with the Broadcasting Authority, will be reviewing the must-carry obligations as currently established by law. The matter will be addressed concurrently in the forthcoming consultation referenced in the section dealing with Transmission Networks above.

4.2.9. Terms of rights of use

In the consultation document the term of grant of rights of use was proposed at 8 years. A number of respondents commented that the proposed term is too short, given the investments to be made. These reactions have been taken into account. Although the term is retained at 8 years, it is premised that there will be a review of the licensee's activity two years before expiry, and subsequent to a satisfactory outcome, the rights of use would be renewed for a further term.



4.3. Assignment of Rights of Use of Frequencies

4.3.1. Selection Process

In line with the approach outlined above, two blocks of eight frequencies will be placed on offer for prospective DTTV network operators via a competitive call for applications. The selection of the successful candidates will take place via a beauty contest which will be initiated in March 2005. Since it is envisaged that there is more

demand than the number of blocks of available frequencies, a one-step approach is being adopted.

A document listing a number of pertinent selection criteria will be published by the MCA. Such criteria could include, among others, the following:

- The prospective enterprise's credentials
- The financial viability of the project
- The enterprise's prospects in regard to capabilities to establish and operate the network
- The quality of the technical solutions, including the type of conditional access and API systems to be used, coverage and indoor reception capabilities
- Plans for investments and development of the network, including marketing and costs to the general public
- Indications of the services that will be available such as interactivity, data services
- The type and variety of programme transmissions including the number of programmes transmitted in clear, i.e. not encrypted
- The availability of services which improve access to persons with disability
- Amenability to site and infrastructure sharing

At the beauty contest stage, participants would be expected to "bid-up" the minimum obligations contained within a sample licence that would be available together with the beauty contest document. This means that, essentially, participants would be contractually binding themselves over and above the minimum conditions attached to the right of use in terms of their performance over the duration of the spectrum lease. The appropriate penalties would apply in cases of non-compliance.

An appropriate performance guarantee will have to be provided by the applying parties. This is intended to provide a measure of assurance that successful applicants will abide by the conditions attached to the rights of use of frequencies.

4.3.2. Rollout & Coverage Obligations

The required rollout and national coverage obligations are set at 18 months from completion of the co-ordination process for each specific frequency channel or 18 months from being awarded rights of use of the specific frequency channel in the case where no co-ordination is necessary.

Pivotal to the smooth rollout of digital broadcasting networks will be the clearing up of a number of frequencies, that are earmarked for digital broadcasting networks, and that are currently being utilised in an unauthorised manner as repeater frequencies by a number of local analogue broadcasters. A resolution of this issue will have to be found ideally before the assignment of the frequencies in question. The deadline for achieving this is the 15th May 2005.

DTTV networks will be required to provide reception at 95% coverage over the whole of the Maltese Islands.

4.3.3. Sanctions & Forfeiture

Sanctions may be imposed on operators who fail to comply with the conditions attached to the rights of use. These could include the levy of fines or in extreme cases, where there are serious and repeated breaches and where measures aimed at ensuring compliance have failed, the forfeiture of the grant for spectrum rights of use would be invoked.

DTTV Summary

Following is a summary of the key policy and implementation aspects regarding the assignment of rights of use of spectrum for DTTV:

- Two blocks of 8 channels will be issued for assignment to network operators
- The assignment method will be via a beauty contest
- Lease duration will be for 8 years, renewable subject to review
- The required rollout and national coverage obligations are set at 18 months
- Three channels will be reserved for indigenous broadcast content providers
- The Broadcasting Authority (BA) in conjunction with the MCA will be reviewing existing, must-carry obligations
- Analogue turn-off date is set for the 31st December 2010
- No further licences for analogue transmission will be issued
- All Spectrum will be priced
- No subsidies on set-top boxes or integrated DTV sets are envisaged
- Indoor / portable reception features will be taken into consideration in the comparative assessment
- Transmission standard will be DVB-T
- Conditional access systems across the DTTV platform will be such that consumers will not need to change set-top box if they opt to change service provider
- Standard set top box enabling maximum service mobility for consumers
- DVB-MHP will be the preferred standard

5. Digital Radio – Forward Strategy

At the time of launching the consultation on Digital Broadcasting there was no discernible demand for the available spectrum for digital radio broadcasting. Nor was there reason to believe that any such demand would be forthcoming in short order. There was no feedback to the proposed Strategy in relation to Digital radio. The recent show of interest is more so surprising given the relative lack of take-up in the rest of Europe with some notable exceptions. The complete lack of an existing installed base of receivers was also an issue.

Since then the MCA has received several expressions of interest from prospective operators. Under these circumstances, the following measures will be adopted in the case of Digital Radio:

- Spectrum for digital transmissions will carry an annual charge of Lm1,000 per frequency channel
- Rollout is expected to be completed within 18 months from completion of the co-ordination process for each specific frequency block or from the date an operator is awarded rights of use of the specific frequency block in the case where no co-ordination is necessary
- Networks will be required to provide reception at 95% of locations covering the whole of the Maltese Islands
- No analogue turn - off date is envisaged at this stage
- DAB transmission standard will be used
- A spectrum assignment method will be ascertained should it result that demand for such spectrum exceeds current supply
- Duration of the right of use will be for eight years subject to a review two years before expiry and thereafter renewable for one additional eight year term

The successful applicant for rights of use of frequencies for DAB will be expected to abide by the conditions attached to the rights of use and to submit an appropriate performance guarantee in support of his commitment to abide by the licence conditions.

The extent of applicability of must carry obligations for electronic communications networks utilised for digital radio broadcasts will also be reviewed in consultation with the Broadcasting Authority. This process, in conjunction with ongoing research, will result in a more detailed strategic approach to this aspect of digital broadcasting.

6. Third Generation Mobile Telephony

In July 2004, the Ministry for Competitiveness and Communications issued a consultation paper outlining a proposed strategy leading to the eventual adoption of new third generation (3G) mobile telephony services in Malta. The consultation period for this paper ended in September 2004. Six submissions were received from;

1. Ericsson
2. ICM Ltd
3. Mobisle Communications Ltd (Go Mobile)
4. MDI
5. Techinvest Ltd
6. Vodafone (Malta) Ltd



These responses, together with a report on consultation, may be viewed separately.

On review, the received submissions highlighted a number of differing opinions regarding the proposed implementation of 3G in Malta. In response to these concerns, the MCA has therefore modified certain aspects of the original policy proposals. A number of key policy areas were thus revisited and the results of this review are outlined in greater detail below.

In meetings held in late 2004 with the European Commission, specifically the Information Society Directorate, a number of key issues relating to the topic were discussed which had a bearing on the policy/strategic direction originally drafted.

The European Commission also stated the following in the tenth Implementation report, which is issued annually and serves to outline progress within the Member states in the implementation of electronic communications networks and services:

The recently published (by the Ministry) consultation paper on the strategy for the implementation of 3G in Malta seems to suggest that the current mobile operators would be given priority in tendering for the respective frequencies (to be offered for a fixed amount of Lm 2.5 million to current mobile operators, whereas the same amount would be a minimum bid for the third licence).

The eventual strategy reflected in this document has, as a result been modified in line with these inputs.

6.1. Strategy Implementation

6.1.1. Realignment of Spectrum Bands & Assignments

In the original 3G consultation, it was proposed that up to **three** frequency bands would be made available for assignment. This would have allowed three operators to market 3G services. It was also suggested that the two incumbent 2G operators be allowed a right of first refusal on the first 2 bands of spectrum with a third being made available to other interested parties.

The submissions received from the various contributors in relation to this topic were varied and reflected the points of view of the existing operators, potential new entrants and the European Commission. Based on these responses, including the Commission's view, about the validity of limiting available spectrum to any interested party, it is now the intention to offer the **entire** 3G (IMT-2000) spectrum to interested parties. This will be partitioned into **three** bands of paired 20 MHz frequency ranges (i.e. 3 x 2 x 20MHz).

The spectrum band (for both FDD and TDD) will be partitioned as indicated in Appendix A.

It must also be noted that in order for the IMT-2000 spectrum to become available, this requires clearing of existing usage. The same spectrum is currently being used for broadcasting purposes and these users will have to be migrated to other frequencies. These operators include PBS Ltd and Smash Communications Ltd. The MCA has accelerated the migration process that should be completed by the time spectrum assignments take place or at the latest by the commencement of operations by 3G network operators.

6.1.2. Removal of discriminatory measures

The "right of first refusal" or "guaranteed against payment" assignments to the two incumbent (i.e. Vodafone (Malta) Ltd and Mobisile Communications Ltd) operators

proposed in the consultation document **will be removed**. Interested parties will now all have identical opportunities to secure a frequency range irrespective of whether they are new players or existing mobile operators.

This change removes any possible discrimination even though this may have been originally justified due to structural legacies.

6.1.3. Spectrum Valuation

The initial determination of the value of 3G/UMTS spectrum was based on comparative studies of how this was priced in various other countries. This detailed benchmarking exercise determined that an appropriate price for each band of appropriate spectrum was in the range of LM2.5M – LM3.4M (million).

Although the derived spectrum price is considered reasonable, it is fair to note that some of the data were derived from auctions undertaken at the peak of the “Dot Com” hype. One can argue therefore, that there could be some element of hyper-inflation of actual prices paid in some instances. Furthermore, elements of new competing technologies like WiMax, WiFi and VoIP were not yet prevalent as a viable competitive platform. These technologies could in future pose a competitive force and impact on 3G operators. Consequently, given the relative market size of Malta as compared to other accession countries, the lower of the range was selected as the right price for spectrum assignment in Malta.

The **Lm 2.5M (million)** price per band is therefore confirmed.

6.1.4. Payment for Spectrum

The two possible modes of payment proposed in the original consultation document will be retained. Parties who are successful in gaining access to rights of use of 3G spectrum bands can opt to pay for these rights in one of two ways;

1. An upfront payment, to be effected upon assignment of a frequency band of Lm2.5 Million.
2. A deferred payment scheme as per the “Enlightened” option schedule published in the consultation paper. The payment profile under the

deferred payment scheme remains unchanged from the original case. (i.e. 52% of the principal is paid within the first 3 years). This would result in an overall payment of Lm 3.7 million over the lease duration.

It is important to note that the following conditions still obtain.

- The risk free rate of 5.1% is applied to the deferred payment scheme when the discounted NPV (net present value) technique is used
- The term of the lease will be 15 years

6.1.5. Spectrum Assignment Methodology

The original policy position was to use an auction process as the basis to assign 3G spectrum. Auctions by their nature are market driven and rely on market forces as the most competitive mechanism for spectrum assignment. In many cases, the assignment process for spectrum utilised this medium. Nevertheless, some comments received through the consultation process evinced that both the presumed transparency and benefits prescribed to the auction process had not eventuated in a number of circumstances. Some proponents argued therefore that the use of beauty contests should instead be adopted.

Although recent empirical evidence does suggest some failings in an auction process, it is important to note that a beauty contest could face similar problems. Irrespective of the effort undertaken to ensure and demonstrate transparency and impartiality in the process, there will always be an element of distrust. Notwithstanding this, beauty contests do provide a number of distinct advantages, key being the ability of regulators to have a greater say and degree of control in the evolution of new services for the greater good of the community.

It is therefore decided that a beauty contest comparative mechanism will now be used to assign spectrum should demand for the three bands outstrip supply. This will involve interested parties submitting detailed applications that describe how they intend to implement their 3G networks and associated business models and making a case as to why their approach should be favoured over others.

6.2. Assignment of Rights of Use of Frequencies

6.2.1. Selection Process

Early in March 2005 the MCA will be issuing a call for applications for assignments of the right of use of frequency ranges in the IMT-2000 band for the eventual implementation and operation of 3G mobile networks and services. Accompanying this call will be the compilation of a sample licence to give clarity to interested parties as to the conditions associated with the rights of use of the relevant spectrum. An appropriate performance guarantee will have to be provided by the applying parties. This will provide the necessary assurances that successful applicants will abide by the licence conditions.

The call for applications will be used to assess demand for spectrum. Should demand following the close of the application period actually exceed the availability of frequency bands, then a second stage will be invoked in the form of a beauty contest as referenced above. There is however no merit in launching straight into a beauty contest, unless demand for available radio spectrum exceeds available supply. If this is not the case and there are three applicants (or less), then the assignment process will be expedited.

Interested parties will be invited to indicate at the call for application stage their ranked preferences for a particular frequency band/s. If supply exceeds demand, then assignments will take place according to these preferences. Should there be no way to easily reconcile these preferences, then a lottery will take place to determine the band assignments.

If it does result that a second stage is needed then the beauty contest will follow suit. At this stage a document listing a number of pertinent selection criteria will be published by the MCA. Such criteria could include, but this is not an exhaustive list, the following:

1. Access to adequate financing for the venture
2. Sound Business Case
3. Prior experience in electronic communications and mobile telephony
4. Type and range of services to be offered
5. Rollout & Coverage Commitments
6. Amenability to site and infrastructure sharing

At the beauty contest stage, participants would be expected to “bid-up” the minimum obligations contained within a sample licence that would be published at the call for applications stage. This means that, essentially, participants would be writing their own licence conditions by which they will be contractually binding themselves in terms of their performance over the duration of the right of use of spectrum.

6.2.2. Rollout & Coverage Obligations

In the consultation document, the desired rollout and coverage obligations were listed. Feedback via the consultation process was almost unanimous in that these obligations were overly ambitious and that a more cautious approach was called for. As a result operator obligations will now be as follows:

50% of national territory – 24 months from date of licence grant with the balance being covered within an additional 36 months (i.e. A total of 60 months from initial grant).

6.2.3. “Handback” Clause

Given the degree of uncertainty that still reigns in terms of ongoing 3G service take-up in view of possible competing or disruptive technologies, a condition shall be included in the licence assigning rights of use that will permit the holder to “hand back” the right of use to the MCA for re-assignment. However this condition shall be time bound for a maximum period of 18 months from the date of licence grant. Clearly, stringent conditions will be associated with the “hand back”. These will be clearly spelt out in the Call for Applications which will be issued in March 2005.

6.2.4. Sanctions & Forfeiture

Sanctions may be imposed on operators who fail to comply with the conditions attached to the rights of use. These could include the levy of fines or in extreme cases, where there are serious and repeated breaches and where measures aimed at ensuring compliance have failed, the forfeiture of the spectrum grant could be invoked.

3G Summary

Following is a summary of the key policy and implementation features regarding the assignment of rights of use of spectrum for establishing and operating third generation mobile networks:

- IMT-2000 spectrum to be split into three bands to facilitate efficient and timely network rollout and provision of adequate capacity
- Demand assessment will take place via a call for applications
- Should demand exceed supply, a comparative selection process will take place via a beauty contest
- A total of 60 months will be allowed for completion of network rollout
- Spectrum valuation has been set at Lm2.5 million per band with upfront or spread payments possible
- Lease duration of 15 years
- Handback of rights of use possible up to 18 months from date of grant, subject to stringent conditions



7. Broadband Wireless Access

7.1. Overview

In July 2004, the Ministry for Competitiveness and Communications issued a consultation paper outlining a proposed strategy leading to the eventual adoption of FWA services in Malta. The consultation period for this paper ended in September 2004. Six submissions were received from:

- ICM Ltd
- Maltacom plc
- Melita Cable plc
- Mobisle Communications Ltd (Go Mobile)
- Techinvest Ltd
- Vodafone (Malta) Ltd

In meetings held in late 2004 with the European Commission, specifically the Information Society Directorate, a number of key issues relating to the topic were discussed. These together with all the other inputs derived from the consultation have been carefully considered, resulting in changes to the original proposed policy approach and are now reflected in this document as the way forward.

The Commission, in the tenth Implementation report, had the following to say on the implementation of FWA in Malta:

Another consultation paper concerning the strategy for introduction of fixed wireless access (in the 3.5 MHz band) states that “though technically it is possible to grant more than one licence, the idea is to grant only two spectrum bands for this technology, at least initially, especially given the limited size of the country and market.” Without prejudice to the outcome of the public consultation in the above mentioned cases, it may be questioned whether such an administrative limitation of the number of individual rights of use for frequencies to be granted is in line with the provisions of the regulatory framework.

On review, the returned responses highlighted a number of differing opinions regarding the proposed implementation of FWA in Malta. In response to these concerns, certain aspects of the proposed Strategy are being amended. A number of

key policy areas were thus revisited and the results of this review are outlined in greater detail below.

7.2. Strategy Implementation

7.2.1. Realignment of Spectrum Bands & Assignments

In the original FWA policy paper, it was proposed that only two (2) bands would be put on offer. Besides this, since the introduction of FWA was seen as an excellent opportunity to promote investment by new entrants in the communications field, it was proposed that one of the bands would be reserved for undertakings that currently do not own any comparable broadband infrastructure in the local market.

The submissions received from the various contributors in relation to this topic were varied and reflected the points of view of the existing operators or potential new entrants. Based on these responses, including the Commission's inputs, about the legitimacy of limiting the number of available frequency bands, it is now the intention to offer the entire 3.5GHz spectrum to interested parties. This will be partitioned into three bands of paired 24.5 MHz frequency ranges (i.e. 3 x 2 x 24.5MHz) as indicated in Appendix B.

7.2.2. Removal of possible discriminatory measures

In order to ensure non-discrimination in the spectrum assignment process, it was decided that the proposed restriction with respect to one of the BWA bands for a new entrant would be removed. As a result, all interested parties will have the possibility to apply for any one of the spectrum bands available.

It is however pertinent to point out that during an eventual comparative phase, the effect these assignments will have on the competitive structure of the local market will be granted due consideration, especially where the possibility of new players entering the market is concerned.

7.2.3. Spectrum Valuation

The initial determination of the value of BWA spectrum was based on a comparative study of similar assignment processes held in various countries over the past years. This study, which took into account the relative size of Malta, determined that the appropriate price for spectrum was Lm 20,000.

This benchmark was essentially based on data derived from spectrum assignments held in these countries over the last years. It is fair to note that some of the data were derived from assignments undertaken at the peak of the Dot Com hype. One can therefore argue, that there could be some element of hyperinflation of actual prices paid in some instances. On the other hand, other assignments considered in the benchmarking process took place just after the year 2000 and thus the revenue generated in these cases was particularly low. This is more so since, new technologies like WiMax were not yet prevalent at the time.

Consequently, given these considerations, together with the responses from the consultative process, it was decided that the price for the spectrum would remain unchanged at Lm 20,000.

7.2.4. Payment for Spectrum

The rights of use will be granted against an upfront payment of Lm 20,000 per band. Furthermore an annual fee for the rights of use of a value of Lm 20,000 will be due on the anniversary of the grant for the duration of the lease.

7.2.5. Spectrum Assignment Methodology

The original policy position was to use an auction process as the basis to assign BWA spectrum.

Auctions by their nature are market driven and rely on market forces as the most competitive mechanism for spectrum assignment. In many cases, the assignment process for spectrum utilised this medium. Nevertheless, comments received through the consultation process revealed that some respondents felt that both the presumed transparency and benefits ascribed to the auction process had in a number of circumstances not resulted. Some proponents argued therefore that beauty contests should instead be used.

Although recent empirical evidence does suggest some failings in an auction process, it is important to note that a Beauty Contest could face similar problems. Irrespective of the effort undertaken to ensure and demonstrate transparency and impartiality in the process, there will always be an element of distrust. Notwithstanding this, Beauty Contests do provide the opportunity to select the ideal candidates from a qualitative standpoint, as distinct from the highest bidders, for the greater good of the community.

It is therefore decided that a beauty contest comparative mechanism will now be used to assign spectrum should demand for the three bands outstrip supply. This will involve interested parties submitting detailed applications that describe how they intend to implement their BWA networks and associated business models and making a case as to why their approach should be favoured over others.

7.3. Assignment of Rights of Use of frequencies

7.3.1. Selection Process

The beauty contest will take the form of a two-stage process. In the first stage the Authority will issue a call for applications. The main purpose of this stage is to determine the real demand for the spectrum.

An appropriate performance guarantee will have to be provided by the applying parties at this stage of the process. This will provide the necessary assurances that successful applicants will abide by the conditions attached to the rights of use of frequencies.

Accompanying this call will be the compilation of a sample license to give clarity to interested parties as to the conditions associated with the rights of use of the relevant spectrum.

Following the closing date, the applications received will be assessed against this list of minimum criteria. Should there be sufficient spectrum to satisfy all the demands received, then assignment of the spectrum will take place in the successive 6 weeks.

On the other hand, if the number of eligible applicants exceeds the number of available frequency bands, a competitive process will need to take place in the form of a beauty contest. **It should be noted that failure by an eligible applicant to participate in this second stage, would forfeit the bank guarantee.**

In order to enable the selection committee to be in a position to determine who will be assigned the spectrum, the Authority will issue a second call. This will be open only to the eligible applicants as identified in the first stage.

During this second call, interested parties may be requested to demonstrate, amongst other things:

- Financial backing for the venture
- Prior experience in the provision of electronic communications networks and services
- Business Case
- Ability to comply with rollout obligations

Besides this, they would be in a position to further enhance their application by for example committing to a faster rollout than that required by the Authority. Any such promises made by the successful applicants will be included in their respective licenses.

7.3.2. Rollout & Coverage Obligations

The main obligation is that the commercial launch of the service must take place within a year of the spectrum grant. Failure to comply with this obligation could eventually lead to the revocation of the assignment.

Coverage of national territory should also be ensured by rollout obligations. The operator is bound to achieve coverage as follows:

<i>Territory Coverage</i>	<i>Timeframe (from grant)</i>
33%	12 months
100%	48 months

National territory is defined in terms of local council boundaries and not absolute physical population or geographic coverage. Market forces will determine the actual coverage within the local council boundaries.

7.3.3. Spectrum Lease Duration

As originally suggested in the consultation paper, the lease duration for the spectrum will be 15 years.

7.3.4. Sanctions & Forfeiture

Sanctions may be imposed on operators who fail to comply with the conditions attached to the rights of use. These could include the levy of fines or in extreme cases, where there are serious and repeated breaches and where measures aimed at ensuring compliance have failed, the forfeiture of the spectrum grant could be invoked.

BWA Summary

Following is a summary of the key policy and implementation features regarding the assignment of rights of use of spectrum for establishing and operating broadband wireless networks:

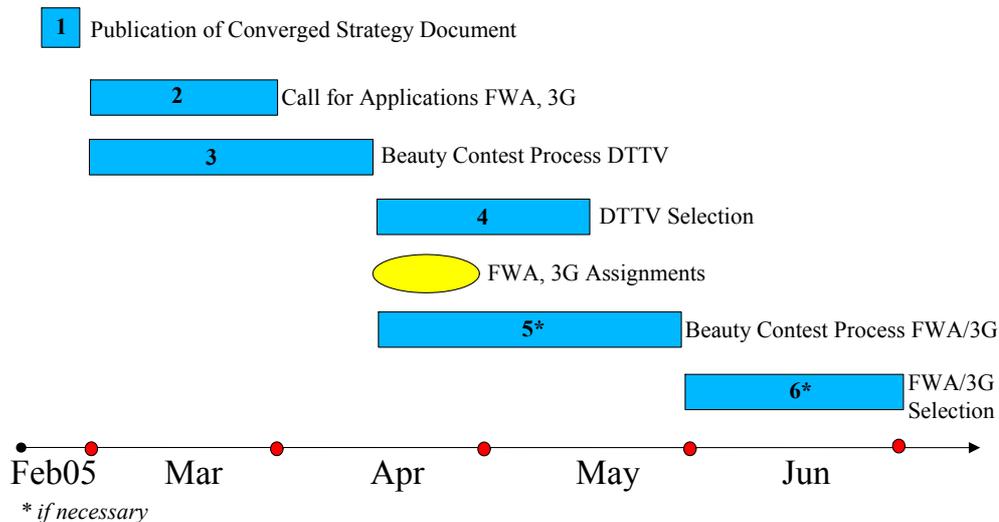
- BWA spectrum to be split into three bands to facilitate efficient and timely network rollout and provision of adequate capacity
- Demand assessment will take place via a call for applications
- Should demand exceed supply, a comparative selection process will take place via a beauty contest
- A total of 48 months will be allowed for completion of network rollout
- Spectrum valuation has been set at Lm20,000 per band per annum,
- Lease duration of 15 years

8. Assignment Timeframes

This section briefly outlines the envisaged assignment timeframes for Digital Broadcasting, 3G mobile telephony and BWA respectively. There will be a common launch date for all three processes. This is set for the 1st of March 2005.

The time frames for the 3G and BWA assignment processes are different from that pertaining to DTTV, given the slight difference in approach. The relative timeframes for award have been charted and may be seen below. The intention is for the MCA to keep to the timelines stipulated at law for frequency assignment in a competitive scenario.

Timelines



Note: Digital Radio Timelines are not included

9. Conclusion

Following an extensive consultation process initiated last year, Government has now defined its policy direction in relation to new wireless technologies, specifically third generation (3G) mobile telephony, broadband wireless access (BWA) and digital terrestrial broadcasting. As the agency tasked with the successful implementation of these policies, the Malta Communications Authority will now immediately move to implement the strategy set out in this document.

Digital Terrestrial TV will provide clearer pictures, high quality sound and eventually interactivity over a wireless medium and therefore DTT transmissions can be received using a domestic antenna setup and a digital set top box. Sufficient frequencies will be made available for up to two new digital terrestrial television (DTTV) network operators to commence services. Desired technical considerations are covered in detail. The document also explains the treatment of existing broadcasters in the new digital paradigm and proposes a hypothetical analogue turn off by the end of 2010.

Third generation mobile technology can deliver cheaper telephony, video calls, high speed Internet access, streaming music and video and sophisticated location based services. Making available spectrum for third generation mobile telephony will potentially attract new operators to the sector, spurring increased competition and market growth. The strategy envisions spectrum availability for three operators, thus providing opportunities for possible new entrants to compete with established players. A nationwide rollout will have to be completed within 5 years from the date rights of use of spectrum are assigned.

Three frequency bands will also be shortly made available for **broadband wireless access** applications. This will permit the introduction of new national broadband networks that could compete with the existing fixed DSL and cable infrastructures. These broadband access networks could be used for the provision of triple-play (voice, video and data) services. The objective here is to achieve broadband ubiquity in as short a timeframe as possible, placing Malta at the vanguard of high-speed Internet access.

The Malta Communications Authority will imminently issue calls for applications that will initiate the processes leading to the assignment of rights of use of spectrum for 3G and BWA. Following an assessment of demand for the frequencies available for use by each technology, in the event that a competitive process be required, this will take place in a comparative manner via beauty contests. In the case of DTTV, the process will commence directly with a beauty contest. In all instances, the spectrum assignment processes should be completed by mid-2005.

The consultation and subsequent developments have revealed several prospective operators for the provision of digital radio services. In view of this, the MCA in conjunction with the BA will be formulating a forward strategy for the assignment of relevant frequencies to network operators or broadcast content providers.

Appendix A

MALTA TERRESTRIAL IMT-2000 BLOCK ASSIGNMENT PLAN

Frequency Division Duplex (FDD) (Paired)³:



paired with

³ The band 1920-1980 MHz is paired with 2110-2170 MHz for FDD operation.



Time Division Duplex (TDD) (Unpaired)⁴:



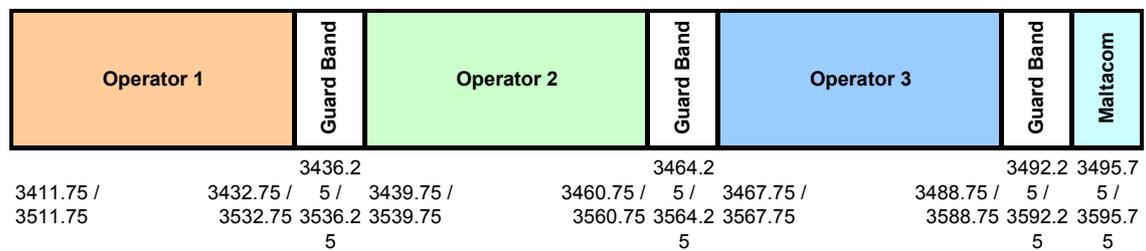
⁴ The bands 1900-1920 MHz and 2010-2025 MHz are unpaired bands for TDD operation. However, the band 2010-2020 MHz is identified for self provided applications operating in self coordinated mode.

Appendix B

The spectrum available for the BWA in the 3.4 – 3.6 GHz band was subdivided following Annex B2.2 of ERC Recommendation 14-03. This resulted in 25 channels with 3.5 MHz channel spacing (100 MHz duplex spacing) being available.

Channel 25 consists of two channels of 1.75 MHz channel spacing each, which have been assigned to Maltacom plc for radio links. These will remain intact.

The remaining channels can be allocated as follows:



There is enough bandwidth to accommodate three operators, each with an assignment of 24.5 MHz. This is in line with the assignment size granted in other countries and should give the operators sufficient capacity to build a nationwide BWA network.

Glossary of Terms

2G 2nd Generation Mobile Communication Systems, such as GSM

3G 3rd Generation Mobile Communication Systems, i.e. mobile and wireless communications systems based on a standard within the IMT-2000 system

API *Application Program Interface*, an interface between an application and another particular feature, function or resource

BWA *Broadband Wireless Access*, a system that provides high speed data services and Internet connectivity via a radio frequency transmission medium

Conditional Access A transport layer system for video transmissions the purpose of which is to ensure that content is accessible in intelligible form only by entities which have obtained the appropriate authorisation, usually against payment.

DVB-T *Digital Video Broadcast – Terrestrial*, a standard for Terrestrial Digital Television

Encryption A process of disguising information so that it cannot be recovered by an unauthorised entity

FDD *Frequency Division Duplex*, a duplex communication channel where the uplink and downlink transmissions operate on two separate frequencies

FWA *Fixed Wireless Access*, see Broadband Wireless Access.

IMT-2000 *International Mobile Telecommunications-2000* means a family of standards for third generation mobile telecommunication systems that formulated by the International Telecommunication Union (ITU)

Interoperability The possibility to receive all transmissions, by different broadcasters or service providers operating on the same platform, on a single universal device.

MHP The *Multimedia Home Platform* consists of an MHP viewer terminal, including all possible low to high functionality implementations, its associated peripherals and the in-home digital network.

NPV Net Present Value

STB *Set Top Box*, a general term for an additional receiver external box for TV, e.g. digital TV receiver box or decoder.

T-DAB *Terrestrial Digital Audio Broadcast*, a standard for Terrestrial Digital Audio Broadcasting

TDD *Time Division Duplex*. Duplex communications links where the uplink is separated from the downlink by the allocation of different time slots in the same frequency band.

VoIP *Voice over Internet Protocol*, a technology for transmitting ordinary telephone calls over the Internet

WiFi *Wireless Fidelity*. Wireless local-area networking standard developed by IEEE 802.11 working group

WiMAX *Worldwide Interoperability for Microwave Access*. A non-line-of-sight, point-to-multipoint broadband wireless access (BWA) technology