



## **Proposed Amendments to the MCA Decision “Assignment Process for Additional Spectrum for Wireless Broadband” (MCA/D/14-1933)**

### **Consultation Document**

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**Malta Communications Authority**  
Valletta Waterfront,  
Pinto Wharf, Floriana,  
FRN 1913, Malta

**T** + 356 2133 6840  
**F** + 356 2133 6846

**E** [info@mca.org.mt](mailto:info@mca.org.mt)  
**W** [www.mca.org.mt](http://www.mca.org.mt)

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## 1. Introduction

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In July 2014, the Malta Communications Authority ('MCA' or the 'Authority') published the decision "Assignment Process for Additional Spectrum for Wireless Broadband" (hereafter referred to as "the Decision"). The Decision outlines the methodology for the assignment and management of spectrum in the *800 MHz*, *1800 MHz* and *2.5 GHz* bands respectively.

With the latest developments in the local mobile industry, coupled with the rapid evolution of technology, the use of the *800 MHz* spectrum has become paramount for the mobile operators. Spectrum in the *800 MHz* band shall enable the local mobile service providers to sustain the ever increasing demands expressed by their subscribers while at the same time being at the forefront of competition.

The MCA, in consideration of these facts and following large scale trials in the *800 MHz* band, is proposing a number of amendments to the Decision in order to bring in line the established assignment and management principles with the current market circumstances. The amendments being proposed in this consultation document are intended to revise in part the assignment and management principles of the *800 MHz* spectrum band only. Other spectrum bands governed by the Decision will not be effected by the proposed amendments.

## 2. Background

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The switchover from analogue to digital terrestrial TV has freed up a very large amount of radio spectrum including spectrum in the *800 MHz* band. The Member States and the European Parliament, in the Radio Spectrum Policy Programme (RSPP), decided to mandate the opening up of the *800 MHz* band throughout the EU by 1 January 2013. Specific derogations were to be granted for Member States in which exceptional national circumstances or cross-border frequency coordination problems would prevent the availability of the band until such problems were overcome.

Malta had requested a derogation to transfer the *800 MHz* frequency band from its TV broadcasting use to wireless broadband data communication. The derogation was required since the *800 MHz* band was the subject of a dispute with neighbouring countries over TV broadcasts interference. There was also an issue of coordination regarding the replacement of a TV channel prior to the band being cleared and made available for electronic communications services.

In 2014, the MCA has published the Decision "Assignment Process for Additional Spectrum for Wireless Broadband". The Decision outlines the methodology for the assignment of spectrum in the *800 MHz*, *1800 MHz* and *2.5 GHz* bands together. It also defines the applicable licence conditions. In particular, the Decision provides information related to the steps that will be undertaken by the Authority in respect of the assignment of these frequencies and sets out a clear course for the selection of the prospective rights of use holders.

The following is a summary of the Authority's Decision with regards to the assignment and management of the *800 MHz* frequency band:-

- The channelling plan adopted reflects the technical parameters as established in the Commission Decision 2010/267/EU;
- Spectrum in the *800 MHz* band will be assigned in multiples of *5 MHz* channels;
- Each *5 MHz* paired channel is to be considered as a single lot, six lots in total. Channel 1 will be in a separate lot;
- A cap of two *5 MHz* paired channels will apply for the *800 MHz* band;
- An overall spectrum cap of *210 MHz*, including unpaired spectrum and other spectrum holdings will apply;
- If the spectrum in the *800 MHz* band is unassigned and there is no excess demand in any lot category, the respective caps for the *800 MHz* band will be relaxed to three *5 MHz* paired channels. The overall spectrum cap will however remain unaltered;
- The Authority reserves the right to relax the spectrum caps as part of the brokered meetings. However, this does not apply should an auction be required;
- The assignment process will be initiated upon market demand. A call for applications will be issued when there is registered market demand;

- The assignment process will consist of an assignment stage and a grant stage;
- Rights of use will be granted for a fifteen year term;
- Rights of use will be service neutral;
- Rights of use will be granted under the technical conditions stipulated in the 2010/267/EU Commission Decision;
- The in-block EIRP for Channel 1 will be set at  $56\text{dBm} / 5\text{ MHz}$ , whilst, the EIRP will be set at  $60\text{ dBm} / 5\text{ MHz}$  for the other channels;
- Band licensees for the  $800\text{ MHz}$  spectrum are required to establish a fund between them to make good for the costs related to the mitigation measures. The fund cap is set at €4.5 million;
- Band licensees will be required to (i) use all the spectrum assigned and, (ii) make any technology they deploy available nationwide within two years from the grant date;
- Hand back conditions will be included in the licence; and
- Sanctions such as 'use it' or 'lose it' clauses will be included in the licence.

Following the successful spectrum co-ordination discussions with neighbouring countries, and the expiry of the EU Commission derogation in relation to the assignment of the  $800\text{ MHz}$  band for wireless broadband, as from 1<sup>st</sup> January 2017 the  $800\text{ MHz}$  band was eventually cleared from broadcasting service and was made available for the provision of electronic communications services.

## 3. Market Developments

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### 3.1 Spectrum Assignment

In August 2016, market demand for the *800 MHz* spectrum was registered with the Authority. The interest expressed in acquiring the rights of use for the *800 MHz* spectrum eventually initiated the assignment process as stipulated in the Decision. The MCA issued a notice to determine whether there was further demand for wireless broadband spectrum including the band in question by other stakeholders. Since the demand expressed for the *800 MHz* band by the interested stakeholders exceeded the supply of available *800 MHz* spectrum, in November 2016 the MCA issued a Call for Applications (hereafter referred to as "the Call"). The MCA received three submissions for *800 MHz* spectrum in one of the available lot categories. Subsequently all the applicant undertakings concurrently withdrew their submissions to the Call.

### 3.2 Mobile Industry

Today's society incessantly utilises wireless communications to communicate on a personal level, for business purposes or to control devices or applications. The latest developments in technologies coupled with the ever increasing subscriber data demands, and the need for mobile industry players to remain competitive have made the use of the *800 MHz* band almost inevitable.

In recent months the MCA issued a number of trial licences to the mobile ECS providers to enable such providers to carry out network tests for the band in question.

In addition as from June 2017, mobile telephony subscribers can avail themselves of 4G+ services, achieving higher mobile data speeds over the previous existing access technologies. The *800 MHz* band is a candidate band in order to allow the further deployment and enhancement of 4G+ technologies and services.

### 3.3 800 MHz LTE – DTTV coexistence

The deployment of mobile services in the *800 MHz* band may give rise to interference with the broadcasting services which utilise the neighbouring frequency spectrum (Channel 60). The Decision, in consideration of the potential interference, establishes that (1) the transmission power for Channel 1 in the *800 MHz* band will have restricted power levels and that (2) a fund will be established between the *800 MHz* band licensees in order to cover any interference mitigation costs that may be required to resolve DTTV interference issues that are caused by the deployment of outdoor base stations operating in the *800 MHz* band.

Initial pilot studies were carried out throughout a number of lab tests as well as field trials held in various locations around Malta and Gozo in order to mimic the actual diverse geographical and technical characteristics. Results from the pilot studies confirm that the reception of a number of TV

stations, which are transmitted over Channel 60, may be negatively impacted by the transmission of the 800 MHz LTE signal. The pilot studies have also shown that the reception of the TV stations which are transmitted over Channel 58 and Channel 43 (GIO) were not effected.

The initial pilot studies have addressed the 800 MHz LTE – DTTV interference scenarios from a single 800 MHz LTE operator in isolation from any other possible LTE transmissions over the entire 800 MHz band. In order to analyse the possible 800 MHz LTE – DTTV interference caused by multiple LTE operators transmitting concurrently, further pilot studies were carried out, namely:-

- (1) A desktop study consisting of a simulation using an accredited simulation software package;  
and
- (2) A co-ordinated large scale 800 MHz trial was carried out in a pre-selected area.

### 3.3.1 Desktop Study

The MCA, based on the co-ordinated large scale 800 MHz trial, has carried out a desktop study of the possible DTTV service interference due to the transmission of the 800 MHz signal in the Sliema, Gzira and Msida area. The desktop study consisted mainly of a simulation using the ATDI network planning and interference simulation software package.

The antenna locations, transmission powers, transmission patterns, azimuth and tilts of both the DTTV and 800 MHz LTE networks together with the complete geographical and elevation maps of Malta, were utilised for the interference simulation of the DTTV service. The simulation was run with the following parameters:

- (i) Deygout 94 with fine enhanced sub path attenuation coupled with standard protection ratios;
- (ii) 2Km LTE coverage and 33 Km DTTV coverage;
- (iii) Simulation output resolution of 1 meter;
- (iv) Interferer sum applied (C/I ratio) at 10 meters above ground level;
- (v) Rx antenna discrimination according to ITU Rec BT.419.

The simulation was run under the following assumptions namely that:-

- (i) The information provided by the LTE and DTTV providers was correct,
- (ii) The discrepancies between the parameters found in the geographical and elevation maps available to the MCA and the physical geographical/building parameters were negligible, and
- (iii) The subscriber's antenna were pointing towards the DTTV best server.

The outcome of the simulation provided a clear picture of the DTTV coverage, the 800 MHz LTE coverage and the C/I ratio (possible LTE / DTTV interference). The areas marked in pink are the possible areas where the interference is likely to be experienced. A conservative C/I ratio of 33dB (when



compared to the 35dB LTE / DTTV threshold for which DTTV service disruption occurs) was adopted by the MCA for the simulation purposes. Areas where the C/I ratio is less than 33 dB, marked in blue or green respectively indicate those areas where DTTV interference is highly unlikely to be experienced.



Figure 1:- Simulation output for the possible 800 MHz LTE / DTTV interference

The simulation output corroborated further the findings from the initial pilot studies and the co-ordinated large scale 800 MHz trial. The results achieved from the desktop study provided further insight on the setup and operation of the interference mitigation fund.

### **3.3.2 Co-ordinated large scale 800 MHz trial**

The MCA, in collaboration with the mobile ECS providers have carried out a co-ordinated large scale 800 MHz trial. The aim behind such a trial was to mimic a realistic scenario where multiple LTE service providers transmitted the 800 MHz signal at an elevated power (60dBm/ 5MHz) with dummy data packets in order to simulate the maximum peak capacity within a cell (100% loading).

The trial was carried out in the Sliema, Gzira, and Msida area. The building density, the geographic positioning relative to the DTTV transmitters as well as the topology of this area encompassed the multiple scenarios encountered in the various regions around the Maltese islands. Therefore this area presented the ideal circumstances in which to run the trial.

In order to minimise the inconvenience that such a trial may have on the DTTV subscribers, the *800 MHz* transmissions commenced utilising Channels 3 and 4 @ 50% power level. While monitoring the level of interference complaints related with the trial, the power levels were eventually increased to 100% with artificial downlink enabled. Trial transmissions on Channels 1 and 2 adopting a similar power staggered approach ensued.

In order to corroborate further the initial pilot studies, a number of field measurements were carried out in a number of locations around the designated areas. Results from such measurements confirm that the reception of a number of TV stations which are transmitted over Channel 60, are highly likely to be negatively impacted by the transmission of the *800 MHz* signal in certain areas. Furthermore, the reception of the said TV stations is only impeded when the signal separation between CH 60 (signal) and the *800 MHz* carrier (noise) drops below a 35dB threshold. When the SNR falls below the mentioned threshold, the demultiplexing and decoding of the TV stations which are transmitted over Channel 60 fails completely.

### **Trial Outcomes**

- As anticipated, during the trial, a contained number of DTTV service disruptions in the designated area were experienced. The DTTV service disruption was only noticed on the bouquet of channels that are multiplexed over Channel 60;
- During the trial, approximately 40 % of the total number of DTTV interference cases were reported during the first week of the trial whereby the *800 MHz* transmissions were carried out using Channels 3 and 4 only. The remaining 60 % of the faults were reported during the rest of the trial period where the *800 MHz* transmissions were carried out using Channels 1, 2, 3 and 4. The rate at which the interference cases were reported to the DTTV service provider was spread relatively consistently throughout the trial period;
- With regard to the geographic positioning where the interference was experienced, the relative distances from the *800 MHz* base station varies from tens of metres to hundreds of metres for the various reported cases of interference. Similarly, excluding where the *800 MHz* base station was in direct line of site of the DTTV antenna, divergence of the relative angle of the DTTV with the *800 MHz* base station was noted amongst the reported cases of interference;
- Except where the installations contained additional active components (as found in multi dwellings, hotels, etc.) the conditions and materials used in the installation had insignificant effect on the level of interference experienced.

Detailed analysis of the *800 MHz* interference as experienced by the DTTV subscribers can be found in Annex 1 of this consultation document.

Upon analysing the outcomes from the co-ordinated large scale *800 MHz* trial, the following conclusions were noted:

- (i) The *800 MHz* transmission on Channel 3 and Channel 4 have created an analogous level of interference to the DTTV service as those caused by the *800 MHz* transmission on Channel 1 and Channel 2;
- (ii) The level of interference caused by the diverse power transmission levels on channel 1 & 2 was relatively consistent for the diverse power level scenarios;
- (iii) The location for the cases of DTTV interference encountered could not be somewhat related with the relative location of the *800 MHz* base station;
- (iv) The level of interference cause by the *800 MHz* transmission is somewhat contained.

## 4. Proposed Amendments to the Decision

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The Decision currently establishes that the deployment of mobile services in the 800 MHz band is anticipated to give rise to interference with the broadcasting services that utilise the neighbouring frequency spectrum (Channel 60). The Decision, in consideration of the potential interference, establishes that:

- (1) The transmission power for Channel 1 in the 800 MHz band will have restricted power levels;
- (2) Each 5 MHz paired channel is to be considered a single lot, six lots in total with Channel 1 forming part of a separate lot category;
- (3) A cap of two lots will apply in the 800 MHz band which may be relaxed to three in case where there is unassigned spectrum and there is no excess demand; and
- (4) A Fund is to be established between the 800 MHz band licensees in order to cover any interference mitigation costs that may be required to resolve DTTV interference issues that are caused by the deployment of outdoor base stations operating in the 800 MHz band.

The obligations as imposed in the Decision, reflected the Authority's understanding of the market scenario and envisaged interference matters at the time of publication. The latest local mobile industry developments together with the information attained throughout the co-ordinated large scale 800 MHz trial, positions the MCA with a clear standpoint on the tangible spectrum needs and applicable interference measures for the today's mobile industry. In view of this, the MCA considers that the obligations as imposed in the Decision may weigh down the assignment and management of the 800 MHz spectrum. The MCA, is therefore proposing a number of amendments to the Decision with regard to the 800 MHz spectrum band.

### Proposal # 1 - Removal of power restrictions for Channel 1

Section 4.6.1 of the Decision established that:

*" The in-block EIRP for Channel 1 will be set at 56dBm / 5 MHz, whilst for the other channels it will be set at 60 dBm / 5 Mhz."*

*Omissis*

*"The Authority reserves the right to relax these technical conditions throughout the term of the licence, particularly in case of material changes to the local terrestrial broadcasting scenario or as a result of technological developments. The Authority will also consider relaxing the technical conditions should licensees reach an agreement to this effect with the digital terrestrial television (DTTV) operator. ...."*

Such parameters, based on the findings in the relevant CEPT reports, were established on the notions were Channel 1 (791 MHz – 796 MHz) was expected to cause significant interference with the neighbouring DTTV transmissions on Channel 60 ( 782 MHz -790 MHz) and that the level of interference caused was directly proportional to the level of transmitted signal power.

During the execution of the co-ordinated large scale 800 MHz trial, it was noted that:-

- (i) the 800 MHz transmission on Channels 3 and 4 have created an analogous level of interference to the DTTV service as those caused by the 800 MHz transmission on Channels 1 and 2, and
- (ii) The level of interference caused by the diverse power transmission levels on channel 1 & 2 was relatively consistent for the diverse power level scenarios,

In view of these findings, the MCA considers that the conclusions drawn from the trial are to some extent different from the interference notions as adopted in the Decision.

The MCA therefore proposes that the power restrictions for Channel 1 may be relaxed to 60 dBm / 5 MHz and set at par with the power levels of 60 dBm / 5 MHz for the other Channels in the 800 MHz band.

Section 4.6.1 of the Decision will be amended as follows:-

~~“ The in-block EIRP for all the Channels in the 800 Mhz band 1 will be set at 56dBm / 5 MHz, whilst for the other channels it will be set at 60 dBm / 5 Mhz.”~~

*Omissis*

~~“The Authority reserves the right to relax these technical conditions throughout the term of the licence, particularly in case of material changes to the local terrestrial broadcasting scenario or as a result of technological developments. The Authority will also consider relaxing the technical conditions should licensees reach an agreement to this effect with the digital terrestrial television (DTTV) operator.”~~

## **Proposal # 2 - Single lot category**

Section 2.3 of the Decision established that:

**“800 MHz Band:** each 5 MHz paired channel will be considered a single lot, six lots in total are available in the band. However Channel 1 will be subject to greater technical constraints than the others (see section 4.6). Two lot categories are therefore being established in this band.”

The MCA notes that provided the power restrictions for Channel 1 are lifted in accordance with Proposal # 1 above, the disparity in the power levels between Channel 1 and the other channels in the

800 MHz band will no longer exist. Due to the similar technical parameters of Channel 1 and Channels 2 to 6 in the 800 MHz band, the MCA considers that the distinct lot categories are no longer necessary.

The MCA therefore proposes that the current two lot categories will be amalgamated into one single lot category comprising of all the channels (Channel 1 to Channel 6) in the 800 MHz band.

Section 2.3 of the Decision will be amended as follows:-

*"800 MHz Band: each 5 MHz paired channel will be considered a single lot, six lots in total are available in the band. ~~However Channel 1 will be subject to greater technical constraints than the others (see section 4.6). Two lot categories are therefore being established in this band.~~"*

### **Proposal # 3 – Relaxation of spectrum caps**

Section 2.4.1 of the Decision established that:

*"If following the submission of the applications it results that:*

- o There is still unassigned spectrum in either the 800 MHz or 1800 MHz bands, or both,*
- and*
- o There is no excess demand for spectrum in any of the lot categories,*

*Then the Authority will relax the spectrum caps in the band/s in question as follows:*

- o A cap of three (3) 5 MHz paired channels will apply in the 800 MHz band;*

*Omissis*

*In this case, these new spectrum caps would come into effect straight away in the assignment process.*

*For the sake of clarity it should be noted that in any case the overall spectrum cap of 210 MHz will not be relaxed and will remain unaltered.*

*In case there is excess demand for spectrum in any of the lot categories, the Authority reserves the right to relax the spectrum caps as outlined above, as part of the brokered meetings. However, should an auction be required, then the spectrum caps will not be relaxed and the caps established in Section 2.4 will apply."*

In July 2014, the local mobile market was composed primarily of three MNOs together with a very small number of Enhanced Service Providers. The MCA notes that the structure of the 800 MHz spectrum caps as established in the Decision, was based on the local mobile market scenario of that time. Following the latest sequence of events in the local mobile industry, a number of developments are earmarked to happen in the very near future.

The current spectrum cap as established in the Decision will be automatically amended where the relevant spectrum cap relaxation conditions apply. The MCA notes that although this mechanism ensured the right balance of spectrum holdings amongst the mobile operators, this goal may no longer be achieved following the latest market developments. In addition, the MCA considers that given such circumstances, an in depth analysis of the market situation is carried out prior to the relaxation of the established caps.

The MCA therefore proposes that provided that the spectrum cap relaxation conditions are met, the MCA may, at its discretion, relax the spectrum caps as originally established in the Decision.

Section 2.4.1 of the Decision will be amended as follows:-

*"If following the submission of the applications it results that:*

- o There is still unassigned spectrum in either the 800 MHz or 1800 MHz bands, or both,*
- and*
- o There is no excess demand for spectrum in any of the lot categories,*

*Then the Authority, at its sole discretion, may will relax the spectrum caps in the band/s in question as follows:*

- o A cap of three (3) 5 MHz paired channels will apply in the 800 MHz band;*

*Omissis*

~~*In this case, these new spectrum caps would come into effect straight away in the assignment process.*~~

*For the sake of clarity it should be noted that in any case the overall spectrum cap of 210 MHz will not be relaxed and will remain unaltered.*

~~*In case there is excess demand for spectrum in any of the lot categories, the Authority reserves the right to relax the spectrum caps as outlined above as part of the brokered meetings. However, should an auction be required, then the spectrum caps will not be relaxed and the caps established in Section 2.4 will apply."*~~

#### **Proposal # 4 – Establishment of an Interference Mitigation Fund**

Section 4.6.1 of the Decision established that:

##### ***"Interference Mitigation Obligation – Establishment of a Fund***

*A fund will be established between the 800 MHz band licensees. The fund will cover the costs related to the mitigation measures that may be required to solve interference issues to aerial television reception installations resulting from the deployment of outdoor base*

*stations operating in the 800 MHz band to the detriment of the various viewers making use of such aerials*

*Omissis*

*On the basis of the subscriber information currently in hand the fund cap is set at €4.5 million. The exact figure will be established in the call for Applications to reflect any changes in the number of subscribers till then. However, it is not expected that this will result in substantial changes to this figure.*

*Omissis*

*It will be the responsibility of the 800 MHz band licensees to establish a fund management plan. Licensees will have a period of three months from the date of grant of rights of use to present a fund management plan....."*

The MCA, taking due consideration of the increasing need for the 800 MHz spectrum, has, in discussions with the potential candidates for the 800 MHz spectrum launched an Initiative in order to expedite the process of setting up the Interference Mitigation Fund. The aim of this initiative is to setup the underlying processes and procedures that are required to operate such a fund, while at the same time, mitigate possible DTTV interference prior to the commercial assignment of radio spectrum in the 800 MHz band. Such an approach should reduce the period between the assignment of right of use for the radio spectrum and the commercial use of such spectrum as established in the Decision.

In addition, the outcomes from the co-ordinated large scale 800 MHz trial, have shown that the level of interference caused on the DTTV service by the transmission of an 800 MHz signal is somewhat contained. The MCA notes that, based on the existing subscriber figures, a conservative fund cap set at €4.5 million was adopted. Such a cap may be revised during a call for applications for the assignment of rights of use for the 800 MHz band. Outcomes from the co-ordinated large scale 800 MHz trial indicate otherwise where that the costs involved in mitigating the 800 MHz related interference may not amount to the pre- established levels. The MCA however observes that, at this stage, maintaining the fund cap as established in the Decision is the more advisable approach.

The MCA therefore proposes that the interference mitigation fund shall be established between the 800 MHz band licensees or as agreed otherwise between the MCA and the potential candidates for the radio spectrum band in question prior to the assignment and under the oversight of the MCA. Other parameters governing the interference mitigation fund, including the €4.5 million cap shall remain unaltered.

Section 4.6.1 of the Decision will be amended as follows:

***"Interference Mitigation Obligation – Establishment of a Fund***



*A fund will be established between the 800 MHz band licensees or as agreed otherwise between the MCA and the potential candidates for the radio spectrum band in question prior to the assignment and under the oversight of the MCA. The fund will cover the costs related to the mitigation measures that may be required to solve interference issues to aerial television reception installations resulting from the deployment of outdoor base stations operating in the 80 MHz band to the detriment of the various viewers making use of such aerials*

*Omissis*

*On the basis of the subscriber information currently in hand the fund cap is set at €4.5 million. The exact figure will be established in the call for Applications to reflect any changes in the number of subscribers till then. However, it is not expected that this will result in substantial changes to this figure.*

*Omissis*

*Unless agreed otherwise between the MCA and the potential candidates for the radio spectrum band in question, it will be the responsibility of the 800 MHz band licensees to establish a fund management plan. Licensees will have a period of three months from the date of grant of rights of use to present a fund management plan....."*

## **Proposal # 5 – Assignment Process**

Section 3.2 of the Decision established that:

*"The Authority will initiate the assignment process if it receives a formal request for spectrum. This request could be for any spectrum in any bands under consideration in this document.*

*At this point the Authority will publish a notice announcing the receipt of this request and will request any other interested parties to come forward within a given time frame....."*

The MCA notes that through the publication of the national frequency plans, it offers a set of spectrum bands, including the 800 MHz band, which are available for assignment to the local industry. The assignment process depicted in the Decision, however does not permit the MCA to initiate the assignment process for the relevant spectrum bands to the wireless network operators unless market demand is expressed for a particular frequency by an interested stake holder.

The local mobile industry has lately experienced a contentious sequence of events. This involved the call for applications for the assignment of rights of use for the 800 MHz band published in 2016, the subsequent cancellation of the call following the withdrawal of the various submissions by the interested candidates (emanating mainly from the ongoing merger between two mobile players), and the early network and service deployments capable of offering high speed data services. Such a

progression of events may have thwarted the ECS providers to assess their spectrum needs and express a market interest with the Authority for any additional spectrum that is deemed necessary for the commercial launch of high speed data services.

The MCA, in view of the possible variability in the local mobile industry, is of the opinion that the assignment mechanism as established in the Decision may not be the appropriate method at present. The MCA notes that alternative assignment mechanisms may be more appropriate and beneficial for the enhancement of competition within the local industry.

The MCA therefore proposes that, in the absence of market demand as expressed by the industry, the MCA shall reserve the right to issue an expression of interest for the assignment of the right of use for the 800 MHz band whenever the Authority, after sounding carefully the needs and the standpoint of the local industry, deems it appropriate. The applicable conditions for the spectrum assignment mechanism as depicted in the Decision will still apply.

Section 3.2 of the Decision will be amended as follows:

*"The Authority will initiate the assignment process if it receives a formal request for spectrum. This request could be for any spectrum in any bands under consideration in this document.*

*At this point the Authority will publish a notice announcing the receipt of this request and will request any other interested parties to come forward within a given time frame. Moreover, considering that the spectrum bands being considered are complementary and substitutable, the Authority will also request the interested parties to indicate any demand for spectrum in any of the other bands under consideration in this document.*

*The Authority shall however reserve the right to issue an expression of interest for the assignment of the right of use for additional spectrum for wireless broadband whenever, after sounding carefully the needs and the standpoint of the local industry, deems it appropriate."*

#### **Proposal # 6 – Handback conditions**

Section 4.7 of the Decision established that:

*"In the case that demand for spectrum in a given band does not exceed supply at any stage in the assignment process, then licensees will be able to hand back all or part of their spectrum assignment in that band. In this case these licensees will not be required to pay any future spectrum fees related to the channels handed back, but will not be entitled to a refund of those fees already paid or that were due by them until the date of the handback.*

*Omissis*

*In case that a licensee rescinds spectrum in a band where demand exceeded supply, then the licensee will be bound to pay the equivalent of three (3) annual fees in addition to any fees already due."*

The MCA notes that in July 2014, the mobile market was well established amongst the local subscribers as evidenced through mobile penetration rates in excess of the 100% mark. This scenario proved unattractive for new industry players to penetrate into the local mobile network operator market. The ever increasing demands imposed by the subscribers requires that the market players have a diverse bouquet of spectrum in order to complement the level of competition present in the market. This situation makes it highly unlikely for any established market player to hand back spectrum. Whilst mobile penetration figures will persist, there is the probability that such a scenario may change following the possible earmarked developments in the local mobile industry.

The Decision, as is, allows any licensees in the applicable bands to hand back spectrum, irrespective of the market circumstances. In order to ensure that a level of competition is maintained within the local mobile market and to minimise the opportunities of market entry by rogue operators, the MCA considers that it is advisable that hand back is granted at the discretion of the Authority. In addition, in order to discourage further the market entry by inept operators, the Authority also considers that the applicants for wireless broadband spectrum needs to be registered as an operating company in Malta.

The MCA therefore proposes that the licensee can, on providing the MCA with objective reasons, request the hand back of all or part of the spectrum assignment in the 800 MHz band. The MCA shall review such requests on a case-by-case basis taking into utmost consideration the current state of play for such a spectrum band as well as any other criteria that the Authority deems appropriate at that point in time. However the MCA reserves the right to unconditionally reject any such request. In the event that the MCA accepts the hand back request, the licensee shall abide with any obligations that the Authority may consider necessary in acceding to the hand back. Moreover the licensee shall not be entitled to a refund of those fees already paid or that were due by the licensee until the date of the hand back.

Section 4.7 of the Decision will be amended as follows:

*"The licensee can, on providing the Authority with objective reasons, request the hand back of all or part of the spectrum assignment in a given band. The Authority shall review such requests on a case-by-case basis taking into utmost consideration the current state of play for such a spectrum band as well as any other criteria that the Authority deems appropriate at that point in time. However the Authority reserves the right to unconditionally reject any such request. In the event that the Authority accepts the hand back request, the licensee shall abide with any obligations that the Authority may consider necessary in acceding to the hand back.*

*In case that a licensee rescinds spectrum in a band where demand does not exceed supply, then the licensee will be bound to pay the equivalent of one (1) annual fee in addition to any fees already due.*

~~*In the case that demand for spectrum in a given band does not exceed supply at any stage in the assignment process, then licensees will be able to hand back all or part of their spectrum assignment in that band. In this case these licensees will not be required to pay any future spectrum fees related to the channels handed back, but will not be entitled to a refund of those fees already paid or that were due by them until the date of the handback.*~~

*Omissis*

*In case that a licensee rescinds spectrum in a band where demand exceeded supply, then the licensee will be bound to pay the equivalent of three (3) annual fees in addition to any fees already due."*

Section 3.3.2 of the Decision will be amended as follows:

*"The qualification process will assess whether applicants have the necessary standing to fulfil the licence obligations should they be successful in acquiring the spectrum rights. It will not rank applicants. The outcome of this phase will be a pass/fail result based on a set of criteria including but not be limited to:*

- *he applicant's credential<sup>1</sup>*

*Omissis"*

Where <sup>1</sup> would state that the applicants for wireless broadband spectrum needs to be registered as an operating company in Malta.

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#### 4.1 Summary of Proposed Amendments

<p><b>Proposal # 1</b></p>	<p>Relaxation of the power restrictions for Channel 1 from <i>56dBm / 5 MHz</i> to <i>60 dBm / 5 MHz</i>. The technical conditions for Channel 1 will therefore be set at par with the other Channels in the <i>800 MHz</i> band.</p>
<p><b>Proposal # 2</b></p>	<p>Amalgamation of the current two lot categories for the <i>800 MHz</i> band into one single lot category comprising of all the channels (Channels 1 to 6) in <i>the 800 MHz</i> band.</p>
<p><b>Proposal # 3</b></p>	<p>The MCA may, at its discretion, relax the spectrum caps as originally established in the Decision, provided that the spectrum cap relaxation conditions are met.</p>
<p><b>Proposal # 4</b></p>	<p>The interference mitigation fund shall be established between the <i>800 MHz</i> band licensees or as agreed otherwise between the MCA and the potential candidates for the radio spectrum band in question, prior to the assignment and under the oversight of the MCA. Other parameters governing the interference mitigation fund, including the €4.5 million cap shall remain unaltered.</p>
<p><b>Proposal # 5</b></p>	<p>In the absence of market demand as expressed by the industry, the MCA shall reserve the right to issue an expression of interest for the assignment of the right of use for the <i>800 MHz</i> band whenever the Authority, after sounding carefully the needs and the standpoint of the local industry players, deems it appropriate. The applicable conditions for the spectrum assignment mechanism as stated in the current decision will still apply.</p>
<p><b>Proposal # 6</b></p>	<p>The MCA shall review hand back requests by the licensees on a case-by-case basis taking into utmost consideration the current state of play for such a spectrum band as well as any other criteria that the Authority deems appropriate at that point in time. The MCA however reserves the right to unconditionally reject such requests. In addition, the licensee will be bound to pay the equivalent of one annual fee in addition to any fees already due in case the licensee rescinds spectrum in a band where demand did not exceeded supply.</p> <p>The MCA also requires that the applicants for wireless broadband spectrum needs to be registered as an operating company in Malta.</p>

## 5. Consultation Questions

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1. Do you have any reservations about the fact that the power restriction for Channel 1, based on the outcome of the coordinated large scale 800 MHz trial, will be lifted? Do you agree with setting the power level for Channel 1 equivalent to the other Channels in the *800 MHz band*?
2. Do you agree with the concept that in view of setting identical Channel technical parameters throughout the entire *800 MHz band*, the distinct lot categories are no longer necessary?.
3. Do you agree with the spectrum cap relaxation mechanism as is being proposed?
4. Do you agree with the proposal by the MCA to provide for the setup of the Interference Mitigation Fund prior to the assignment of the right of use for the *800 MHz band*?
5. Do you agree with the possibility where in the absence of market demand for the *800 MHz spectrum*, the MCA, after sounding carefully the needs and the standpoint of the local industry, issues an expression of interest for the *800 MHz spectrum*?
6. Do you have any reservations with the measures being proposed by the MCA in order to minimise the opportunities of market entry by inept operators?

The Authority invites comments and proposals on any other aspects that are relevant for the purposes of this consultation.

For the sake of clarity and ease of understanding, the Authority encourages stakeholders to structure their comments in the same order as adopted throughout this document.

## 6. Invitation to Comments

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In accordance with its obligations under Article 4A of the Malta Communications Authority Act [Cap. 418 of the Laws of Malta], the Authority invites written submissions from interested stakeholders during the consultation period, which shall run from the 08/08/2017 to the 15/09/2017.

The Authority appreciates that respondents may provide confidential information in their feedback to this consultation document. This information is to be included in a separate annex and should be clearly marked as **confidential**. Respondents are also requested to state the reasons why the information should be treated as confidential.

For the sake of transparency, the Authority will publish a list of all respondents to this consultation on its website, within three days following the deadline for responses. The Authority will take the necessary steps to protect the confidentiality of all such material submitted in accordance with the Authority's confidentiality guidelines and procedures. Respondents are however encouraged to avoid confidential markings wherever possible.

All responses should be submitted to the Authority, in writing by no later than 12:00 hrs on 15/09/2017 and addressed to:

Ing. Antoine Sciberras  
Chief of Spectrum Management and Technology  
Malta Communications Authority  
Valletta Waterfront, Pinto Wharf,  
Floriana, FRN1913  
Malta.  
Tel: +356 21 336 840 Fax: +356 21 336 846  
Email: [spectrum.mca@mca.org.mt](mailto:spectrum.mca@mca.org.mt)

Extensions to the consultation deadline will only be permitted in exceptional circumstances and only where the Authority deems fit. The Authority reserves the right to grant or refuse any such request at its sole discretion. Requests for extensions are to be made in writing within the first ten (10) working days of the consultation period. Any other requests shall not be considered.

## Annex 1

### DTTV interference complaints as @ 24/07/2017

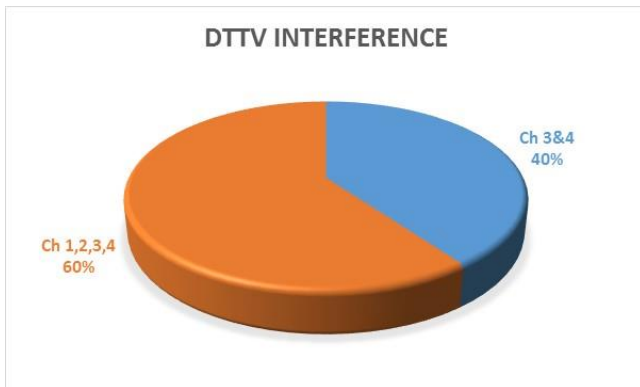


Figure 2:- % distribution of DTTV interference caused due to TX on Ch. 3 & 4 and Ch. 1, 2, 3 & 4

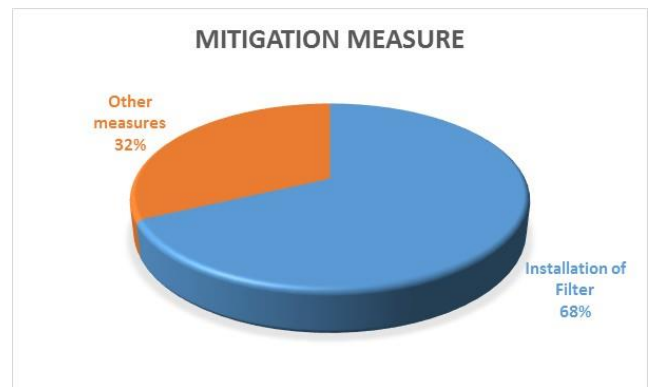


Figure 3:- % of Mitigation measures that required the installation of an inline filter

Fault Resolution Mitigation measures		
Antenna Orientation	60%	28%
Removal of active components (booster)	16%	20%
Other measures (including removal of active antenna or installation repair)	36%	16%
<b>Installation of Filter</b>	<b>68%</b>	-