JT's Response to CICRA Pan-Channel Island Consultation on 800 MHz and 2.6 GHz Spectrum Awards

Non – Confidential Response

10 September 2013

Contents

1 INTRODUCTION

This response is provided by JT (Jersey) Limited and JT (Guernsey) Limited referred to jointly as JT. JT welcomes the opportunity to provide its views on this very important topic of LTE spectrum.

This response provides some general comments on spectrum awards as well as detailed information on JT's LTE plans in Jersey in section 2. The consultation questions are answered in section 3.

2 JT'S VIEW ON MARKET DEVELOPMENT

The purpose of this chapter is to provide CICRA with a summary of JT's view on a number of central issues concerning spectrum regulation. This background may assist CICRA in understanding the argumentation behind JT's responses to the individual questions in the consultation document. This chapter also provides a high-level plan for the launch of JT's LTE services, and investments thereof, to provide the CICRA with the evidence that JT has most serious plans to utilise its current and new frequency awards to the fullest.

2.1 GENERAL COMMENTS TO SPECTRUM REGULATION

2.1.1 Current and near future use of 800, 900, 1800, 2100 and 2600 MHz spectrum

The 800 MHz band released by the digital switchover is becoming the key band for LTE coverage. The propagation characteristics of the band allow it to cover large geographical areas cost efficiently and also to facilitate indoor coverage in tightly built areas.

The 900 MHz band has formed into a basic band for mobile communications. The reasons are many, among them the relatively good propagation characteristics the band offers, as well as historical practices. It is needed for an operator to build a competitive GSM/UMTS coverage. The current licences in the Channel Islands allow the use of GSM only. However, liberalisation of the 900 MHz band is one of the key international trends and numerous 900 MHz operators worldwide have already switched from GSM-only to co-existence of GSM and UMTS. Elisa of Finland launched its UMTS900 network in 2007 and since then the number of UMTS900 networks has increased to over 27 (GSA).

The 1800 MHz band, originally introduced as the capacity band for GSM, is also suitable for LTE due to the wide spectrum available. A total of 2x75 MHz allows for example three operators with 2x25 MHz each. This in turn allows full utilisation of LTE combined with GSM, since LTE can utilise up-to 20 MHz system bandwidths. A typical consensus opinion says that the 1800 MHz band will be one of the key bands for LTE, along with 2600 and 800 MHz. LTE 1800 rollouts have already taken place in many markets in UK, Europe and Asia.

3G/HSPA is likely to continue as the major technology in the 2100 MHz band. This band is essential for the current mobile data traffic. Its significance may however decrease in the future as there are very few indications of it becoming a main stream LTE band.

The 2600 MHz (2.6 GHz) band is one of the key bands for LTE. Originally, it was seen as the capacity band for this technology, and today it is complemented by the 1800 MHz. The

characteristics of this band make it suitable for rolling out high-capacity cells in hotspot-type locations, most likely in city centres and indoors (e.g. femto cell).

In short, GSM will continue to be deployed on the 900 and 1800 MHz bands and UMTS/HSPA on the 2100 MHz band (and in some markets on the 900 MHz band as well). The most likely frequency bands to LTE will be 800, 1800 and 2600 MHz. It is noteworthy that there are no plans to deploy LTE on the 900 MHz band currently. Table 1 summarises the current consensus forecast on deployment of mobile technologies at different bands.

Table 1 Frequency-technology combinations at mobile frequency bands

Band	GSM	UMTS	LTE
800 MHz			X
900 MHz	X	X	
1800 MHz	X		X
2100 MHz		X	
2600 MHz			X

2.1.2 Individual spectrum bands together form an entity

In most markets, a mobile operator's spectrum assignments spread over a number of spectrum bands. It is natural that there is development in the use of the bands, and some bands may exit the mobile market (such as the 450 MHz a few years ago) and new ones may enter (such as the 800 MHz and 2.6 GHz today). At any given point in time, a regulator should aim to optimise the use of all the frequencies allocated for mobile communications, not just the new bands entering the market. In JT's view CICRA should, when analysing the award of the 800 MHz and the 2.6 GHz spectrum bands, also include the usage and availability of the 900, 1800 and 2100 MHz, as well as the technologies deployed on those.

2.1.3 Technology neutrality

Developments in mobile technologies are advancing fast, offering opportunities for new market entrants as well as fast service launches. Therefore rigid technology-specific allocations no longer serve national interests. JT support the technology-neutral approach.

The current international trend is to allow a licensee to decide the utilization of the band within the limits of allowed radio technologies, e.g. to share 900 MHz and 1800 MHz bandwidths between GSM, UMTS and LTE technologies according to their business strategies. Also the upcoming multi service radio feature will pave the way for flexible use of different radio technologies in the same frequency band. In JT's view, technology selection should become market-driven. Operators themselves are in the best position to assess which technologies to apply at different bands, having regard to cost. They are also motivated to utilise the most efficient technology at all times. So, to ensure that licensees are able to keep pace with evolution of wireless technologies, technology-neutral allocations are critical.

In many countries technology neutrality has been regulated in such a way that operators have possibility to choose the radio technology in the licensed band within certain limitations. In essence, most new mobile licences have been awarded to allow a free mix of 3GPP technologies (GSM, HSPA, HSPA+ and LTE). In addition, part of frequencies may have been allocated to TDD technologies, such as mobile WiMAX.

At the moment, licenses for the 1800 and 2100 MHz bands in Guernsey are available for use for both 2 and 3G. It is JT's view that all licences should be technology neutral for all existing and future frequency bands.

2.1.4 Balanced frequency portfolios

Typically it is beneficial for operators to possess frequencies in several different frequency bands. In general, operators' frequency planning is based on the following principles:

- Lower frequencies enable larger coverage areas to be addressed from one transmitter location and as a result they are often used for coverage purposes i.e. to enable operator to reach sufficient coverage in its geographical operational area.
- Higher frequency channels are often used for offering capacity in a mobile network. Due to higher propagation attenuation higher frequencies are suitable in areas where the density of the sites in certain geographical area is high and there is a high demand for capacity.
- Lower and higher frequencies are also often used together in the same geographical area. Lower frequencies provide the area with seamless coverage and higher frequencies are utilized in hot spots and other high traffic areas to offer more capacity in the area.

In most cases operators favour the use of lower frequencies over high frequencies due to their better propagation properties.

In JT's view, CICRA should ensure the availability of a balanced set of frequencies.

2.1.5 Contiguous frequency blocks

To ensure that operators are able to utilise the full potential of new technologies, frequency bands should not be divided in thin slices. If market players are assigned frequencies in small chunks, such as 2x5 MHz, it is quite possible that none of the operators will be able to utilise the full potential of new radio technologies, as will be elaborated below.[1]

New mobile technologies, such as LTE, in particular benefit from more substantial, contiguous frequency blocks. According to the present specifications, LTE needs a total 20 MHz paired frequency blocks to be able to use the maximum data speeds set for the system. Although some future technologies (e.g. LTE Advanced) may be able to utilise frequencies from various blocks and bands simultaneously, their market launches are quite far ahead and they are not applicable for the spectrum awards of today.

[1] In fact, the Czech regulator CTU introduced a spectrum floor for the 2.6 GHz assignments in the auction to be held in November 2012. (Policy Tracker May 5, 2012)

Contiguous frequency blocks are essential when striving for effective usage of the spectrum. The increase in bandwidth leads to exponential increase in data speed, i.e. to more efficient use of a scarce resource. The need for guard channels between radio technologies and operators can be minimized. In addition, a holder of a large frequency block can often use all the frequencies in the block without any guard channels by applying optimal frequency reuse distances in critical cases. Finally, if an operator is awarded frequency blocks very far from each other, significant losses in performance is caused by the problems in amplifying the signal.[2]

2.1.6 Spectrum caps

Some regulators have defined a maximum to the amount of spectrum a single operator can hold, i.e. a spectrum cap. Caps have been set to the total spectrum holding and to the sub-1 GHz holding. The reason for setting spectrum caps is to promote competition, i.e. to prevent spectrum hoarding. Typically spectrum caps have been used in auctions, where the market rather than the regulator has the final decision power over the spectrum awards. Where the regulator has the power to award the spectrum, setting a spectrum cap might unnecessarily limit the options of the regulator.

2.2 CURRENT SITUATION ON THE CHANNEL ISLANDS

2.2.1 Frequencies awarded today

Table 2 below itemises the current frequency awards for the mobile communications frequencies in the Channel Islands. At the moment, only 900 MHz is practically completely awarded to operators. There are plenty of frequencies available in the 1800 and 2100 MHz bands.

Table 2 Current frequency awards in the Channel Islands on the 900, 1800 and 2100 MHz

MHz	Jersey			Guernsey		
	900	1800	2100	900	1800	2100
JT	2x24.8	2x11.6	2x10	2x9.8	2x10	2x10
Airtel	2x5	2x5	2x10	2x5	2x6.2	2x10
Sure	2x5	2x10	2x10	2x19.8	2x5	2x10
Marathon	--	--	2x5	--	--	--
Total awarded	2x34.8	2x26.6	2x35	2x34.6	2x21.2	2x30
Total in band	2x35	2x75	2x60	2x35	2x75	2x60
Available	2x0.2	2x48.4	2x25	2x0.4	2x53.8	2x30

2.2.2 Differences from 3GPP allocations

It is noteworthy that the allocations of frequencies for mobile communications use in the Channel Islands differ from the allocations of the 3GPP. Table 3 below summarises the situation.

[2] A modern RRU can amplify an instantaneous bandwidth of maximum 20-25 MHz.

Table 3 Allocations for mobile communications in the Channel Islands vs. 3GPP

	900	1800	2100
Consultation document	UL 880.1-914.9 DL 925.1-959.9	UL 1715.1-1781.5 DL 1810.1-1876.5	UL 1925-1980 DL 2115-2170
3GPP	UL 880-915 DL 925-960	UL 1710-1785 DL 1805-1880	UL 1920-1980 DL 2110-2170
Difference in bandwidth	0.2 MHz	8.6 MHz	5 MHz

JT understand that the differences may be due to certain Ofcom practices and non-mobile services being offered using the spectrum excluded in the allocations. It is however JT's view that demand will exceed supply in these bands in the very near future. Therefore CICRA should carefully consider the possibility of allocating the full bandwidth of each of the bands to mobile use.[3]

2.2.3 Sufficient spectrum for GSM traffic to be secured

In JT's view, sufficient spectrum for GSM traffic should be secured. As a technology, GSM is undoubtedly approaching the end of its life cycle. However, it will be present for many years still to come. GSM networks are still used for a significant volume of voice mobile calls made in the Channel Islands, and as such an extremely important service to the consumers. GSM also contributes a major part of JT's income. At the moment JT has neither plans nor a schedule to scrap the GSM network.

JT has the majority of the GSM traffic in Jersey and therefore requires a considerable amount of spectrum to satisfy the market demand. JT's current assignment on the 900 MHz band, 2x24.8 MHz, is sufficient for GSM traffic for the time being. As JT's market share on Guernsey is smaller than in Jersey, the 900 MHz assignment there (2x9.8 MHz) is also adequate.

The current assignments on the 1800 MHz band (2x11.5 MHz in Jersey and 2x10 MHz in Guernsey) are also sufficient for the provision of GSM traffic, but only that. JT cannot deploy LTE on its current assignments without compromising the quality of the GSM service.

There is 2x30 MHz of spectrum available in the 800 MHz band and 2x70 MHz (and 50 MHz TDD) in the 2600 MHz band, which brings the total of FDD frequencies in the five bands to 2x270 MHz (using generally applied bands defined by CEPT). As a total of 2x73.6 MHz has been awarded in Jersey and a total of 2x84.2 MHz in Guernsey, 64 % and 68 % of total FDD frequencies of all five bands combined are still available, respectively. The shares of available frequencies of the total in each band can be seen in Figure 1.

[3] The 900 MHz allocations in the Channel Island include 0.1 MHz guard bands in the beginning and the end of both UL and DL. In addition, in Guernsey there are also 0.2 MHz guard bands between the JT and Sure assignments. It is common practice currently to leave it to the operator to limit the interference in the border areas of the spectrum assignment to the regulated level, not to set guard bands not in anyone's use.

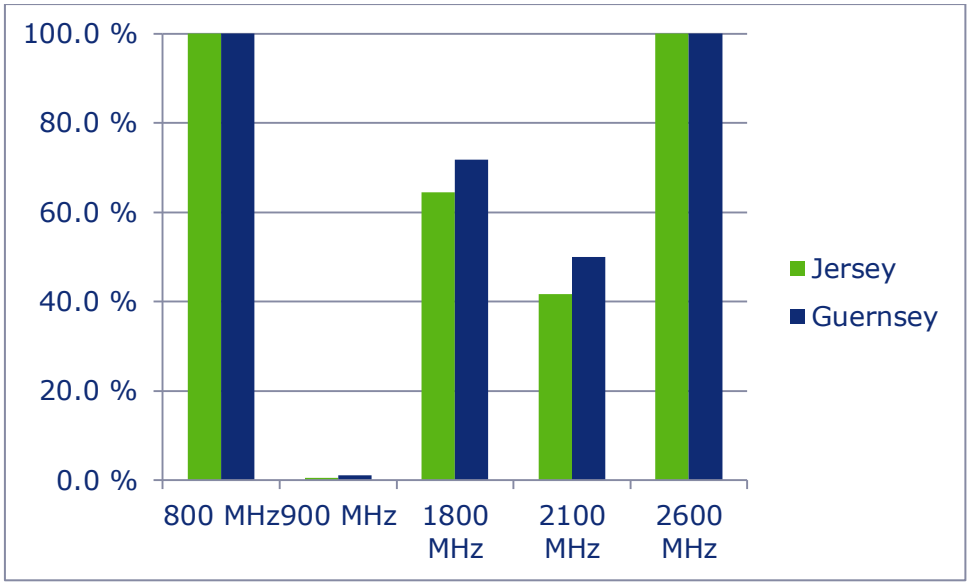

Figure 1 Share of frequencies available for award in each band

JT believes that the operators should be granted sufficient frequencies to support the current GSM traffic. Any new assignments, especially on the 1800 band, should be considered on top of the current assignments in order to secure today's GSM service level.

2.2.4 A closer look at the current assignments

As we have stated previously in 2.1.5, the award of contiguous frequency blocks will benefit spectrum efficiency. There are issues to be tackled on each of the bands in use today, and we will analyse them individually below.

Assignments on the 900 MHz band in Jersey and in Guernsey are shown in Figure 2 and Figure 3. JT's assignments, 2x24.8 MHz and 2x9.8 MHz, are sufficient for the time being. JT wish to point out that many regulators have assigned also the guard bands (beginning and end of both UL and DL blocks) to operators, tackling interference issues in the license terms.

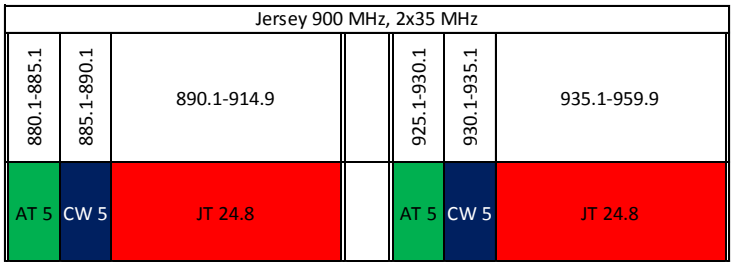

Figure 2 Current assignments on the 900 MHz band, Jersey

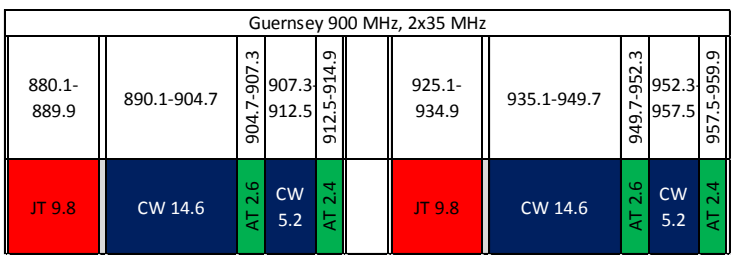

Figure 3 Current assignments on the 900 MHz band, Guernsey

Assignments of the 1800 MHz band both in Jersey and in Guernsey are visible in Figure 4 and in Figure 5. There are plenty of frequencies still not awarded, even taking the DECT guard band in the end of both UL and DL blocks into account. JT sees that the 1800 band is one of the key bands when launching new services, such as LTE. The main reasons for this are the combination of the current JT network grid, the propagation characteristics of the band and the potential capacity gain of the band. As the GSM traffic declines along with the increase in LTE, JT plans a gradual migration of frequencies from GSM to LTE.

JT's current assignments in the 1800 MHz band are sufficient for GSM traffic today. As the analysis in 2.3 will show, JT needs a total of 2x20 MHz in this band to also support LTE traffic. Keeping in mind that contiguous assignments maximise the efficiency of use of a scarce resource (2.1.5), JT sees that it should be assigned a contiguous block of 2x20 MHz on the 1800 MHz band.

In Jersey this is fairly straightforward: JT can be assigned an additional 2x8.4 MHz right below its current assignment, i.e. JT wishes to be assigned the band 1761.5-1781.5/1856.5-1876.5 MHz. In Guernsey the band is in need of a re-arrangement and JT would wish to have the same assignment in Guernsey as in Jersey.

Jersey 1800 MHz, 2x75 MHz

1710-1715.1	1715.1-1730.1	1730.1-1738.3	1738.3-1740.3	1740.3-1745.5	1745.5-1747.3	1747.3-1750.3	1750.3-1769.9	1769.9-1781.5	1781.5-1785		1805-1810.1	1810.1-1825.1	1825.1-1833.3	1833.3-1835.3	1835.3-1840.5	1840.5-1842.3	1842.3-1845.3	1845.3-1864.9	1864.9-1876.5	1876.5-1880
5.1	15	CW 8.2	AT 2	5.2	CW 1.8	AT 3	19.6	JT 11.6	3.5		5.1	15	CW 8.2	AT 2	5.2	CW 1.8	AT 3	19.6	JT 11.6	3.5 *

* Guard band for DECT

Figure 4 Current assignments on the 1800 MHz band, Jersey

Guernsey 1800 MHz, 2x75 MHz

1710-1715.1	1715.1-1725.1	1725.1-1730.1	1730.1-1742.3	1742.3-1743.5	1743.5-1755.7	1755.7-1760.7	1760.7-1781.5	1871.5-1785		1805-1810.1	1810.1-1820.1	1820.1-1825.1	1825.1-1837.3	1837.3-1838.5	1838.5-1850.7	1850.7-1855.7	1855.7-1876.5	1876.5-1880
5.1	JT 10	AT 5	12.2	AT 1.2	12.2	CW 5	20.8	3.5		5.1	JT 10	AT 5	12.2	AT 1.2	12.2	CW 5	20.8	3.5 *

* Guard band for DECT

Figure 5 Current assignments on the 1800 MHz band, Guernsey

The assignments in the 2100 MHz band in Jersey (Figure 6) and Guernsey (Figure 7) are identical but for the Marathon assignment in Jersey. In order to prepare for the potential increase in the UMTS traffic, JT should be assigned an additional 2x5 MHz of the spectrum, and JT's preference is to be assigned the band 1945-1960/2135-2150 in both Islands.

Jersey 2100 MHz, 2x60 MHz

1920-1925	1925-1930	1930-1940	1940-1950	1950-1960	1960-1970	1970-1980		2110-2115	2115-2120	2120-2130	2130-2140	2140-2150	2150-2160	2160-2170
5	Ma 5	AT 10	10	JT 10	CW 10	10		5	Ma 5	AT 10	10	JT 10	CW 10	10

Figure 6 Current assignments on the 2100 MHz band, Jersey

Guernsey 2100 MHz, 2x60 MHz														
1920-1925	1925-1930	1930-1940	1940-1950	1950-1960	1960-1970	1970-1980		2110-2115	2115-2120	2120-2130	2130-2140	2140-2150	2150-2160	2160-2170
5	5	AT 10	10	JT 10	CW 10	10		5	5	AT 10	10	JT 10	CW 10	10

Figure 7 Current assignments on the 2100 MHz band, Guernsey

2.3 JT'S LTE BUSINESS AND TECHNOLOGY STRATEGY – CONFIDENTIAL (REDACTED)

3 RESPONSES TO QUESTIONS BY CICRA

3.1 CICRA'S OBJECTIVES

As JCRA and the OUR have separate duties and objectives set by law, CICRA needs to ensure that it has joint objectives and duties which accurately reflect those of its two constituent authorities. It proposes that the following objectives should guide the process and criteria for the joint allocation of spectrum in the Channel Islands:

- to further consumers' interests in the short and long term, having regard to prices and costs, and the availability and range of services suitable to consumers' different needs;
- to promote competition as a mechanism to further its consumer interest objective;
- to have regard to and, where it lies within its powers and is practicable, to lessen the impact of the spectrum-dependent activities it regulates on the environment;
- to the extent allowed by legislation, to deal with the Jersey and Guernsey Bailiwicks as a single economic and social entity;
- to seek to ensure the processes and criteria adopted by the CICRA are consistent with Ofcom's duties, including the duty to secure the optimal use for wireless telegraphy of the electro-magnetic spectrum.

The first three objectives summarise the duties that CICRA has, in one form or another, in the islands' respective legislation. The last two derive from the joint letter from the States of Jersey and Guernsey.

Q1. Respondents' views are sought on the above objectives. In particular, CICRA seeks views on the balance it should strike between these objectives and what that might mean in practice for potential applicants and users of the spectrum. These views are intended to inform what services CICRA should give greater priority to facilitating for the islands and what obligations should be imposed on potential applicants in allocating the 800 MHz and 2.6 GHz spectrum.

JT's Response:

3.1.1 Consumers' interests

JT agrees that the CICRA's objectives should include "to further consumers' interests in the short and long term, having regard to prices and costs, and the availability and range of services suitable to consumers' different needs."

The mobile market in the Channel Islands is fiercely competitive and it is JT's opinion that the range of service offerings provided in the market meets the needs of the different types of consumers. The competitive nature of the market means that operators want their products and services to stand out in the market and are keen to announce network firsts.

JT is committed to delivering the best coverage, highest quality and fastest mobile speeds possible. At the beginning of 2012 we enhanced to our mobile network to (HSPA+) which offers speeds of 42 Mbps, which is in line with speeds provided over LTE networks. It is implicitly part of our strategy to provide high quality mobile services using the latest

technology to ensure that our customers' have access to world class speeds that allow them to use existing and future services.

Finally, JT believes that an operator aiming for profitability in the long term can only reach its goal by satisfying its customers, which automatically places consumers' interests very high on JT's list of priorities.

3.1.2 Promoting competition

The telecommunications industry requires considerable investments, which are rather inflexible. Therefore, there is a balance between competition and investment and there is also a limit to the number of operators a small market like the Channel Islands can support. The CICRA has to take this into account alongside its statutory obligations.

3.1.3 Environmental impact

JT shares CICRA's view on lessening the impact of the spectrum-dependent activities on the environment. A great importance should be placed on ensuring that the allocation of spectrum to deploy LTE services utilises operators' existing mast sites and there is a limit placed on new masts sites. If CICRA are considering any new operators entering the market, the impact on the environment and the ability of that operator to acquire appropriate mast sites must be carefully considered. Experience has shown that the public and the planning authorities have been reluctant in some cases to allow mast to be sited.

On a more general level, it should be pointed out that network capacity depends on three factors: radio technology in use, number of sites and spectrum bandwidth. If there are limitations to constructing new sites, an operator already using modern radio technologies can respond to the increasing demand only by deploying a wider frequency spectrum.

JT aims to provide its services to a large part with the current site grid, which requires a substantial amount of radio spectrum. However, JT wishes to reserve the possibility to add new site locations as they may be needed because of customer demand.

3.1.4 Single economic and social entity

JT is a supporter of Pan CI Regulation and believe it is important due to the size of the Channel Islands for it to be considered as a single economic and social entity for the purposes of regulation. However, JT sees it important that CICRA consider the historical market development, spectrum allocations and investments in mobile networks in each island. In future it is important to aim for matching (additional) frequency awards in both jurisdictions to enable efficient management of spectrum.

See also 2.2.3 and 2.2.4.

3.1.5 Consistency of CICRA and Ofcom

It is JT's view that the primary objective of the five objectives listed by CICRA is to ensure that the processes and criteria adopted by CICRA are consistent with Ofcom's duties. This is particularly important in light of the Clear Mobitel Jersey ("CMJ") court decision. Ofcom must act in accordance with its obligations under the Wireless Telegraphy Act 2006 and has a duty to ensure the efficient use and management of radio spectrum. It was clear from the JCRA's

expression of interest consultation process in 2009 that the spectrum allocations recommended to Ofcom were not, in all instances, the allocations that operators required. Therefore CICRA has to ensure that when it makes recommendations going forward, these ensure efficient use of a scare spectrum resource and are in line with operators' investment plans.

To ensure efficient use of spectrum allocated, JT recommend that use it or lose it clauses are added to spectrum licences. These clauses would allow operators a period of time, say 24 months, to provide evidence of use of the spectrum in line with the roll out plans detailed in their business case.

On a more general level, JT believes that CICRA should carry out its own market analysis and make decisions suitable for the Jersey and Guernsey markets, which do not necessarily follow Ofcom's decisions.[4] For the sake of clarity, JT is in favour of CICRA following Ofcom's technical decision-making in order to minimise unnecessary interference with the various services offered via the electromagnetic spectrum, e.g. digital terrestrial television.

3.2 JCRA RECOMMENDATION IN 2009

Q2. Respondents' views are sought on the above issues, namely:

- **Commercial decisions based on the JCRA recommendation**
- **Developments since the JCRA recommendation**
- **Benefits of a pan-Channel Island approach**
- **Scale of the available 2.6 GHz spectrum**

JT's Response:

3.2.1 Commercial decisions based on the JCRA recommendation

The JCRA recommended to Ofcom that JT be allocated a total of 2x20 MHz FDD spectrum. In April 2010 JT wrote to the JCRA stating that allocation was not sufficient and requested an allocation of 2x30 MHz FDD in contiguous blocks. JT requested that if the JCRA was only going to allocate JT 2x20 MHz then 2x10 MHz of spectrum should be reserved for its use once it established its LTE network.

JT has made no commercial decisions based on the spectrum recommendation to Ofcom and has made it clear that the spectrum allocation proposed was not appropriate.

3.2.2 Developments since the JCRA recommendation

Globally since 2009, LTE on 2.6 GHz has become reality, although deployments of LTE on 1800 MHz have decreased the expectations of the significance of the 2.6 GHz. Digital switch over has taken place freeing the 800 MHz band, which changes the relative importance of the 2.6 GHz band. LTE is more viable now that there is a sub-1GHz spectrum available for it.

[4] Especially issues such as viability of minimum spectrum allocations or the number of operators preferred on the market fall under this group.

Locally, JT has completed LTE trials, and more demand from customers for higher data speeds has emerged. This is partially due to launch of new types of customer equipment such as the iPad. We have enhanced our mobile network to offer speeds of 42Mb HSPA+, which is a step towards the speeds provided over LTE networks. It is implicitly part of our strategy to provide high quality mobile services using the latest technology to ensure that our customers' have access to world class speeds that allow them to use existing and future services.

JT still see 2.6 GHz as one of the key spectrum bands for LTE, but view 800MHz and 1800MHz as being of greater importance, especially for initial deployment.

3.2.3 Benefits of a pan-Channel Island approach

JT has long been a supporter of a pan-Channel Island approach. In small jurisdictions like the Channel Islands where the same network operators are present in both Bailiwicks it makes sense to ensure that operators benefit from economies of scale and scope to as great an extent possible and this also includes spectrum. As previously stated, regard has to be given to the current status of operators' spectrum due to historic reasons. However, all new spectrum awards should be considered on a pan-Channel Island basis. This concerns not only the 800 MHz and 2.6 GHz bands, but also the 1800 MHz and 2100 MHz.

3.2.4 Scale of the available 2.6 GHz spectrum

It is JT's view that the 2.6 GHz recommendations cannot be looked at in isolation. Now that time has moved on and LTE solutions can be delivered using 800 MHz, 1800 MHz and 2.6 GHz, it would be foolish to look at allocations which were based on 2.6 GHz alone. This matter is discussed more in detail in 3.11.

3.3 OTHER FACTORS FOR CICRA TO CONSIDER

Q3. Views are also sought on any other relevant factors respondents believe CICRA should take into account regarding existing recommendations to the extent they are relevant to future spectrum awards.

JT's Response:

When deciding whether the recommendation to CMJ should stand, the JCRA/CICRA needs to take into consideration CMJ's other spectrum requirements in other bands now that 800 MHz will be available and LTE is also compatible with 1800 MHz. It may be that CMJ's plans have changed in light of technology changes and it is very likely that the existing operators' plans will have matured significantly. A range of LTE compatible smartphones, dongles, tablets and modems are all now available, which was not the case when the recommendation was made to Ofcom in September 2009.

JT would recommend that the CICRA consider including "Use it or lose it" clauses in spectrum allocations to ensure that spectrum that is awarded will be good use of scare resource.

3.4 ISSUES RELEVANT TO FURTHER SPECTRUM AWARDS IN 800 MHZ AND 2.6 GHZ BANDS

1. A high proportion of sub-1 GHz spectrum is held by Sure in Guernsey and by JT in Jersey
2. Reliance is still placed on using the incumbent's fixed network in each island
3. Environmental concerns exist around the number and size of masts
4. There is a desire to maintain consistency with the approach and timing of awards in larger consumer markets
5. The small scale of the Channel Islands has potential implications for the number of competitors feasible in these markets; and
6. The option of an auction approach in allocating spectrum may be less attractive for a smaller jurisdiction.

Q4. Respondents' views are sought on the above aspects and on any other which respondents consider relevant. Views are also sought on the weight that should be given to each of these in any decision around spectrum awards and what these mean in practice for the construction of any award process.

JT's Response:

3.4.1 Sub-1 GHz spectrum held by Sure Guernsey and by JT

A high proportion of sub-1 GHz spectrum is held by Sure in Guernsey and by JT in Jersey. The incumbents in both islands were awarded 2G spectrum because of historic reasons and have invested in network based on the spectrum awarded. They should be allowed to recoup their investments. In addition, 900 MHz spectrum cannot currently be used to provide LTE services and therefore should not be considered as part of this award process.

See also 2.2.3, 3.5 and 3.6.

3.4.2 Reliance placed on using the incumbent's fixed network

JT do not support the view that the incumbents' fixed networks would be relied on for backhaul purposes on either of the islands. E.g. JT do not rely on Sure's fixed network in Guernsey as they use a large proportion of radio for backhaul as well as their own fibre network.

3.4.3 Environmental concerns: the number and size of masts

Please see 3.1.3 and 3.10.

3.4.4 Consistency with larger consumer markets

Generally, JT is in favour of maintaining consistency of awards with larger consumer markets. Small markets and operators have no other choice but to go with the flow in terms of equipment and other technical solutions; e.g. it is practically impossible that the traditional network and handset manufacturers would launch Channel Island-specific solutions. In addition, a certain level of universal regulation in e.g. timing of awards minimises interference and other such issues that are problematic to operators.

3.4.5 Number of competitors feasible in Channel Islands

Please see 3.1.2. JT sees that no more than three operators should be allowed in the Channel Islands. The competition is already fierce, and the market cannot support a large number of players.

3.4.6 Attractiveness of an auction approach

JT is not in favour of auctioning the new frequencies. It is JT's view that auctions do not benefit the consumer; the sums paid for spectrum will end up in the service prices that the consumers pay.

The size of the market in the Channel Islands is not suitable for upfront investments even larger than today. Moreover, JT is of the opinion that a beauty parade as an award mechanism has benefited the market in the past and sees no reason why this would not be true also in the future. Spectrum hoarding should be prevented by including a use it or lose it clause in the license conditions.

3.5 SPECTRUM CAPS IN GENERAL, CONTIGUOUS ALLOCATIONS

Q5. CICRA seeks views on whether it should structure its work so as to encourage a fourth telecommunication operator to provide mobile services in the Channel Islands.

JT's Response:

JT does not believe that the size of the Channel Island market could support a fourth telecommunication operator.

Q6. CICRA seeks views on whether spectrum caps should apply as part of any award process and to what extent the issue of contiguity of any existing or new allocation is material to any decision process. If caps are seen to be appropriate or the need for contiguity of spectrum is important, respondents are asked to set out their preferred approach to dealing with these areas and reasons.

JT's Response:

3.5.1 Spectrum caps

Please see 2.1.6. JT trusts the award method in the Channel Islands will not be an auction, and CICRA to have the power to award the spectrum. In this case setting a cap might limit CICRA's options in the award process. Moreover, JT is of the opinion that assignments on the 800 MHz band are not comparable to the ones in the 900 MHz band as the former can be used for deploying an LTE network whereas the latter only enables less developed technologies, i.e. GSM and UMTS. Hence, JT does not see the need for spectrum caps in this case.

Also see 3.4.1.

3.5.2 Contiguous allocations

Please see 2.1.5 for background information. In JT's opinion CICRA should ensure the availability of large contiguous frequency blocks and prevent the spectrum from being split

into too small blocks. The minimum assignment in the coming award process should be set to 2 x 20 MHz while 2 x 40 MHz allocations should become available within the next 3 - 5 years.

3.6 SUB 1GHZ SPECTRUM CAP

Q7. Views are sought on whether a sub 1 GHz spectrum cap is appropriate as a criterion for making any award, and the appropriate level of such a cap, if any.

JT's Response:

A sub-1 GHz cap would place JT in a poor competitive position against the other market players in Jersey. Due to its large GSM market share, JT has a considerable assignment of the 900 MHz band. This assignment would automatically grossly cut the amount of spectrum available for JT on the 800 MHz band, if a sub-1 GHz cap was introduced. Subsequently, JT would be disadvantaged as an LTE service provider.

If a sub-1GHz spectrum cap is absolutely needed in CICRA's opinion, current GSM assignments should be excluded from it.

3.7 RATIONALISATION OF OTHER PARTS OF THE SPECTRUM

Q8. Do you agree that CICRA should use the opportunity provided by the allocation of new spectrum to rationalise other parts of the spectrum?

JT's Response:

JT would agree that the CICRA should use the opportunity to rationalise other parts of the spectrum, especially the 1800 MHz band making the operators' allocations the same in both Jersey and Guernsey.

3.8 CHARGES PROPOSED BY STATES OF GUERNSEY

Q9. Views are sought on whether the charge proposed by the States of Guernsey raises special issues for CICRA in determining an appropriate allocation of spectrum in Guernsey or in the Channel Islands.

JT's Response:

JT has no comment to make on this point.

3.9 FIXED WIRELESS AND MOBILE BROADBAND

Q10. Views are sought on the benefits of these two areas [fixed wireless and mobile broadband] in which spectrum can be deployed and to what extent a strategic choice between them may be needed in any allocation decision.

JT's Response:

It is JT's view that the operators should be allowed to decide which technologies and services they want to launch. This should not be the concern of the regulator. In this way the consumer benefits can be maximised.

Fixed and mobile networks are to a large part complementary and provide consumers with choice. Mobile telephony has already substituted a large part of fixed telephony. Although JT do not see a similar development between mobile and fixed broadband, certainly there are technologies enabling such a future available to operators, LTE and WiMAX as the most prominent ones. JT fails to see the connection of the operators' choice of technology and the local loop issue. Independent of CICRA's potential future decisions concerning the local loop, radio frequency assignments should be free on any technology restrictions.

3.10 ENVIRONMENTAL CONSIDERATIONS

Q11. Respondents' views are sought on the issues in this section and, where additional considerations are identified, they are invited to set these out also. In particular, CICRA seeks views on the environmental factors – including actions in which telecommunication companies should engage - that might inform the construction of any award process and the weights or priorities it should give these factors in deciding on awards.

JT's Response:

Please see 3.1.3.

3.11 STRUCTURE OF ALLOCATIONS

Q12. Respondents' views are sought on the above issues and, in particular, what specific combinations of 800 MHz and 2.6 GHz spectrum should be made available, or whether spectrum in these two bands should be made available as separate awards. Operators that intend to seek spectrum awards are requested to set out, in as detailed a manner as possible, what spectrum is sought and to what purpose.

JT's Response:

As already concluded in 2.1.4, any mobile operator is in need of both higher and lower frequencies to roll out a network optimal for the customers' needs – lower frequencies for coverage of rural areas and indoors, higher for capacity in hotspots. In order for an operator to make reliable investment plans in a new technology, they need to understand and be sure of the frequencies that will be made available for them. Simultaneous award of frequencies from both 800 MHz and 2.6 GHz bands are therefore preferred by JT along with the 1800 MHz band becoming technology neutral and the remaining 1800 spectrum shared between the existing 1800 operators.

We have analysed the outcome of 10 recent European award processes, see Table 4. The table lists the number of each assignment in each award process, i.e. how many operators had opted for the assignment in question. There are a number of conclusions we can draw from this table:

- All the 800 MHz frequencies were awarded in blocks of 2x10. This seems like a compromise between the operators' technical preferences and the narrow band (2x30 MHz total). Operators are understandable reluctant to settle for 2x5 MHz for technology efficiency reasons yet the regulator is eager to secure at least three operators in the market. At least on these markets, three operators seems to be a sufficient number for market balance.
- In the 2.6 GHz band, FDD frequencies (total 33 operators ended up with these) seem much more popular than TDD (total 12 operators).
- 2x20 MHz is by far the most popular assignment in the 2.6 GHz FDD range (20 out of 33 operators opted for this assignment). This is understandable; as the band is rather wide (2x70 MHz), even with such a generous assignment, the regulator can still secure the possibility for more than three operators to enter the market.
- Only in one of these occasions were FDD frequencies assigned in less than 2x10 MHz assignment.

Table 4 Results of 10 recent award processes in Europe

Band	800 MHz	2.6 GHz FDD					2.6 GHz TDD					
Assignment	**2x10**	**2x5**	**2x10**	**2x15**	**2x20**	**2x25**	**1x5**	**1x10**	**1x15**	**1x25**	**1x40**	**1x50**
Germany 2010	3		1		3		1	2		1		
Sweden 2008			1		3							1
Sweden 2011	3											
Netherlands 2010		1	2		2							
Denmark 2010			1		3			1	1	1		
Finland 2009					1	2						1
France 2011	3			2	2							
Spain 2011	3				2						1	
Italy 2011	3		1	2	1			1				
Portugal 2011	3				3					1		
Total	**18**	**1**	**6**	**4**	**20**	**2**	**1**	**4**	**1**	**3**	**1**	**2**

Based on information from past auctions, operators seem to value 800 MHz band higher than 2.6 GHz, see Figure 8. The prices paid are generally on the level of 0,40-0,80 euros per MHz per population for the 800 MHz and below 0,20 euros for the 2.6 GHz. Please note that in many cases the price for 2.6 GHz is just a few eurocents, not even visible in the graph in some cases (e.g. Netherlands 2010, Finland 2009 or Norway 2008).

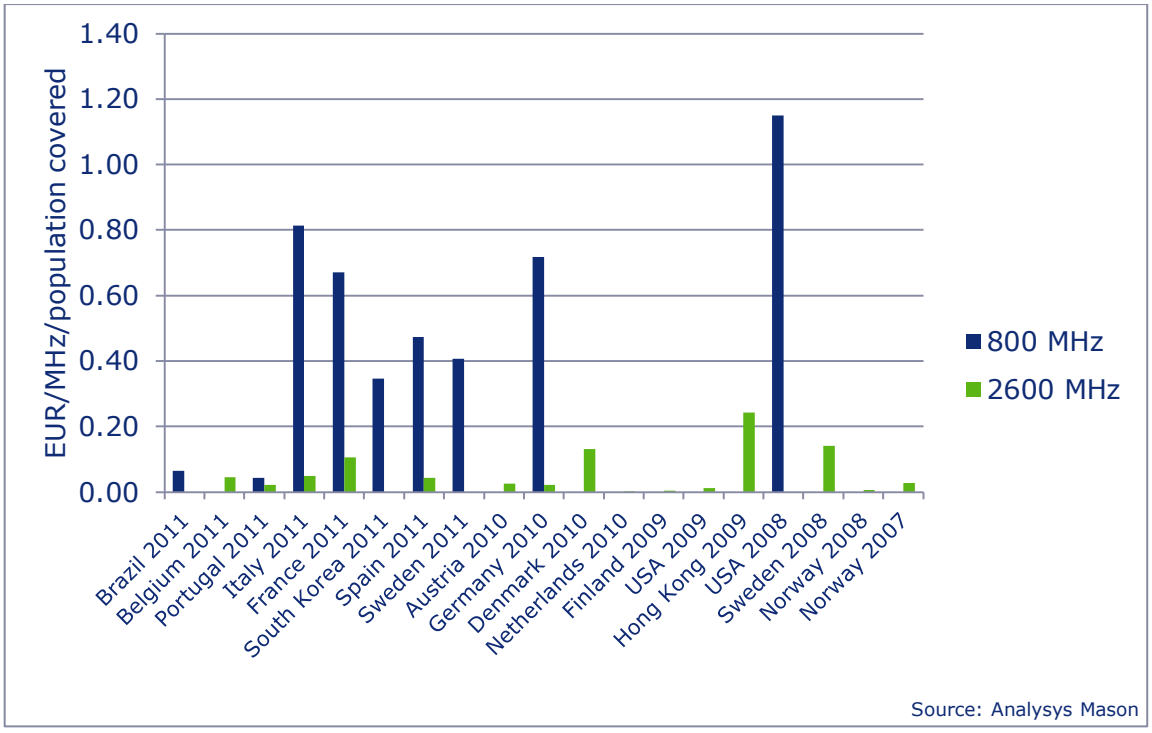

Figure 8 Prices paid for 800 MHz and 2.6 GHz frequencies

All in all, operators seem to opt for larger contiguous assignments and value the lower frequencies more than the higher.

The 800 MHz band has limited bandwidth, only 2x30 MHz. As already stated in 3.4.5, no more than three competitors should be allowed in the Channel Islands. As the 800 MHz band is suitable for a new service, namely LTE, all the operators have equal possibilities to roll out networks and attract customers to run a profitable business. JT has serious plans to launch ever better and faster mobile broadband services, and in order to do this it should be awarded a minimum of 2x10 MHz in the 800 MHz band. This award would leave ample bandwidth also for the competitors in the market.

JT would like to point out that (as discussed 2.2.4) it is also in need of additional frequency assignments in the 1800 MHz band, as it plans to launch an LTE network and sees this band as one of the key bands for the purpose. In Jersey JT wishes to be assigned spectrum range 1761.5-1781.5 MHz (uplink) and 1856.5-1876.5 MHz (downlink). In Guernsey JT wishes to be assigned the same range as it already has in Jersey (1761.5-1781.5 / 1856.5-1876.5 MHz).

The 2.6 GHz band is rather wide, 2x70 + 50 MHz. At the moment it is JT's interpretation that no assignments have been confirmed in this band. As stated in 3.5.2, in the near future 2x40 MHz assignments offer the best possibilities to utilise technology to the maximum. However, JT understands CICRA may be opposed to awarding such a large portion of the band to one player. Therefore JT is currently planning its LTE rollout in such a manner that 2x25 MHz in this band should be sufficient for service provision.

3.12 TRADEABLE LICENSES

Q13. Views are therefore sought on whether this approach [license trading] is desirable and what CICRA might need to ensure is in place to give effect to any such approach.

JT's Response:

Provided that CICRA plans to adopt an award mechanism other than auction, JT is not in favour of tradable licenses. It is JT's view that license tradability would increase the possibility for windfall profits for some or all of the licensees, which would not be favourable to the society as a whole. In any case, spectrum hoarding should be prevented in the license terms (use it or lose it clause).

3.13 INTERFERENCE WITH LOCAL RADARS

Q14. Views are sought on whether responsibility, if any, for the cost of filters for the Jersey airport radars should be on telecommunication operators in Jersey only.

Q15. Views are sought on how the cost of installing filters at Jersey Airport should be shared among telecommunication operators, whether it should be the operators active in the 2.6 GHz band only, or those operating in all the bands that could be substituted for the 2.6 GHz band, or those offering 4G services, or operators using other spectrum also.

JT's Response:

It is JT's view that the interference is only caused because of deficiencies in the radar equipment and that the operators' equipment does not interfere with the radar. As long as the operators' deploy the 2.6 GHz as per ETSI guidelines there should be no interference. The operators' should not be made to pay for the rectification of this problem. JT knows of no markets where this type of approach has been agreed and followed.

3.14 INTERFERENCE WITH DIGITAL TV

Q16. Respondents' views are sought on all five points above: value of forecasting model, KPIs, survey of existing DTT services, the setting up of a central delivery service, and the allocation of DTT mitigation costs.

JT's Response:

1. JT believe that there is no requirement for any modelling/forecasting work as the problem is now well understood and the CI experience will be little different to that of the UK. Having spoken with some of the vendors involved in the at800 project, we have been advised that the number of affected households is much less than expected and can easily be managed on an individual basis using low cost solutions. JT therefore sees no benefits in conducting a survey of DTT quality of reception or extending the at800 activities to the Channel Islands.

2. We can see two realistic options, A: the operators work together and form a team to manage this process or B: this is outsourced to an existing local company such as one of the TV aerial erector companies with agreement that any work they carry out to resolve interference issues will then be shared between the operators There is already precedence in the market as there was interference between some mobile 900MHz sites and terrestrial television installations. The solution used was to provide filters and JT utilised a local TV aerial erector company to provide the solution.

3. The cost for option A is minimal as it can be absorbed by each operators, option B, would need to be explored and costed.

3.15 COMPETITIVE PROCESS

Q17. Views are sought on an appropriate competitive or comparative selection process and how best it might be structured to achieve the benefits sought.

JT's Response:

In order to optimize the use of a scarce resource, CICRA should ensure that spectrum awards go to operators with a viable business case and those that are intent on remaining in the Channel Islands market for the long term. CICRA needs to regard existing operators first as these operators are already established and are serving customers. To maximize the consumer interest it is vital that existing operators are awarded sufficient spectrum to continue to provide their customers valuable services. New entrants must also be considered but regard has to be given to the size of the market and the environmental factors already discussed in this response.

JT sees that the only viable option in the Channel Islands is that CICRA decides independently which spectrum assignments it will recommend Ofcom to make.