Commission for
Communications Regulation

Response to Consultation 11/94 and Further Consultation.

The Introduction of a Licensing Framework for VHF and UHF Telemetry Systems, Changes to Current Frequency Assignments and Spectrum Release Proposals

Reference: ComReg 13/13

Date: 06/02/2013

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1 Introduction

1 In Consultation 11/94[1], the Commission for Communications Regulation ("ComReg") proposed to introduce a new licensing scheme for scanning telemetry and telecontrol systems in the VHF and UHF frequency bands. The proposed scheme would comprise of four categories of wireless telegraphy licence catering for telemetry networks ranging in size from small single site systems to large nationwide networks.

2 A telemetry and telecontrol system ("telemetry") is a wireless telegraphy system by which automated measurements are made and other data collected at remote or inaccessible locations, and transmitted to receiving stations for monitoring, recording or remote control purposes. The use of telemetry systems has increased in recent years (mainly from utility operators and also from the manufacturing and food & beverage production industries)

3 ComReg noted in Consultation 11/94 that it currently licences telemetry under its Business Radio licensing framework, which is intended to facilitate mobile services. It is also noted that the increased demand for telemetry, which is a fixed wireless service, has made it more difficult to provide interference free channels for this purpose. The incompatibility of fixed and mobile users also means that significant tranches of spectrum are left unused as they must serve as guard-bands between these two user groups.

4 ComReg thus set out its view that a new licensing framework specifically for telemetry was desirable and Consultation 11/94 proposed four new licence categories, with each licence category aimed at the needs of particular telemetry users.

5 The four categories are:
On-Site Licence,
Local Area Licence,
Wide Area Licence, and
National Telemetry Licence

6 In order to give effect to the new telemetry licensing framework, ComReg also proposed to re-allocate up to 2 x 1.2625 MHz of paired spectrum and 1 x 25 kHz of unpaired spectrum in the 163 – 174 MHz and 450 – 470 MHz bands, specifically for telemetry use, noting that this would require the relocation of some existing licensed users.

[1] *Introduction of a Licensing Framework for VHF and UHF Telemetry Systems, Changes to Current Frequency Assignments and Spectrum Release Proposals.* ComReg Doc No 11/94

7 ComReg also proposed changes to the existing use of spectrum in the VHF and UHF bands so that fixed and mobile users would not be required to share the same spectrum.

8 There were eleven respondents to Consultation 11/94 who for the most part supported ComReg's proposals. Non-confidential versions of all responses received are being published in tandem with this paper[2]. The eleven respondents were as follows:

- Cork County Council
- Cully Automation Ltd. (Cully)
- Dublin City Council
- EMR Integrated Solutions (*EMR*)
- ESB Networks Ltd. (*ESBN*)
- Grontmij
- Joint Radio Company Ltd. (*JRC*)
- Meath County Council
- National Directorate of Fire and Emergency Management
- Telecommunications Association of the UK Water Industry (*TAUWI*)
- Westmeath County Council

9 Matters of contention and proposals for which there was no consensus are also addressed in this document.

10 ComReg has also amended some of the proposed frequency arrangements, which were set out in Consultation 11/94, in order to protect existing users in the particular bands. The requirement to make these amendments to the channel plans as proposed in Consultation 11/94 only became apparent after responses to Consultation 11/94 were received. Apart from these amendments, the proposed channel plans remain the same.

11 While ComReg considers that a number of the issues addressed in this document are now largely settled, ComReg will take full account of further information submitted in arriving at its final decision.

[2] Document 13/13s

12 This document provides a response to Consultation 11/94. It also initiates a short further consultation on the revised channel plans and a draft Regulatory Impact Assessment, on which any comments are welcomed. Please see Section 12 and Annex 3 for further information

13 As before, ComReg invites all interested parties to submit written comments on the proposals set out in this consultation document. The period during which interested parties may respond will close on 6 March 2013.

2 Executive Summary

14 Section 2.1 of Consultation 11/94 summarises the statutory powers, functions, and objectives of ComReg that are especially relevant to its management and licensing of radio frequency spectrum in the State, This includes, but is not limited to,

15 Communications Regulation Acts 2002-20111 (“2002 Act”), the EU common regulatory framework (including the Framework Directive, transposed into Irish law by the Framework Regulations 20113, and the Authorisation Directive transposed into Irish law by the Authorisation Regulations), and the Wireless Telegraphy Acts 1926-2009 set out the powers, functions, and objectives of ComReg that are relevant to the subject of this consultation and ComReg’s implementation of the proposals contained in it.

16 ComReg’s statutory functions, set out in Section 10 of the Communications Regulation Act 2002, as amended, include the following:

(a) to ensure compliance by undertakings with obligations in relation to the supply of and access to electronic communication services, electronic communications networks and associated facilities and the transmission of such services on such networks,

(b) to manage the radio frequency spectrum and the national numbering resource, in accordance with a direction under section 13,

(d) to carry out investigations into matters relating to—

(i) the supply of, and access to, electronic communications services, electronic communications networks and associated facilities and the transmissions of such services on such networks, and

(ii) the provision, content and promotion of premium rate services,

(e) to ensure compliance, as appropriate, by persons in relation to the placing on the market of communications equipment and the placing on the market and putting into service of radio equipment.

17 Section 12(1) of the Communications Regulation Act, 2002 sets out ComReg’s primary objectives, to be met in the performance of the above functions, and those objectives include the following:

12. (1) The objectives of the Commission in exercising its functions shall be as follows:

(a) in relation to the provision of electronic communications networks, electronic communications services and associated facilities—

(i) to promote competition,

(ii) to contribute to the development of the internal market, and

(iii) to promote the interests of users within the Community,

(b) to ensure the efficient management and use of the radio frequency spectrum and numbers from the national numbering scheme in the State in accordance with a direction under section 13.

18 In addition, all radio frequency spectrum in the State is released through licences granted by ComReg pursuant to the Wireless Telegraphy Acts, 1926-2009, which permit the licensee to possess and use "apparatus for wireless telegraphy".

19 Section 2.2 of Consultation 11/94 presents an overview of telemetry systems and networks.

20 Telemetry systems are typically used by organisations such as utility and industrial companies, where continuous monitoring of operations and control of equipment at multiple locations is necessary in order to ensure the proper function of processes and equipment. Telemetry networks fall into three broad categories, namely: smaller on-site networks; medium-sized local area; wide area networks; and larger national networks.

21 To date, ComReg has licensed telemetry systems under its Business Radio Regulations but the increased demand for telemetry systems in recent years prompted ComReg's review of its licensing framework, commencing with Consultation 11/94. ComReg set out five principal reasons as to why it considers that the Business Radio Regulations are unsuited to telemetry licensing[3]. ComReg further stated that for these reasons it considered that the existing Business Radio licensing framework is no longer suited to the licensing of fixed telemetry systems and it proposed to introduce a new licensing framework for telemetry. ComReg proposed to set aside spectrum for fixed telemetry use so that telemetry licences would be segregated into separate frequency bands from mobile users.

[3] Section 3.2 of Consultation 11/94.

3 Proposed Future Telemetry Licensing Framework

22 In Consultation 11/94, ComReg set out its proposal to introduce four categories of fixed telemetry licence, namely:

- On-Site Telemetry Licence;
- Local Area Telemetry Licence;
- Wide Area Telemetry Licence; and
- National Telemetry Licence.

23 The main features of each licence category are set out in Table 1 below.

Licence Category:	On-Site Licence	Local Area Licences	Wide Area Licences	National Licence
Coverage area:	Coverage area up to 1 kilometre radius from the central nominated location.	Coverage area up to 12.5 kilometre radius from the central nominated location.	Coverage area up to 25 kilometre radius from the central nominated location.	Nationwide
Maximum power level:	Maximum transmit power level of 1 Watts ERP.	Maximum transmit power level of 25 Watts ERP.	Maximum transmit power level of 25 Watts ERP.	Maximum transmit power level of 25 Watts ERP.
Channel bandwidth:	2 x 12.5 kHz.	2 x 12.5 kHz.	2 x 12.5 kHz.	2 x 12.5 kHz.
Maximum antenna height applicable to all stations:	Maximum permitted antenna height of 10 metres above ground level.	Maximum permitted antenna height of 25 metres above ground level.	Maximum permitted antenna height of 25 metres above ground level.	N/A
Repeater stations within maximum coverage area:	Not permitted.	Not permitted.	Permitted.	Permitted.
Licence duration:	Five years.	Five years.	Five years.	Ten years.

Table 1 - Main Attributes of the Four Proposed Telemetry Licence Categories

24 ComReg asked the following questions on its proposed framework for Telemetry Licensing.

Q. 1 Do you agree that the four proposed licence categories (on-site, wide area, local area and national) and their proposed features are sufficient to cater for all Electronic Communications Networks (ECN) telemetry system requirements? Please give reasons in your response.

Q. 2 Do you agree with ComReg's proposal to limit the number of national telemetry licences that may be held by a single licensee to a maximum of two? Please give reasons in your response.

3.1 Views of Respondents

25 Six of the eleven respondents replied to Question 1 (Cork County Council, Cully, EMR, ESBN, Meath County Council and Westmeath County Council). Five of the six (Cork County Council, Cully, ESBN, Meath County Council and Westmeath County Council) agreed with the proposal. ESBN expressed the view that the four proposed licence categories provide a good range of licences for users.

26 One respondent (EMR) stated that it "*did not disagree*" with the proposal but was of the view that the proposed national licensing scheme *"militates against organisations that have a requirement for low capacity national or wide area coverage extending beyond the 25 K cell size".*

27 Three of the respondents to Question 1 (Cully, Meath County Council, and Westmeath County Council) queried the need for four distinct categories of telemetry licences. They also considered the conditions for the proposed On-Site Telemetry Licence to be very similar to the Short Range Device ("SRD") general authorisation regime that is already in place, and under which ComReg currently permits the use of telemetry devices. These respondents were also of the view that if current operators of SRD telemetry were moved to the proposed new Wide Area telemetry licences then this would free up spectrum in the SRD band.

28 The same respondents (Cully, Meath County Council and Westmeath County Council) further mentioned that the cost difference between Local Area and Wide Area Telemetry Licences, and the likelihood of repeaters being required, means that each local authority would face different set up costs for their systems and that technology advances may supersede solutions already in place.

29 With regard to Question 2, eight respondents provided their views on ComReg's proposal to limit the number of national telemetry licences that may be held by a single licensee to a maximum of two.

30 There was broad support for the proposal. Four respondents (Cork County Council, Cully, Meath County Council and Westmeath County Council) agreed with the proposal, stating that they would not like to see a monopoly holding the entire spectrum. Meath County Council held that a minimal number of utilities would require a National Telemetry Licence.

31 One respondent (EMR) considered the proposal to be reasonable as it did not envisage a situation where a single national utility could not operate effectively with a single National Telemetry Licence, unless the licensing scheme was applied to smart metering, in which case its spectrum requirement would be unlikely to be met with two licences.

32 Two respondents (ESBN and Dublin City Council) expressed concern with the proposal to limit the total number of National Telemetry Licences to six, with Dublin City Council expressing the view that six licences might not meet demand.

33 ESBN was of the further view that the limitation of two National Telemetry Licences per licensee could seriously constrain the use of radio for smart grid development, which could lead to reduced functionality in the electricity network.

34 One respondent (JRC) expressed the view that the proposal appears to be based on the experience in the UK, where six national blocks are divided between the three major utilities.

35 JRC also held that on account of the restricted use of repeaters, there was little need for separate categories of Wide and Local Area Telemetry Licences and that these could be combined into a single licence category.

3.2 ComReg's Position

36 ComReg is of the view that the proposed telemetry licensing scheme will not discriminate against users with low capacity national or wide area requirements. The national cellular arrangement is only intended to apply to National Telemetry Licence holders (see Section 5.1 of Consultation 11/94). Wide Area and Local Area Telemetry Licences are better tailored to telemetry users seeking single channel capacity at multiple locations. Assigning several such licences to a user would provide a single channel of capacity at each desired location. This is preferable to assigning a National Telemetry Licence because it would reduce the total licence fees payable by the licensee and it would better promote efficient management of spectrum compared to assigning a national block to a licensee that does not wish to establish a nationwide network.

37 The On-Site Telemetry Licence proposed in Consultation 11/94 is different to ComReg's Short Range Device (SRD) authorisation regime[4] under which telemetry devices are permitted to operate in the bands 458.4875 MHz to 458.6375 MHz and 458.8375 MHz to 458.9875 MHz (see ComReg Document 02/71R6).

38 The SRD telemetry regime and the proposed On-Site Telemetry Licences would serve users with differing quality of service expectations. SRD telemetry devices do not require the user to pay a licence fee; however, there should be a reasonable expectation that other users will operate devices in close proximity using the same portion of the radio spectrum. As such SRD telemetry devices are not suited to operations that rely on a high level of link availability. By contrast, a holder of an On-Site Telemetry Licence would pay a fee but in return there is an inherent protection from interference and the licensee could expect to enjoy a reasonable expectation of link availability.

39 Therefore ComReg does not agree that the On-Site Telemetry Licences category should be withdrawn from the new telemetry licensing framework. ComReg therefore proposes to run the existing SRD and new telemetry licensing schemes in parallel in order to best meet the needs of these distinct user groups.

40 ComReg notes the responses to its proposal to limit the use of repeaters to Wide Area and National Licences and is of the view that it should permit the use of repeaters in all categories of telemetry licences. This point is further dealt with under licence conditions in Section 7.6 of this document. This somewhat mitigates the issue of cost difference between licences.

41 The previous point notwithstanding, and as noted by ComReg in Consultation 11/94, holders of National Telemetry Licences with high capacity requirements can also build flexibility into its arrangements by applying for any other categories of non-national licence as required.

42 ComReg's position on limiting the number of National Telemetry Licences is that there is a limited amount of spectrum available in the VHF and UHF bands and assigning more spectrum to telemetry means less spectrum would be available for other purposes. The proposals in Consultation 11/94, if adopted, would entail a significant overall increase in the amount of spectrum allocated to telemetry, thereby bringing it in-line with practice elsewhere (e.g. UK). However, ComReg will revisit the matter in future if it proves necessary.

[4] Telemetry/telecommand equipment is permitted to operate in the band 458.4875 MHz to 458.6375 MHz and 458.8375 MHz to 458.9875 MHz in line with the conditions set out in ComReg Document 02/71R6

43 Merging the proposed Local Area and Wide Area licence categories into a single licence category would serve to limit the flexibility of the scheme and disproportionately increase the licence fees for smaller operators.

44 ComReg is therefore minded to maintain the four distinct categories of telemetry licence, as consulted on in Consultation 11/94.

45 It should be noted that the proposed telemetry licensing scheme is not designed to cater for smart metering networks.

4 Proposed Frequency Arrangements for Future Telemetry Licensing

46 As set out in Consultation 11/94, ComReg considers that the segregation of fixed telemetry and mobile users into separate frequency bands, within the VHF and UHF bands being considered, would facilitate defragmentation of current spectrum assignments, resulting in the more efficient use of the spectrum available. Segregation would also allow fixed telemetry systems to reuse frequencies in closer proximity to one another, without increasing the risk of interference.

47 ComReg proposed to reallocate spectrum in the VHF and UHF bands specifically for fixed telemetry networks and systems, so that such networks and systems would no longer operate in the same spectrum as mobile Business Radio licensees. This would also free up spectrum for mobile business radio services, which would be particularly beneficial in congested areas.

48 ComReg has had to revisit its proposed frequency plan for National Telemetry Licences, as set out in Consultation 11/94, in order to protect existing Third Party Business Radio ("TPBR") users in the band. The presence of these users in the spectrum proposed in Consultation 11/94 was only discovered after the publication of Consultation 11/94. Consequently, further consultation on this issue is required. Please see paragraph 77 and Annex 3 for further details.

49 As much as possible, ComReg has harmonised its channel plan for National Telemetry Licences with the UK plan. This will minimise the need to relocate existing licensed services and any resulting disruption to them. It should also facilitate any entities requiring appropriate licences in both Northern Ireland and this State.

50 ComReg has also identified On-board Vessel UHF channels (t/r 32-02) – (2 to 4 watts) 457.525 MHz, 457.550 MHz, 457.575 MHz, 467.525 MHz, 467.550 MHz and 467.575 MHz allocations used by maritime services as potential sources of interference. These channels have been removed from the national frequency plan for National Telemetry Licences, but may be assigned for non-national telemetry use in inland areas.

51 The revised channel plan is shown in Table 2 below.

	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Reserve[5]
A	53A	98A	100A	1A	21A	6A15	1A16
B	62A	2A	22A	39A	106A	2A15	1A15
C	70A	81A	91A	3A	23A	9A15	
D	54A	57A	90A	92A	4A	33A	
E	68A	71A	78A	5A15	105A	107A	
F	82A	101A	6A	34A	40A	103A	
G	51A	52A	60A	5A15	9A	3A15	
H	50A	75A	79A	102A	10A	104A	
J	69A	93A	96A	11A	35A	10A15	
K	80A	99A	16A	36A	74A	108A	
L	49A	17A	37A	40A	12A15	4A15	
M	94A	20A	24A	38A	41A	11A15	

Key:

Black on white =	Irish channels aligned with UK channels
Red on white =	Future release Irish channels aligned with UK channels
Black on green =	Irish channels not aligned with UK channels
Red on yellow =	Future release Irish channels not aligned with UK channels

Table 2 - Proposed Channel Plan for UHF

The revised channels and further details are available in Annex 1.

52 The following questions were posed in Consultation 11/94.

Q. 3 Do you agree with ComReg's proposal to reallocate spectrum for use specifically by fixed telemetry services? Please give reasons with your answer.

Q. 4 Are there any alternative uses of the spectrum bands listed in Table 2, which could not be accommodated elsewhere in the 163 – 174 MHz and 450 – 470 MHz bands? Please give reasons with your answer.

Q. 5 In addition to those already listed, are there any other factors that ComReg should consider when deciding on the amount of spectrum to reallocate for use by fixed telemetry services? Please give reasons with your answer.

[5] Reserve channels may be made available in instances where coordination issues arise.

4.1 Views of Respondents

53 ComReg received six responses (Cork County Council, Cully, EMR, ESBN Meath County Council and Westmeath County Council) to Question 3, all of whom were broadly supportive of ComReg's proposal to reallocate spectrum specifically for fixed telemetry services.

54 ESBN and Cork County Council considered that the proposal would reduce interference. ESBN added that it would enable telemetry networks to be planned with greater ease.

55 Cully, Meath County Council and Westmeath County Council expressed the view that the area of fixed-telemetry required regulation.

56 EMR, while supportive of ComReg's proposals to allocate spectrum for telemetry purposes, commented that it should not preclude the use of Third Party Business Radio licences from being used for telemetry purposes.

57 Two of the eleven respondents replied to Question 4 (EMR and ESBN) both of whom expressed the view that alternative uses of the spectrum bands listed in Table 2 could be accommodated elsewhere in the 163 – 174 MHz and 450 – 470 MHz bands.

58 Six of the eleven respondents replied to Question 5 (Cork County Council, Cully, EMR, ESBN, Meath County Council and Westmeath County Council) and offered somewhat differing views.

59 EMR suggested that ComReg should develop a scheme that incentivises the use of more spectrum-efficient technologies. EMR held that the use of technologies that allow several devices to operate on the same channel is of more importance than ComReg's current focus on channel powers and antenna characteristics.

60 ESBN submitted that consideration should be given to the need for spectrum to support critical national infrastructure and it cited utility companies as an example. ESBN pointed to policy goals such as carbon reduction and renewable energy which are placing extra demands on telemetry and submitted that this requires an increase in the allocation of spectrum for narrowband and wideband networks.

61 ESBN also drew attention to Article 8 of the European Spectrum Policy Programme, which states that the European Commission, in cooperation with Member States, shall consider making spectrum available for wireless technologies with a potential for improving energy-saving, including smart energy grids and smart metering. ESBN stated that its use of telemetry systems constitutes part of the smart energy grid and that if an adequate amount of spectrum is not made available for telemetry then this would reduce the functionality of the electricity network.

62 Cork County Council stated that statutory requirements for water quality under the Drinking Water Directive and the Water Framework Directive are driving the demand for telemetry in the water industry.

63 Cully stated that most of the telemetry equipment installed by the water industry is not compatible with a duplex frequency separation of 14 MHz (between 455 to 469 MHz as proposed in Table 8 of Annex A of Consultation 11/94). The maximum separation possible with this equipment is 10 MHz.

4.2 ComReg's Position

64 Firstly, ComReg reminds all interested parties it is not proposing any changes to the Third Party Business Radio ("TPBR") scheme.

65 With regard to the proposed telemetry licensing scheme, ComReg proposed it is to issue any such licences on a technology neutral basis. Given the wide array of potential uses of the proposed scheme, ComReg considers it appropriate to ensure that any technologies employed should not form a barrier to practical use. Once equipment adheres to the relevant European standards and directives ComReg has no discretion to prevent the use of any such equipment. With regard to developing incentives for efficient use of the spectrum, the additional licence fees that would accrue as a result of inefficient use of the spectrum will help to promote efficient use.

66 ComReg is not persuaded in this instance to reserve spectrum for so-called "critical national infrastructure" or for specific users. ComReg is mandated to award spectrum licences in an open, transparent and non-discriminatory manner.

67 ComReg again clarifies that this scheme is not designed for smart meter use.

68 ComReg noted in Consultation 11/94 that there is an increased need for telemetry across multiple industries, including the water industry and believes the scheme proposed will address this issue.

69 It should be noted that most of the channels it proposes to make available for telemetry use have a 5.5 MHz duplex frequency separation. This includes all of the National Telemetry Licence channels and 21 of the non-national telemetry channels. A total of 8 channels have a duplex separation of 14 MHz.

4.3 National Cellular Plan

70 In Consultation 11/94 ComReg set out a proposed channel plan for telemetry use. This plan consists of six blocks of spectrum sub-divided into 12 channels, which are to be used at the discretion of the licensee once licence conditions are adhered to. ComReg posed the following question on the proposed National Cellular Plan.

Q. 6 Do you agree with the proposed national cellular plan for frequency reuse? Please give reasons for your answer

4.3.1 Views of Respondents

71 A number of respondents, while agreeing with the cellular plan, noted that in practice a flexible approach to channel use within the plan would allow more efficient use of spectrum and permit licensees to maximise the use of the frequencies assigned in their licence. The respondents noted that this adaptive cellular plan approach is used in the UK subject to non-interference.

72 A number of respondents also noted that there would be merit in ensuring that the same channels are used by similar utilities in both Ireland and Northern Ireland. On a similar theme, a number of respondents also raised the need for coordination with UK in border regions and along the eastern coast.

4.3.2 ComReg's Position

73 The proposed channel plan (Table 2 and Annex 1) is designed to be adaptable and flexible. Consideration has been given to the adaptability of reusing frequencies in adjacent cells. Further, channel frequencies have been chosen to correspond to those of the UK channel plan, where possible, as this will ease cross-border co-ordination and facilitate cross-border networks, if required. The assignment of frequencies to different blocks was chosen to prevent adjacent channels being present in the same block, as much as possible. Licensees may use their assigned frequencies outside of the assigned cells but only where it can be shown that interference will not be caused to other users[6].

[6] Any proposals to use assigned frequencies outside of the assigned cells must be approved by ComReg.

74 ComReg notes the potential benefits of assigning the same spectrum frequencies to the equivalent utility industries in Ireland and in Northern Ireland. However, ComReg is aware that in reserving spectrum for specific industrial or utility sectors there is a risk that other potential users, who may value it more, would be denied the opportunity to access it. There is also a risk that national licence blocks could be left unused if the intended recipient undervalues its allocated spectrum holding and does not utilise it in an efficient manner.

75 Notwithstanding the above, Section 9.1 of Consultation 11/94 detailed ComReg's proposal whereby telemetry licence applicants may state a preference for a particular channel or group of channels when applying for a licence. If no other successful applicants expressed a specific preference for the same channels then ComReg would endeavour to assign those channels to those who had expressed a preference for them. ComReg remains supportive of this proposal.

76 ComReg and the UK regulator (Ofcom) are exploring options for international frequency coordination, with a view to developing a Memorandum of Understanding between Ireland and the UK with regard to telemetry systems.

77 As outlined in paragraph 48 above, ComReg is seeking views on the revised channel plans. A period of four weeks from the date of publication of this document is allowed for the submission of responses. Please see the question below:

1) **Further Consultation Q1:** Do you agree that the revised channel plans outlined in Annex 1 of this document are suitable for current telemetry requirements? If not, please give reasons with your answer..

5 Legacy Issues Arising from Current Spectrum Use

78 A number of the responses to Consultation 11/94 concerned the frequency assignments proposed therein. In order to protect existing users in the band and to make best use of the available spectrum, ComReg has amended some of the proposed frequency assignments contained in its original channel plan, as set out in Consultation 11/94. For this reason, some of the responses to Consultation 11/94 are no longer relevant, however, in the interest of transparency all such responses are addressed below with respect to the re-drafted channel plan.

5.1 Migration of Community Repeaters

79 There are currently two Community Repeaters[7] licensed within the spectrum being proposed for the use of telemetry systems. In Consultation 11/94 ComReg sought views on the feasibility of migrating such systems to other parts of the spectrum.

Q. 7 Are there any other factors that ComReg should consider with regard to the migration of existing systems or existing Community Repeaters as detailed above? Please give reasons for your answer?

5.1.1 Views of Respondents

80 One respondent (ESBN) noted that incumbent users should be protected prior to relocation, but that these channels could be made available for telemetry prior to migration of existing licensees, subject to non-interference with the current users.

81 Four other respondents (Cully, Cork County Council, Meath County Council and Westmeath County Council) noted that there are potential cost implications in migrating existing telemetry systems and they enquired as to the time period that would be allowed for migration of such systems.

82 EMR held that the number of Community Repeaters in use is low and that migrating such systems should not pose any significant difficulty.

[7] Two Community Repeater licences are held by EMR Radio & Telemetry Ltd. and Universal Radio and Data Communication Ltd. They are used to provide Business Radio services to third parties in the Dublin area. Community Repeater licences are issued to licensees offering geographically limited third party services eliminating the requirement for end users to hold individual radio licences. All Community Repeater systems are governed by the Wireless Telegraphy (Community Repeater Licence) Regulations, which came into effect on May 15, 1988 (S.I. 83 of 1988).

5.1.2 ComReg's Position

83 ComReg notes that other users could be affected by the proposed national channel plan. This was taken into consideration by ComReg in updating the proposed channel plan as set out in Annex 1 of this document.

84 The allowed time period for migration to the proposed licensing scheme is discussed in section 5.2 below.

5.2 Migration of Existing Telemetry Systems

85 ComReg is aware that many potential users of the proposed scheme for licensing telemetry systems are currently using such systems in other parts of the radio spectrum. It is also acknowledged that migration to the new scheme will require a period of time to complete for financial and planning reasons. As such proposals for migration were outlined in Consultation 11/94 and the views of respondents were sought on same.

Q. 8 Do you agree with ComReg's proposal regarding the migration of existing ECN telemetry systems? Please give reasons in your response.

5.2.1 Views of Respondents

86 Several respondents (Cully, Meath County Council and Westmeath County Council) stated that migration of existing ECN telemetry users would be straight-forward given the time period ComReg proposed to allow for such migration and relocation.

87 Another respondent (ESBN) expressed the view that ComReg's proposed migration of existing ECN telemetry systems would be reasonable if there is sufficient spectrum to migrate to. This is somewhat congruous with ESBN noting elsewhere that ComReg was increasing the amount of spectrum available for telemetry use.

88 Another respondent (EMR) felt that the timeframe for relocating existing telemetry users could be complicated by the diverse range of incompatible equipment that is being used by the water industry.

89 Respondents from the water industry (Cully, Cork County Council, Meath County Council and Westmeath County Council) pointed out the cost implications of relocating their existing telemetry to the proposed new spectrum and noted the practical difficulties this may present for them in the short-term.

5.2.2 ComReg's Position

90 ComReg set out its proposed timeframes for migrating existing telemetry users in section 6.2 of Consultation 11/94. While new telemetry licence applications would only be accommodated within the proposed new telemetry bands, ComReg proposed to allow a period of up to five years for existing users to relocate into those bands. ComReg remains of the view that five years is a sufficient period to migrate all current telemetry usage to the new spectrum bands.

91 ComReg notes that local water networks currently use a range of telemetry solutions in different regions of the country, many of which appear not to be interoperable. This point was raised by several respondents and was also noted in a recently published independent report[8] by PWC on the Irish water industry. ComReg also notes the plans[9] for the consolidation of water service provision into a single entity, which itself is likely to stimulate the adoption of more integrated telemetry systems with that industry.

[8] The PWC independent report on the water industry is available on the website of the Department of the Environment at the following link:
http://www.environ.ie/en/Publications/Environment/Water/FileDownLoad,29193,en.pdf

[9] The media release on the establishment of Irish Water is available on the website of the Department of the Environment, Community and Local Government at the following link:
http://www.environ.ie/en/Environment/Water/WaterSectorReform/News/MainBody,29944,en.htm

6 Regulatory Impact Assessment

92 This Chapter considers the submissions received on, or relevant to, ComReg's draft Regulatory Impact Assessment (RIA) as described in Consultation 11/94, and sets out ComReg's position on these. ComReg's final RIA can be found in Annex 4 of this document. Any changes to the RIA arise from comments received by respondents to Consultation 11/94.

6.1 ComReg's Position in Consultation 11/94

93 In Annex D of Consultation 11/94, ComReg carried out a draft RIA in accordance with the RIA framework set out therein, in order to identify a preferred option on the introduction of a new licensing framework for VHF and UHF telemetry systems. ComReg considered the two regulatory options available to it, namely:

Option 1: To introduce a new licensing framework, under which four different categories of telemetry licence could be awarded. This framework would be aimed at meeting the needs of a range of telemetry users and would introduce four categories of fixed telemetry licence.

Option 2: To make no change to ComReg's current practice for licensing telemetry and to leave the existing frequency arrangements unchanged.

94 ComReg considered, on balance, that Option 1 was the most proportionate of either option and accordingly put forward Option 1 as its preferred option.

95 Consultation 11/94 sought stakeholder's views on ComReg's draft RIA generally and also asked two specific questions.

Q. 9 Do you agree with ComReg's draft Regulatory Impact Assessment? Please give reasons in your response?

Q. 10 Are there any other factors that ComReg should consider when compiling a Regulatory Impact Assessment on the migration of existing users? Please give reasons in your response?

6.2 Summary of Responses Received

96 Many respondents provided comments on the draft Regulatory Impact Assessment contained in Consultation 11/94.

97 TAUWI, Dublin City Council, Grontmij, JRC and the National Directorate of Fire and Emergency Management did not comment on the draft RIA or issues relevant to the draft RIA.

- Cully agreed in principle with the draft RIA but considered that more discussion was required to accommodate all current users. It further outlined that there was no mention of policing the spectrum and queried who was responsible for it.
- EMR felt that the impact of Third Party Business Radio (TPBR) Licenses had not been addressed. It suggests that any proposed change that adversely affects TPBR license holders needs to be taken into account before a new regime is implemented.
- Electricity Supply Board Networks (ESBN) agrees with the overall tone of the RIA and agrees that Option 1 is by far the best of the regulatory options set out. It does, however, consider that the use of repeaters as defined in Annex E of Consultation 11/94 would add significantly to equipment cost and requests that ComReg permit the use of a simpler repeater using a second channel.
- ESBN believes that the limitation of two National Telemetry Licences per licensee would seriously constrain the use of radio for telemetry services. It claims that this would lead to reduced functionality in the electricity network.
- Cork County Council notes that a robust enforcement procedure needs to be implemented to avoid interference. It also considers that the cost implications for existing customers with regard to the migration of existing telemetry systems or existing Community Repeaters should be considered.
- Meath County Council agreed in principle with the draft RIA but advised that more discussion is required to accommodate all current users. It also suggested that the replacement/upgrade costs for some equipment may be prohibitive in the short term, and queried what duration would be allowed to change frequencies. It further outlined that there was no mention of policing the spectrum and queried who was responsible for it.
- Westmeath County Council agreed with the draft RIA but advised that "*if major changes are proposed to the existing networks established on an ad-hoc basis then more discussion would be required to accommodate all current users*". It also questioned what role ComReg would play in policing the proposed spectrum. It also suggested that ComReg should consider that there are 34 local authorities operating in water service delivery with minimal funding and resources available, when compiling the RIA on the migration of existing users.

6.3 ComReg's Position

98 The following sets out ComReg's position on the responses submitted in relation to the draft RIA.

99 In relation to the claim by Cully, Meath County Council and Westmeath County Council that more discussion is required on accommodating existing users, it is unclear what specific areas are being referred to since no further details were provided. In any event, the revised RIA as described in Section 11 now includes Irish Water as a stakeholder potentially affected by the new regulatory regime. Irish Water is a new State company that will take over key water/waste functions from the 34 existing local authorities, and its inclusion in the revised RIA encapsulates a significant amount of the existing user base the respondents may be referring to.

100 In relation to EMR Integrated Solutions' comment that the impact on holders of TPBR licences had not been addressed, ComReg notes that the consultation does not propose to change the TPBR licensing scheme or impose new obligations on it. TPBR users operate under a separate licensing framework that would remain in place following the establishment of the telemetry framework. The proposals outlined in Consultation 11/94 and in the draft RIA do not change TPBR licence conditions and do not impose any new regulatory measures upon licence holders.

101 Organisations wishing to licence ECN telemetry equipment have done so under the TPBR licensing scheme for many years. ComReg notes that TPBR licensees operate on frequencies in close proximity to the proposed new telemetry channels and it is appropriate to consider such TPBR licensees when conducting the RIA. ComReg, however, does not agree that introducing the proposed new scheme, which is specifically tailored to future telemetry licensees, would adversely affect or disadvantage TPBR licensees.

102 ESBN broadly agrees with the draft RIA though it expressed concerns that the inclusion of "on frequency" repeaters would increase costs. ComReg considers that the use of all repeater categories should be permitted but notes that licensees must operate within the constraints of their licence. See paragraph 118 for further details.

103 ESBN also expressed concern that the limit of two National Telemetry Licences per licensee would result in reduced functionality in the network. It should be noted that part of the purpose of this consultation is to determine what spectrum should be allocated for telemetry purposes and what is the best way of assigning this spectrum, having regard to ComReg's statutory functions and objectives. In this regard, ComReg must balance the interests of all users including other TPBR users who require spectrum in the band. ComReg remains of the opinion that no telemetry licensee should be granted more than two National Telemetry Licences, and that this position is justified, non-discriminatory and proportionate. ComReg is unable to forecast, at this point in time, the future level and nature of demand for telemetry services and, as a result of same, the future level of demand for telemetry licences. However, experience from the United Kingdom suggests that two National Telemetry Licences would be sufficient for any one utility operator. As noted in Consultation 11/94, the licensing regime in the UK provides each of the three major utility sectors (gas, electricity and water) with access to a similar number of channels for telemetry purposes (i.e. equivalent to two of the national blocks proposed by ComReg). In the two decades since its introduction, the UK's telemetry regime has proven sufficient to meet the needs of these sectors.

104 In any event, and as noted by ComReg in Consultation 11/94, holders of National Telemetry Licences could apply for additional On-Site, Local Area and Wide Area Telemetry Licences, should the need arise to meet specific, geographically limited demands.

105 In relation to Meath County Council's concerns about replacement/upgrade costs and about the period of time given in which to change frequencies, ComReg does recognise and accept that migration could lead to some retuning costs and some temporary disruption of existing telemetry services. ComReg also notes that Meath County Council considers that the migration of existing telemetry systems would be reasonably straight-forward, provided there is sufficient time to move equipment to other areas of spectrum. In this regard, ComReg notes that the users would need to relocate from the channels, which are currently assigned to them, to the proposed telemetry channels within a period of five years. This is a sufficient time period in which migration can be completed and any costs can be spread/amortised over that period.

106 In relation to the suggestion by Westmeath County Council that ComReg should have regard to the minimal funding and resources available, it should be noted that ComReg can only act in accordance with its statutory functions, objectives and powers. The RIA has identified the cost and benefits of each option before deciding on the preferred option.

107 On the subject of policing of the spectrum, ComReg's Spectrum Compliance Section is responsible for ensuring that all apparatus for wireless telegraphy and radio equipment is operated in accordance with relevant legislation. Appropriate action is taken where breaches are discovered, as required. Operators of apparatus for wireless telegraphy and radio equipment in the proposed telemetry bands will be required to hold a valid licence, or licences, and they will be required to fully adhere to the conditions of such licences. Further information on ComReg's role in policing spectrum and the procedure for reporting cases of interference or unauthorised use is available on the ComReg website[10].

6.4 Conclusion

108 ComReg has carefully considered the comments made by the respondents in respect of the draft RIA. ComReg has decided to include reference to Irish Water and Third Party Business Radio Licence holders given the potential effect the new regulatory regime might have on those stakeholders. ComReg has not received any further information suggesting that it is appropriate to amend the preferred option in Consultation 11/94 or to make an alternative option. Therefore, ComReg intends to adopt Option 1 as set out in its final RIA in Section 11 of this document. ComReg has adjusted the Regulatory Impact Assessment outlined in Consultation 11/94; the revised form is set out in Annex 4.

[10] http://www.comreg.ie/radio_spectrum/compliance___interference.543.html

7 Proposed Licence Conditions for Telemetry Licences

109 In order to effectively manage and to maintain the integrity of the radio spectrum, ComReg must include conditions in licences to further these obligations. The proposed conditions to be included in telemetry licences were set out in Section 7 of Consultation 11/94.

7.1 Duration and Expiry of Proposed Telemetry Licences

110 In Consultation 11/94, ComReg noted that most Business Radio licences are of one year duration, subject to renewal. The short licence term reflects the short-term nature of many of the operations that such licences facilitate. A notable exception is the Third Party Business Radio (TPBR) scheme which permits licensees to offer services to third parties on a nationwide basis. TPBR licences currently have a duration of five years.

111 Other categories of wireless telegraphy licence are generally of longer duration. Examples include the Emergency Services Digital Radio licences (ten years), GSM licences (fifteen years), and 3G licences (twenty years). In these cases, the longer licence duration reflects such factors as the minimum geographic coverage conditions that must be met and the level of investment required to meet more extensive coverage conditions. A longer period is also required to make a return on investment.

112 In Consultation 11/94, ComReg set out its view that a one-year licence may not suit telemetry systems, as it would not provide sufficient certainty for licensees, while a licence for a longer duration such as fifteen years or more is likely to be unwarranted, on the basis that it may fetter ComReg's ability to ensure efficient spectrum use through periodic re-release. A licence term is needed that would allow sufficient time for licensees to recoup the cost of investment, while also allowing ComReg to ensure the ongoing efficient use of the spectrum through its periodic re-release.

113 ComReg proposed to issue On-Site, Local-Area and Wide-Area Telemetry Licences with a duration of five years and National Telemetry Licences with a duration of ten years[11].

[11] This proposal was considered reflective of the differing levels of investment certainty required by prospective telemetry licensees. Upon the natural expiry of any telemetry licence, the licence would not be subject to any form of renewal or extension, but would expire altogether, and all spectrum rights of use conferred under that licence would cease. The spectrum rights of use would then be re-released through an appropriate, open award mechanism, the details of which would be determined closer to that date. This may involve a competitive award process

114 ComReg invited interested parties to comment on the proposed duration of telemetry licences and the consultation included the following question:

Q. 11 Do you agree with ComReg's proposal to set the duration of on-site, local area and wide areas telemetry licences to five years and national telemetry licences to ten years? Please give reasons in your response

7.2 Views of Respondents

115 Respondents generally held that the proposed licence durations were too short and many licensees favoured guaranteed renewal rather than re-release of the spectrum after licence expiry. Many argued that the large capital investment and the long equipment lifetime supported this. One respondent (Cork County Council) suggested that 20 years would be an appropriate licence duration. Another respondent (ESBN) held that it is unnecessary to limit the duration to 5 and 10 years as ComReg has the power to revoke a licence at any time.

116 Dublin City Council expressed the view that the proposed process would discourage investment if there was no confidence in renewing the licence after expiry. It stated that the Dublin Region Telemetry system has been in place for 20 years and if there was a possibility that a new frequency may not be attained it would effectively shut down a whole system that is providing a crucial service. It also noted that regional telemetry licences have been in place in the UK for more than 30 years.

117 It was also held by EMR that a minimum period of 10 years should be considered for wide area licences given that investment decisions are likely to be made on a minimum 10 year product life.

7.3 ComReg's Position

118 The issue of renewable and perpetual licences was considered as part of ComReg's consultation on its radio spectrum strategy for the period 2011 – 2013[12]. ComReg's position on this issue, with regard to all categories of electronic communications services and networks and associated wireless telegraphy licenses, is that granting wireless telegraphy licences of fixed, finite duration is beneficial as it enables ComReg to ensure that the spectrum at issue is used efficiently, through its periodic re-release. It should be noted that ComReg has a statutory obligation to ensure the efficient use of the radio spectrum.

[12] Section 4.3 – ComReg 11/98 – Radio Spectrum Strategy 2011-13

119 ComReg is mindful of the need for regulatory certainty and efficient infrastructure investment provided by a spectrum licence of an appropriate duration that is compatible with the investment requirements of the licensee. In setting licence durations, it is important for ComReg to strike an appropriate balance between offering assurances to licensees to assist with their business plans, while also not potentially tying up spectrum for unduly long periods, which would stifle the potential for other interested parties to obtain access to this spectrum in the future.

120 Notwithstanding, ComReg notes the points made regarding the long equipment lifecycles and therefore proposes to issue all categories of telemetry licences for a term of 10 years, with licences renewable annually. This should provide sufficient certainty for users and allow them to recoup their investments. The 10-year duration of telemetry licences will be finite and all such licences, upon reaching their expiry dates, will expire immediately and in full and will not be renewed or extended while all associated spectrum rights of use shall likewise expire.

7.4 Power Levels, Compliance with ICNIRP and Other Licence Conditions

ComReg included a question in Consultation 11/94 inviting respondents to submit general comments relating to licence conditions:

Q. 12 Are there any factors that ComReg should consider when deciding the licence conditions that apply to future telemetry licence? Please give reasons in your response.

7.4.1 Views of Respondents

121 Seven respondents replied to Question 12.

122 Three of the seven respondents (Cully, Meath County Council, Westmeath County Council) queried whether ComReg would evaluate, recommend or advise on hardware brands or devices to be used in the spectrum bands.

123 There was broad consensus among the seven respondents that the restriction of repeaters from some licence categories could pose practical difficulties when commissioning systems. One respondent (ESBN) also maintained that the type of repeater outlined in Consultation 11/94 was also potentially prohibitive.

124 One respondent (Grontmij) submitted that the proposed ERP of 25W was too high. The reason given to support this was that it "*may contribute to inter cell interference dependant on local topography.*". Another respondent (ESBN) argued that 25W ERP was not sufficient. ESBN maintained that the 25W ERP was potentially restrictive as more base stations would be required to ensure coverage, but nonetheless noted that it would allow for ease of coordination with the United Kingdom.

125 One respondent (JRC) asserted that there should be no fixed maximum permissible EIRP but rather each individual transmission line should be planned for 99.9% reliability and the EIRP should be limited to the minimum required for this to be achieved.

126 EMR expressed the view that the licence conditions for wide area networks should contain minimum performance criteria such as data speeds and response times as this would allow ComReg to conduct meaningful analysis of actual network usage and would ensure that best practice was being followed.

127 Two respondents (JRC and ESBN) held that ComReg's proposed antenna parameters were overly restrictive. It was suggested that a 12 element yagi antenna would not always be practical. The respondents suggested that other antenna categories may sometimes be preferable from technical, safety and "survivability" perspectives.

7.4.2 ComReg's Position

128 ComReg notes that there is support for allowing use of repeaters in all categories of licence. It is also recognised that precluding holders of On-Site and Local Area licences from using repeaters may require them to deploy more base stations than would otherwise be required.

129 ComReg is supportive of the use of both single frequency repeaters, as outlined in Annex E of Consultation 11/94, and the use of repeaters that utilise a second channel where appropriate. Accordingly, the holder of any category of telemetry licence will be permitted to use repeaters provided the licensee holds a valid licence(s) to operate in any additional channels used.

130 However, repeaters of any type, as with any other station, may not be operated outside the geographic area within which the user is licensed and will be subject to all other conditions of that licence (e.g. transmit power, antenna height etc.). This does not preclude flexibility in the use of frequencies as laid out in section 4.3.

131 ComReg notes the diverse views of respondents in regard to the proposed 25 Watt ERP limit on transmitted power.

132 ComReg notes that the proposed level is the maximum limit and not a guideline on the power level that should be used. In all cases, the appropriate transmit power level should be determined on a site-by-site basis, taking into consideration factors such as propagation loss, local topography and the need to coexist with other users. In the case of On-Site, Local Area and Wide Area Telemetry Licences, ComReg will determine the permitted transmit power level while holders of National Telemetry Licenses will be expected to take these factors into consideration when deploying sites. In all cases, power levels may have to be revised downwards if interference results.

133 ComReg also notes that it will be necessary for future telemetry licensees to co-exist with TPBR users who are licensed with a maximum transmit power level of 25 Watts ERP.

134 Having considered the submissions received ComReg will allow an increase of the permissible EIRP to 50W. While ComReg is satisfied that this increase will allow for more robust telemetry systems, increasing the maximum permitted EIRP any further would result in unacceptable risk of interference to existing systems in adjacent spectrum.

135 With regard to the proposal that there should be no maximum specified ERP, and that instead the required ERP for link availability of 99.9% should be calculated by the licensee, ComReg considers that this approach would be too onerous to be practical in all circumstances.

136 ComReg is of the opinion that it is not necessary or appropriate to impose performance criteria on future telemetry licensees, given the diverse applications and requirements of users of the scheme. This will allow users to tailor their systems to their particular needs.

137 One respondent drew attention to ambiguity in Table 3 of Consultation 11/94 regarding whether the power levels mentioned were transmitter output powers or ERPs. It should be noted that Section 4 of Consultation 11/94 made it clear that the power levels were ERP, however the point regarding ambiguity in the definition of power type in Table 3 is noted. ComReg confirms that the values for “Maximum Transmit power level” stated in Table 3 are Effective Radiated Power (ERP) levels, as confirmed in Table 1 of this document.

138 The consultation proposed minimum antenna directivity requirements applicable to all outdoor stations, which were set out in Table 4 and in Figures 5 and 6 in Annex C of the consultation.

139 ComReg notes the submissions of respondents in this matter and notes that the antenna characteristics set out in Consultation 11/94 should be considered as guidelines. Regardless of the antenna deployed, in no circumstances can the stations transmit a power level exceeding the ERP limits prescribed in the licence conditions. All users are to be mindful of the efficient use of the radio spectrum assigned to them and to use antennas appropriately i.e. the maximum gain antenna practical should be chosen.

8 Proposed Licence Fees for Telemetry Licences

140 In Consultation 11/94, ComReg set out its proposed fee structure for the four proposed categories of telemetry licences, as set out in Table 3 below and asked the following consultation questions.

Telemetry Licence Category	Number of 2 x 12.5 kHz Channels[13] Assigned in a Licence	Annual Licence Fee (to be adjusted for CPI)
On-Site	1	€109
Local-area	1	€436
Wide-area	1	€872
National	12	€39,240 [per 12 channels]

Table 3 - Proposed Fees for Telemetry Licences

Q. 13 Is ComReg's proposal to adjust the level of fees by the Consumer Price Index (CPI) adequate to ensure the ongoing efficient use of spectrum? Please give reasons in your response.

Q. 14 Are there any factors that ComReg should consider when setting fees for telemetry licence to ensure that its Statutory Objective are met? Please explain your response in detail.

8.1 Views of Respondents

141 Six respondents offered comments on question 13 (Cork County Council, Cully, EMR, ESBN Meath County Council and Westmeath County Council). All six were supportive of ComReg's proposal to adjust the level of fees by the Consumer Price Index though they did not give any reasons for their support. There were no objections to the proposal.

[13] The fees are based on a duplex 12.5 kHz channel (2 x 12.5 kHz). If a 2 x 25 kHz channel is required then two adjacent 12.5 kHz channels may be aggregated. In such cases the fee charged will be as if two separate 12.5 kHz channels were assigned.

142 Five respondents replied to question 14 (Cork County Council, Cully, EMR Integrated Solutions, ESBN Meath County Council and Westmeath County Council).

143 Cork County Council suggested that "*fees should be cost neutral*" but did not provide any clarification as to what was meant by this statement.

144 EMR suggested that it *"may be advisable to implement a pricing model that encourages the use of spectrally efficient equipment based on an application type."* However EMR did not provide any clarification as to how ComReg might develop and implement such a model.

145 Cully, Meath and Westmeath County Councils queried whether fees would be on a per licence basis and if there was a maximum number of licences that any one person or body could acquire.

8.2 ComReg's Position

146 ComReg notes the broad support for its proposal to adjust fees for telemetry licences by reference to the Consumer Prices Index, in order to ensure the ongoing efficient use of the spectrum assigned under such licences.

147 ComReg proposes to proceed with the licence fee structure as set out in Table 3 above. The fees would be on a per licence basis and would be payable annually and, as with all other categories of wireless telegraphy licences, no telemetry licence can be renewed unless the full fee has been paid.

148 With regard to the proposal by EMR that ComReg should "*implement a pricing model that encourages the use of spectrally efficient equipment based on an application type";* no further detail on this proposal was provided. Further, ComReg insofar as possible pursues a policy of service and technology neutrality and does not discriminate between different licensees, or prospective licensees, on the basis of the type of equipment that would be employed. Therefore the proposal by EMR will not be implemented.

149 With the exception of the National Telemetry Licence there will be no limit on the maximum number of licences that any one user could hold.

9 Proposed Award Mechanism for Telemetry Licences

150 In Consultation 11/94, ComReg set out its view that a "first-come, first-served" licence award mechanism is appropriate for all four proposed licence categories. However, it reserved the right to adopt a market-based assignment mechanism, such as an auction-based process, should such a requirement arise. ComReg also proposed to include a mechanism whereby applicants could state a preference for a specific block or frequency assignment in a "first-come, first-served" process, and that applicant's preferences would be accommodated where practical. ComReg sought the views of interested parties on its proposals and asked the following question.

Q. 15 Do you agree with ComReg's view that a *first-come-first-served* award process is the most efficient mechanism for assigning on-site, local area, wide area and national telemetry licences? Please give reasons in your response.

9.1 Views of Respondents

151 ComReg received seven responses to Question 15 with only one respondent, EMR, in favour of the first-come-first-served approach. The remaining six respondents (Cork County Council, Cully, Dublin City Council, ESBN. Meath County Council, Westmeath County Council) did not favour this approach.

152 While ESBN agreed with ComReg's proposal that applicants for National Telemetry Licences would be required to demonstrate a need for the spectrum requested, it submitted that services that are deemed to be critical national infrastructure such as electricity supply should be given precedence over other services that do not have critical importance.

153 Cork County Council, Cully, Meath County Council and Westmeath County Council all stated that all parties seeking a telemetry licence must be granted one and that local authorities should be given preference on those frequencies that will best accommodate their regions within the cellular frequency re-use pattern. Cork County Council added that it was essential that the public good and compliance with requirements of statutory bodies such as the EPA take precedence over commercial activity.

154 One respondent (Dublin City Council) expressed its concern that offering telemetry licences on a first-come, first-served basis would discourage investment in radio systems, as licensees could not have confidence in renewal of their licences, upon their expiry. It was also submitted that if a party was unsuccessful in obtaining the required telemetry licence, with the associated spectrum right of use, then that could result in a service having to be shut down.

9.2 ComReg's Position

155 It is noted that the majority of respondents to Question 15 do not favour a first-come, first-served approach; rather, they advocate a system of spectrum being reserved for specific users and industries.

156 ComReg is not in a position to reserve spectrum for specific users or industries. To do so would discriminate against other potential users who are considered to have an equal entitlement to spectrum for telemetry purposes and who may also have an equal or even a pressing requirement for such spectrum. It is also ComReg's view that to favour, in any way, the award of telemetry licences to State agencies or bodies, in the manner suggested, could run contrary to the EU State-Aid rules.

157 It is also noted that some respondents proffered the view that all parties seeking a telemetry licence should be granted one. However, no suggestions were given as to what method could be applied so as to make this approach feasible. Given that no account has been made for the factor that radio spectrum is a finite national resource it is therefore impossible for ComReg to meet this request.

158 The radio spectrum is a valuable, limited natural resource and must be treated as such. Additionally all users must be afforded access to the spectrum. ComReg is of the view that the optimum way to manage both of these requirements is to offer spectrum for telemetry purposes on a first-come, first-served basis. This means that all potential users of such spectrum would have equal opportunity under the proposed licensing scheme.

159 As stated in paragraph 36 above, ComReg's proposals, if put into effect, would result in a significant overall increase in the amount of spectrum allocated for telemetry networks and systems. Opinion was divided over the level of expected demand for telemetry licences. Some respondents consider that there are a limited number of potential licence applicants, while others consider that there is a risk of demand for such licences exceeding supply. Given the overall increase in the amount of spectrum that would be made available, ComReg expects that all current demands can be met under the proposed new licensing framework. However, should there be evidence of excess demand for spectrum ComReg will revisit the matter and consider other competitive assignment means by which to grant licences.

10 Other Comments Put Forward by Respondents

10.1 Queries Concerning Specific Telemetry Products

160 **Cully**: *"Will ComReg evaluate/recommend/advise on hardware brands and/or categories to be used in the spectrum?"*

161 **Westmeath County Council**: What support will ComReg give to the licensee in promoting best practice through recommending or advising Local Authorities on hardware brands or devices to be used in the proposed spectrum?

162 **Meath County Council**: *"Will ComReg evaluate/recommend/advise on hardware brands and/or categories to be used in the spectrum?"*

163 **Response**: It is not appropriate for ComReg to recommend specific brands of equipment for use. It is the responsibility of the licensee to ensure that the hardware employed is suitable for the task at hand. All radio equipment is subject to the provisions of the Radio and Telecommunications (R&TTE) Directive 1999/5/EC. Among other things, the directive states that equipment that meets the requirements of the directive can be freely placed on the market and put into service in the EU. Therefore licensees must ensure that all equipment is compliant with the relevant legislation. Accordingly, ComReg cannot discriminate against equipment which is deemed to compliant with the R&TTE Directive.

10.2 Query Concerning Half Duplex Operation

164 **Cully**: *"We presumed that unpaired operation (half duplex) is permitted in the bands/frequencies?"*

165 **Response**: ComReg is of the view that once licence conditions are being adhered to the user is best placed to decide the most appropriate method of operating its system.

10.3 Query Concerning Radio Signal Propagation

166 **Cully**: *"The third note below table 2 page 17 refers to harmonising with UK. This is only true for the National licensed frequencies 457.5-458.475 and 463 – 463.975. It should also be noted that some years ago there were issues in the south east of England where under some weather conditions they were getting interference from mainland Europe – and vice versa. This was because the hilltop scanners were on the same frequencies on both sides of the channel. There was a proposal in the UK to reverse the situation so the scanners one side of the channel were on the frequencies of the outstations on the other side of the channel. Are ComReg talking to Ofcom to address the possibility of interference between UK and Ireland?"*

167 **Response**: ComReg has outlined above that it is developing a Memorandum of Understanding with Ofcom in the UK with regard to spectrum assignments for telemetry systems. Furthermore, frequency coordination between ComReg and Ofcom is a regular occurrence; frequency assignments in the proposed scheme will be coordinated where required. With regard to interference related to weather conditions, tropospheric ducting is a well-documented, but relatively rare phenomenon. It is ComReg's position that such events are outside its control and designing the requirements of a licence regime to mitigate against such rare natural phenomena is not warranted.

10.4 Queries Concerning the Third Party Business Radio Licensing Regime

168 **Cully**: *"Will any of the existing TPBR licences be re-issued? If so which ones?"*

169 **Cully**: *"If TPBR licences are not to be renewed how will private contractors operate licensed radios in multiple sites?"*

170 **Response**: Third Party Business Radio is beyond the scope of this consultation and any specific queries in relation to it should be referred to ComReg's Licensing Manager as appropriate.

11 Next Steps

171 There will be a four week period during which comments on this Response to Consultation can be submitted and submissions on the questions posed in Annex 3 will be accepted. Submissions should be made to marketframeworkconsult@comreg.ie.

172 Further consultation on the revised channel plan and the Regulatory Impact Assessment will be conducted as outlined above. Other issues are considered settled but ComReg welcomes the provision of any new information that was not available at the time of submissions of responses to Consultation 11/94.

173 In due course a Statutory Instrument will be developed for the Minister for Communications, Energy and Natural Resources' consideration on the proposed licence scheme.

12 Corrigendum

174 A respondent to Consultation 11/94 brought two typographical errors to ComReg's attention. The corrections are discussed below.

175 In Figure 5 of Annex A of Consultation 11/94, the cell identification letters were out of alignment with the system in use in the UK. A revised map rectifying this error is provided in Annex 2 of this document.

176 In Annex B of Consultation 11/94, the out-station transmit frequency for Block 4, Cell M was shown as being 4643.519 MHz. This should have been 463.5188 MHz.

Annex: 1 Revised Frequency Plan and List of Channels

A.1.1 List of Channels for National Telemetry Licences

Table 4 below shows the revised channels proposed for national telemetry users.

Frequency before future release (MHz)		Frequency after future release (MHz)		Proposed Irish Channel # Before Future Release	Proposed Irish Channel # After Future Release
456.99375	462.49375	456.99375	462.49375	1A	1A
457.00625	462.50625	457.00625	462.50625	2A	2A
457.01875	462.51875	457.01875	462.51875	3A	3A
457.03125	462.53125	457.03125	462.53125	4A	4A
457.04375	462.54375	457.04375	462.54375	5A	5A
457.05625	462.55625	457.05625	462.55625	6A	6A
457.065625	462.565625	457.065625	462.565625	7G	7G
457.07500	462.57500	457.07500	462.57500	7	7
457.084375	462.584375	457.084375	462.584375	8G	8G
457.09375	462.59375	457.09375	462.59375	9A	9A
457.10625	462.60625	457.10625	462.60625	10A	10A
457.11875	462.61875	457.11875	462.61875	11A	11A
457.128125	462.628125	457.128125	462.628125	12G	12G
457.13750	462.63750	457.13750	462.63750	12	12
457.15000	462.65000	457.15000	462.65000	13	13
457.16250	462.66250	457.16250	462.66250	14	14
457.171875	462.671875	457.171875	462.671875	15G	15G
457.18125	462.68125	457.18125	462.68125	16A	16A
457.19375	462.69375	457.19375	462.69375	17A	17A
457.203125	462.703125	457.203125	462.703125	18G	18G
457.21250	462.71250	457.21250	462.71250	18	18
457.221875	462.721875	457.221875	462.721875	19G	19G
457.23125	462.73125	457.23125	462.73125	20A	20A
457.24375	462.74375	457.24375	462.74375	21A	21A
457.25625	462.75625	457.25625	462.75625	22A	22A
457.26875	462.76875	457.26875	462.76875	23A	23A
457.28125	462.78125	457.28125	462.78125	24A	24A
457.290625	462.790625	457.290625	462.790625	25G	25G
457.30000	462.80000	457.30000	462.80000	25	25
457.31250	462.81250	457.31250	462.81250	26	26
457.32500	462.82500	457.32500	462.82500	27	27
457.33750	462.83750	457.33750	462.83750	28	28

Frequency before future release (MHz)		Frequency after future release (MHz)		Proposed Irish Channel # Before Future Release	Proposed Irish Channel # After Future Release
457.35000	462.85000	457.35000	462.85000	29	29
457.36250	462.86250	457.36250	462.86250	30	30
457.37500	462.87500	457.37500	462.87500	31	31
457.387375	462.884375	457.387375	462.884375	32G	32G
457.39375	462.89375	457.39375	462.89375	33A	33A
457.40625	462.90625	457.40625	462.90625	34A	34A
457.41875	462.91875	457.41875	462.91875	35A	35A
457.43125	462.93125	457.43125	462.93125	36A	36A
457.44375	462.94375	457.44375	462.94375	37A	37A
457.45625	462.95625	457.45625	462.95625	38A	38A
457.46875	462.96875	457.46875	462.96875	39A	39A
457.48125	462.98125	457.48125	462.98125	40A	40A
457.49375	462.99375	457.49375	462.99375	41A	41A
457.503125	463.003125	457.503125	463.003125	42G	42G
457.51250	463.01250	457.51250	463.01250	42	42
457.52500	463.02500	457.52500	463.02500	43	43
457.53750	463.03750	457.53750	463.03750	44	44
457.55000	463.05000	457.55000	463.05000	45	45
457.56250	463.06250	457.56250	463.06250	46	46
457.57500	463.07500	457.57500	463.07500	47	47
457.584375	463.084375	457.584375	463.084375	48G	48G
457.59375	463.09375	457.59375	463.09375	49A	49A
457.60625	463.10625	457.60625	463.10625	50A	50A
457.61875	463.11875	457.61875	463.11875	51A	51A
457.63125	463.13125	457.63125	463.13125	52A	52A
457.64375	463.14375	457.64375	463.14375	53A	53A
457.65625	463.15625	457.65625	463.15625	54A	54A
457.665625	463.165625	457.665625	463.165625	55G	55G
457.67500	463.17500	457.67500	463.17500	55	55
457.684375	463.184375	457.684375	463.184375	56G	56G
457.69375	463.19375	457.69375	463.19375	57A	57A
457.703125	463.203125	457.703125	463.203125	58G	58G
457.71250	463.21250	457.71250	463.21250	58	58
457.721875	463.221875	457.721875	463.221875	59G	59G
457.73125	463.23125	457.73125	463.23125	60A	60A
457.74375	463.24375	457.74375	463.24375	61A	61A
457.75625	463.25625	457.75625	463.25625	62A	62A
457.765625	463.265625	457.765625	463.265625	63G	63G
457.77500	463.27500	457.77500	463.27500	63	63
457.78750	463.28750	457.78750	463.28750	64	64

Frequency before future release (MHz)		Frequency after future release (MHz)		Proposed Irish Channel # Before Future Release	Proposed Irish Channel # After Future Release
457.80000	463.30000	457.80000	463.30000	65	65
457.81250	463.31250	457.81250	463.31250	66	66
457.821875	463.321875	457.821875	463.321875	67G	67G
457.83125	463.33125	457.83125	463.33125	68A	68A
457.84375	463.34375	457.84375	463.34375	69A	69A
457.85625	463.35625	457.85625	463.35625	70A	70A
457.86875	463.36875	457.86875	463.36875	71A	71A
457.878125	463.378125	457.878125	463.378125	72G	72G
457.88750	463.38750	457.88750	463.38750	72	72
457.896875	463.396875	457.896875	463.39375	73G	73G
457.90625	463.40625	457.90625	463.40625	74A	74A
457.91875	463.41875	457.91875	463.41875	75A	75A
457.928125	463.428125	457.928125	463.428125	76G	76G
457.93750	463.43750	457.93750	463.43750	76	76
457.946875	463.446875	457.946875	463.446875	77G	77G
457.95625	463.45625	457.95625	463.45625	78A	78A
457.96875	463.46875	457.96875	463.46875	79A	79A
457.98125	463.48125	457.98125	463.48125	80A	80A
457.99375	463.49375	457.99375	463.49375	81A	81A
458.00625	463.50625	458.00625	463.50625	82A	82A
458.015625	463.515625	458.015625	463.515625	83G	83G
458.02500	463.52500	458.02500	463.52500	83	83
458.03750	463.53750	458.03750	463.53750	84	84
458.05000	463.55000	458.05000	463.55000	85	85
458.06250	463.56250	458.06250	463.56250	86	86
458.07500	463.57500	458.07500	463.57500	87	87
458.08750	463.58750	458.08750	463.58750	88	88
458.096875	463.596875	458.096875	463.596875	89G	89G
458.10625	463.60625	458.10625	463.60625	90A	90A
458.11875	463.61875	458.11875	463.61875	91A	91A
458.13125	463.63125	458.13125	463.63125	92A	92A
458.14375	463.64375	458.14375	463.64375	93A	93A
458.15625	463.65625	458.15625	463.65625	94A	94A
458.16875	463.66875	458.16875	463.66875	96A	96A
458.178125	463.678125	458.178125	463.678125	96G	96G
458.18750	463.68750	458.18750	463.68750	96	96
458.196875	463.696875	458.196875	463.696875	97G	97G
458.20625	463.70625	458.20625	463.70625	98A	98A
458.21875	463.71875	458.21875	463.71875	99A	99A
458.23125	463.73125	458.23125	463.73125	100A	100A

Frequency before future release (MHz)		Frequency after future release (MHz)		Proposed Irish Channel # Before Future Release	Proposed Irish Channel # After Future Release
458.24375	463.74375	458.24375	463.74375	101A	101A
458.25625	463.75625	458.25625	463.75625	102A	102A
458.265625	463.765625			103G	
458.27500	463.77500	458.26875	463.76875	103	103A
458.28750	463.78750	458.28125	463.78125	104	104A
458.30000	463.80000	458.29375	463.79375	105	105A
458.31250	463.81250	458.31250	463.81250	106	106A
458.32500	463.82500	458.31875	463.81875	107	107A
458.33750	463.83750	458.33750	463.83750	108	108A
458.35000	463.85000	458.34375	463.84375	1	1A15
458.36250	463.86250	458.35625	463.85625	2	2A15
458.371875	463.871875	458.36875	463.86875	3G	3A15
458.38125	463.88125	458.38125	463.88125	4A	4A15
458.39375	463.89375	458.39375	463.89375	5A	5A15
458.40625	463.90625	458.40625	463.90625	6A	6A15
458.415625	463.915625	458.415625	463.915625	6G	6G15
458.42500	463.92500	458.42500	463.92500	7	7
458.434375	463.934375	458.434375	463.934375	8G	8G15
458.44375	463.94375	458.44375	463.94375	9A	9A15
458.45625	463.95625	458.45625	463.95625	10A	10A15
458.46875	463.96875	458.46875	463.96875	11A	11A15
458.48125	463.98125	458.48125	463.98125	12A	12A15
458.490625	463.990625			1G	
458.50000	464.00000	458.49375	463.99375	1	1A16

Note: Where channels are not being used for SCADA, the channel name/number remains unchanged.

Key:

= Available channel (12.5kHz)

= Guard band channel (6.25kHz)

= Future release channel (12.5kHz)

"A" in channel name indicates 'alternate' frequency to normal channel #

"G" in channel name indicates guard band channel

Red lettering indicates future release channel

Table 4 - Proposed Channels for National Telemetry Users

A.1.2 List of Channels for Non-national Telemetry Licences

Table 5 below shows the revised channels proposed for On-Site, Local Area and Wide Area telemetry users. Table 6 shows VHF On-Site, Local Area and Wide-Area Telemetry Channel Assignments.

Table of VHF non-national frequencies

Channel number (VHF)	Sub-channel centre frequency (MHz)	Sub-channel centre frequency (MHz)	Channel type
1	165.25625	170.0625	2 x 12.5 kHz (Duplex)
2	165.26875	170.075	2 x 12.5 kHz (Duplex)
3	165.28125	170.0875	2 x 12.5 kHz (Duplex)
4	165.31875	170.125	2 x 12.5 kHz (Duplex)
5	165.33125	170.1375	2 x 12.5 kHz (Duplex)
6	165.38125	170.1875	2 x 12.5 kHz (Duplex)
7	165.39375	170.2	2 x 12.5 kHz (Duplex)
8	165.40625	170.2125	2 x 12.5 kHz (Duplex)
9	165.41875	170.225	2 x 12.5 kHz (Duplex)
10	165.43125	170.2375	2 x 12.5 kHz (Duplex)
11	165.44375	170.25	2 x 12.5 kHz (Duplex)
12	165.45625	170.2625	2 x 12.5 kHz (Duplex)
13	165.46875	170.275	2 x 12.5 kHz (Duplex)
14	165.48125	170.2875	2 x 12.5 kHz (Duplex)
15	165.49375	170.3	2 x 12.5 kHz (Duplex)

Table 5 - Revised Channels for Proposed On-Site, Local Area and Wide Area Telemetry

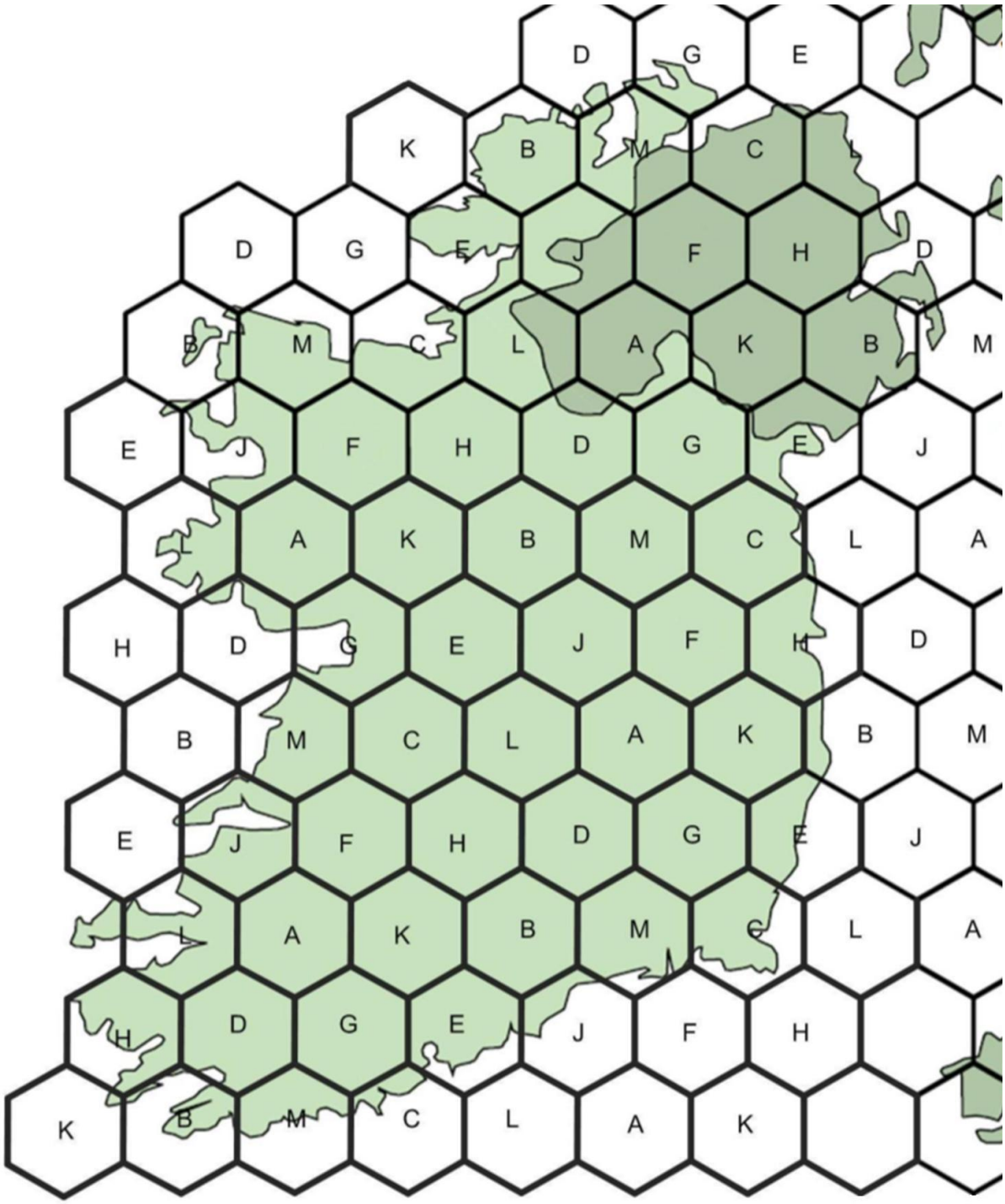
Channel number (UHF)	Sub-channel centre frequency (MHz)	Sub-channel centre frequency (MHz)	Channel type
1	455.7375	469.7375	2 x 12.5 kHz (Duplex)
2	455.75	469.75	2 x 12.5 kHz (Duplex)
3	455.7625	469.7625	2 x 12.5 kHz (Duplex)
4	455.775	469.775	2 x 12.5 kHz (Duplex)
5	455.7875	469.7875	2 x 12.5 kHz (Duplex)
6	455.800	469.800	2 x 12.5 kHz (Duplex)
7	455.8125	469.8125	2 x 12.5 kHz (Duplex)
8	455.825	469.825	2 x 12.5 kHz (Duplex)
9	455.83750	461.33750	2 x 12.5 kHz (Duplex)
10	455.85000	461.35000	2 x 12.5 kHz (Duplex)
11	455.86250	461.36250	2 x 12.5 kHz (Duplex)
12	455.87500	461.37500	2 x 12.5 kHz (Duplex)
13	455.88750	461.38750	2 x 12.5 kHz (Duplex)
14	455.90000	461.40000	2 x 12.5 kHz (Duplex)
15	-	463.98125	1 x 12.5 kHz (Simplex)
16	-	463.99375	1 x 12.5 kHz (Simplex)

Table 6 - VHF On-Site, Local Area and Wide-Area Telemetry Channel Assignments

ComReg may use additional channels in the range 457 – 458.5 MHz paired with 462.5 – 464 MHz, if existing licences.

Annex: 2 Cellular Structure of National Frequency Plan

The frequency reuse plan shown below replaces the map shown in Figure 5 in Annex A of Consultation 11/94.



Annex: 3 Consultation Question

1) Do you agree that the revised channel plans outlined in Annex 1 of this document are suitable for current telemetry requirements? If not, please give reasons with your answer.

A period of four weeks from the date of publication of this document is allowed for the submission of responses.

Annex: 4 Final Regulatory Impact Assessment

A.4.1 Introduction

177 In Annex 4 of Consultation 11/94, ComReg carried out a draft RIA in accordance with its RIA Guidelines (Document 07/56a[14]) ("RIA Guidelines") as described therein and below. ComReg invited interested parties to review the draft RIA and submit any comments or information that they believed ComReg should consider in finalising its decision on the proposal to introduce a licensing framework for VHF and UHF telemetry networks and systems. As set out in Chapter 6 of this document, and as will be seen from the RIA below, ComReg has updated its draft RIA in order to take account of concerns expressed by certain respondents. ComReg, however, remains of the view that it has not received any further information which would cause it to amend its preferred option as set out in Consultation 11/94.

178 This Annex sets out ComReg's final RIA on its proposal to introduce a licensing framework for VHF and UHF telemetry systems. It has been prepared in accordance with ComReg's RIA Guidelines and having regard to the RIA Guidelines issued by the Department of An Taoiseach in June 2009 and the relevant Policy Directions issued to ComReg by the Minister for Communications, Marine and Natural Resources under Section 13 of the Communications Regulation Acts, 2002 to 2011, on 21 February 2003 (the "Policy Directions").

179 ComReg's RIA Guidelines set out, amongst other things, the circumstances in which ComReg considers that a RIA might be appropriate. ComReg generally conducts a RIA in any process that might result in the imposition of a regulatory obligation or amendment of an existing regulatory obligation to a significant degree, or which might otherwise significantly impact on any relevant market or on any stakeholders or consumers.

[14] ComReg 07/56a – Guidelines on ComReg's approach to Regulatory Impact Assessment – August 2007.

180 ComReg's RIA Guidelines set out the five steps to a RIA:

- Step 1: Identify the policy issue and identify the objectives;
- Step 2: Identify and describe the regulatory options;
- Step 3: Determine the impacts on stakeholders;
- Step 4: Determine the impacts on competition; and
- Step 5: Assess the impacts and choose the best option.

A.4.2 Identifying the Policy Issues and Objectives

181 ComReg licenses scanning telemetry and telecontrol systems in the VHF and UHF frequency bands under the Business Radio licensing framework, which is intended to facilitate mobile services. This means that fixed telemetry users share the same spectrum as mobile users and it has become increasingly difficult to ensure that these two groups do not cause radio interference to each other. Significant tranches of spectrum have been left unused in order to serve as guard-bands for this purpose, which creates artificial scarcity of spectrum. This also represents an inefficient use of the radio spectrum. These factors undermine certainty regarding the future availability of spectrum for licensing new telemetry and Business Radio users.

182 The options considered in this RIA are assessed against ComReg's statutory functions and objectives,[15] particularly in relation to:

- the promotion of competition[16], which includes:
  - ensuring that there is no distortion or restriction of competition in the electronic communications sector;[17]
  - promoting efficient investment and innovation in new and enhanced infrastructures;[18] and
  - encouraging efficient use and ensuring the effective management of radio frequencies;[19]

[15] ComReg's relevant statutory functions are presented in Section 2.1 of Consultation 11/94
[16] ComReg has a broad discretionary power in relation to achieving this general obligation.

[17] Section 12(2)(a)(ii) of the 2002 Act.

[18] Regulation 16(2)(d) of the Framework Regulations.

[19] Section 12(2)(a)(iv) of the 2002 Act.

- promoting the interests of users in the community;[20] and
- safeguarding competition to the benefit of consumers and promoting, where appropriate, infrastructure-based competition.[21]

183 Accordingly, the principal policy issues and objectives that ComReg considers to be relevant to this RIA are:

- to create certainty for stakeholders regarding the future availability of spectrum for licensing both telemetry and business radio;
- to reduce the administrative burden on users when licensing multi-site telemetry networks; and
- to ensure the efficient management and use of spectrum by:
  - defragmenting existing telemetry spectrum assignments;
  - introducing new fees that better reflect the opportunity cost of spectrum use;
  - harmonising spectrum use with the UK and Northern Ireland to the greatest extent possible; and
  - segregating incompatible users (fixed and mobile) into separate spectrum bands.
- the impact of ComReg's proposal on competition and consumers.

A.4.3 Identify and Describe the Regulatory Options

184 ComReg considers that there is a need for two important changes to the current way in which telemetry is licensed:

1. Introducing a separate licensing framework which would be more suited to the needs of telemetry users; and
2. Changing the current frequency arrangement to ensure efficient spectrum use and on-going co-existence between telemetry and business radio users.

185 ComReg considers that two options are available to it in this regard:

- **Option 1:** Introduce a new licensing framework under which four different categories of telemetry licence could be awarded. This framework would be aimed at meeting the needs of a range of telemetry licensees, from smaller licensees operating within a single premises to larger licensees operating regional or nationwide telemetry networks. Establishing such a framework would require amending certain current spectrum allocations, specifically in the 163 – 174 MHz (VHF) and 450 –

[20] Section 12(1)(a)(iii) of the 2002 Act.

[21] Regulation 16(2)(c) of the Framework Regulations.

470 MHz (UHF) bands, so that they would be used exclusively for telemetry (by re-allocating up to 2 x 1.2625 MHz of paired spectrum and 1 x 25 kHz of unpaired spectrum). Both aspects of Option 1 are described in detail in Sections 4 and 5 of the Consultation.

- **Option 2:** Make no change to ComReg's current practice for licensing telemetry and to leave the existing frequency arrangements unchanged.

A.4.4 Determining the Impacts on Stakeholders

186 The impact upon two broad stakeholder groups are considered in this RIA, the two groups being:

- Current and prospective users of telemetry, including Irish Water;
- Business Radio Users including community repeaters and licensees under the established TPBR (Third Party Business Radio) licensing framework.

Telemetry users:

187 Option 1 would reduce congestion in the VHF and UHF spectrum bands and rationalise the use of these bands by all stakeholders, introducing frequency separation between fixed telemetry licensees and other mobile users of the bands in question. This would increase the quantity of spectrum available for new telemetry licences.

188 Option 1 would also involve the introduction of Wide-Area and National Licence categories. This could benefit larger telemetry licence users in the following ways:

- It would reduce the administrative burden on these licensees as fewer licence applications and renewals would be required;

- National Telemetry Licensees would hold a single licence, indicating the channels to be used in each region of the State. Hence it would no longer be necessary for these licensees to obtain an individual licence for each site in their network before they could know the precise frequencies of operation. This would provide greater certainty and would be beneficial when ordering telemetry equipment; and

- Telemetry licensees such as providers of water services would have the option to apply for either geographically confined licences (On-Site, Local-Area or Wide-Area) or a single National Licence, or a combination of both.

189 A potential drawback of Option 1 from the perspective of existing telemetry users would be the need to relocate from the channels they are currently assigned, into the proposed telemetry bands, within a period of five years. This may lead to some retuning costs and temporary disruption for existing telemetry services.

190 Under Option 2, there would be no relocation and consequently no retuning costs or disruption for existing telemetry users. However, future licensing of telemetry would remain under the existing Business Radio framework and operators of larger telemetry networks would still have to apply for individual Business Radio licences for each and every site in their network, with the associated administrative burden. Similarly, if no changes are made to the existing frequency arrangements then the fragmented spectrum holdings of existing telemetry users would persist, requiring such users to hold a larger inventory of replacement spare parts in case of equipment failure. This would likely have an impact on all telemetry users but it may be particularly onerous for larger telemetry network operators such as power or utilities.

191 For these reasons, ComReg is of the view that telemetry users are likely to favour Option 1 over Option 2. This was the view expressed by respondents to the draft RIA in Consultation 11/94.

Business Radio users (including Community Repeater users)

192 Option 1 would reduce congestion in the VHF and UHF spectrum bands. This would increase the quantity of spectrum available for new Business Radio licences. The more efficient assignment of spectrum would also mitigate the risk of interference to Business Radio users from fixed telemetry.

193 There are two Community Repeaters that currently operate on frequencies within the proposed national telemetry spectrum band. Option 1 may involve retuning costs for these licensees and may lead to some temporary disruption of service to Community Repeaters. However ComReg is of the view that in most cases it should be possible to retune the equipment without incurring significant expense and this view was echoed by respondents to Consultation 11/94. It is also proposed that the affected licensees would have three years in which to complete the transition, which should further minimise any disruption.

194 Under Option 1, ComReg would assign channels close in frequency to existing TPBR users. Despite this assignment, there is a low risk that TPBR operators would have to upgrade equipment or employ filters on some of their sites. As such the cost implications for TPBR operators would be limited.

195 There would also be no relocation or retuning costs for the two Community Repeaters concerned and no disruption to their services under Option 2. With the increasing uptake of telemetry, it is likely that demand for spectrum would be met by assigning the channels in close proximity to TPBR channels. In doing so, there is a low risk that existing TPBR operators would have to upgrade filter equipment on some sites in order to mitigate for this.

196 Overall, ComReg is of the view that Business Radio users are likely to favour Option 1, as it reduces the uncertainty associated with interference and with the future availability of Business Radio licences. The two Community Repeater licensees may be concerned about the relocation required under Option 1 and may therefore favour Option 2. However as stated above, ComReg is of the view that the incurred costs on these users would be low and they would also be given sufficient time in which to retune.

A.4.5 Impacts on Consumers

197 The telemetry systems used by organisations such as utility and industrial companies to provide “electronic communications networks” (ECN), do not constitute “electronic communications services” (ECS) as defined in the Framework Regulations, as they are not intended for third party remuneration. As such the licensing of telemetry systems is unlikely to affect consumers directly.

198 As already outlined, Option 1 would reduce congestion in the VHF and UHF spectrum bands. This would increase the quantity of spectrum available for new Business Radio licences. The benefit of defragmentation is that fewer channels would be required to serve as unused guard-bands. These channels could then be put to productive use by assigning them to licensees. As such, any new framework that provides for the more efficient use of spectrum is likely to benefit consumers.

199 Option 2 would provide for the continuation of the current licensing framework which would entail an increased likelihood of interference between channels which is likely to negatively affect the provision of services to customers. It is therefore likely that consumers would prefer Option 1 given that the new framework would provide for an increased likelihood of interference free channels.

A.4.6 Impacts on Competition

200 Telemetry users come from a range of diverse sectors, the majority of which are not in direct competition. Nonetheless these users all require access to radio spectrum as an input to their business. Radio spectrum is a finite resource and the right to use it is conferred by ComReg in accordance with its statutory functions. ComReg has a statutory function to "ensure the efficient management and use of the radio frequency spectrum" as a means of promoting competition. The inefficient use of spectrum would ultimately have a detrimental impact on competition.

201 Under Option 1, the separation of fixed telemetry and mobile users into separate spectrum bands would have a positive effect on competition as it would facilitate denser and more efficient reuse of frequencies. This would allow more users to operate in a given area without increasing the risk of interference. Segregation of these services would also allow assignments in the VHF and UHF spectrum bands to be de-fragmented, so that future assignments could be more efficiently structured. The benefit of this is that fewer channels would be required to serve as unused guard-bands. These channels could then be put to productive use by assigning them to licensees.

202 A negative impact of Option 1 is that the spectrum that ComReg proposes to reserve for telemetry use would no longer be available to other Business Radio users. However, ComReg is of the view that the spectrum in question does not offer any unique advantages to Business Radio users, who may be suitably accommodated elsewhere in the VHF and UHF bands. This view was echoed by most respondents to the consultation. Further, the more efficient spectrum assignment that would be possible under Option 1 may assist in making VHF and UHF spectrum available for alternative applications in the future.

203 Option 2 could have a negative impact on competition because spectrum assignments in the VHF and UHF bands would remain highly fragmented and reservation of unused guard-bands would still be needed to mitigate interference. This could lead to artificial spectrum scarcity which in turn could reduce the amount of spectrum available for current users and potential new entrants.

204 Overall, Option 1 is likely to have a greater positive impact on competition, by ensuring more efficient management and use of the radio frequency spectrum.

A.4.7 Selecting the Preferred Option

205 Given the above, ComReg considers that on balance Option 1 is the most proportionate of the options considered in this RIA and accordingly is the preferred option for the reasons already given.

206 The stakeholder impacts set out above indicate that Option 1 is likely to be the preferred option for both telemetry users and Business Radio users, and the benefits of Option 1 are likely to outweigh the costs which relate to the short-term disruption to existing telemetry and Community Repeater services, that may occur during its implementation. Respondents to the consultation agreed that this option was preferable and suggested that the costs imposed on existing telemetry and community repeater operators would not be significant in the longer term.

207 Whilst the short-term costs would not arise under Option 2, there are some potentially significant disadvantages for stakeholders associated with this option. Option 2 could jeopardise the future efficient management and use of the VHF and UHF spectrum bands. If demand for telemetry licences continues to grow, Option 2 may also hamper the future productivity of industry, the utility sector and the Business Radio community, by reducing the quantity of spectrum available to grant new licences to these users.

208 With regard to the factors discussed above, ComReg is of the view that Option 1 will better address the policy issues set out above in line with its statutory functions.