



An Coimisiún um
Rialáil Cumarsáide
Commission for
Communications Regulation

3.6 GHz Band Transition Progress Report 2019

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An Coimisiún um Rialáil Cumarsáide
Commission for Communications Regulation

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1: Introduction and Background

1. In May 2017, ComReg announced the results of its 3.6 GHz Band Spectrum Award (“Award”)¹. The Award, which was conducted by auction, resulted in the successful assignment of all 350 MHz of spectrum rights available. The spectrum was offered in 594 lots spread over nine regions (four rural and five urban – see Figure 1 below) and assigned on a contiguous basis to five Winning Bidders².

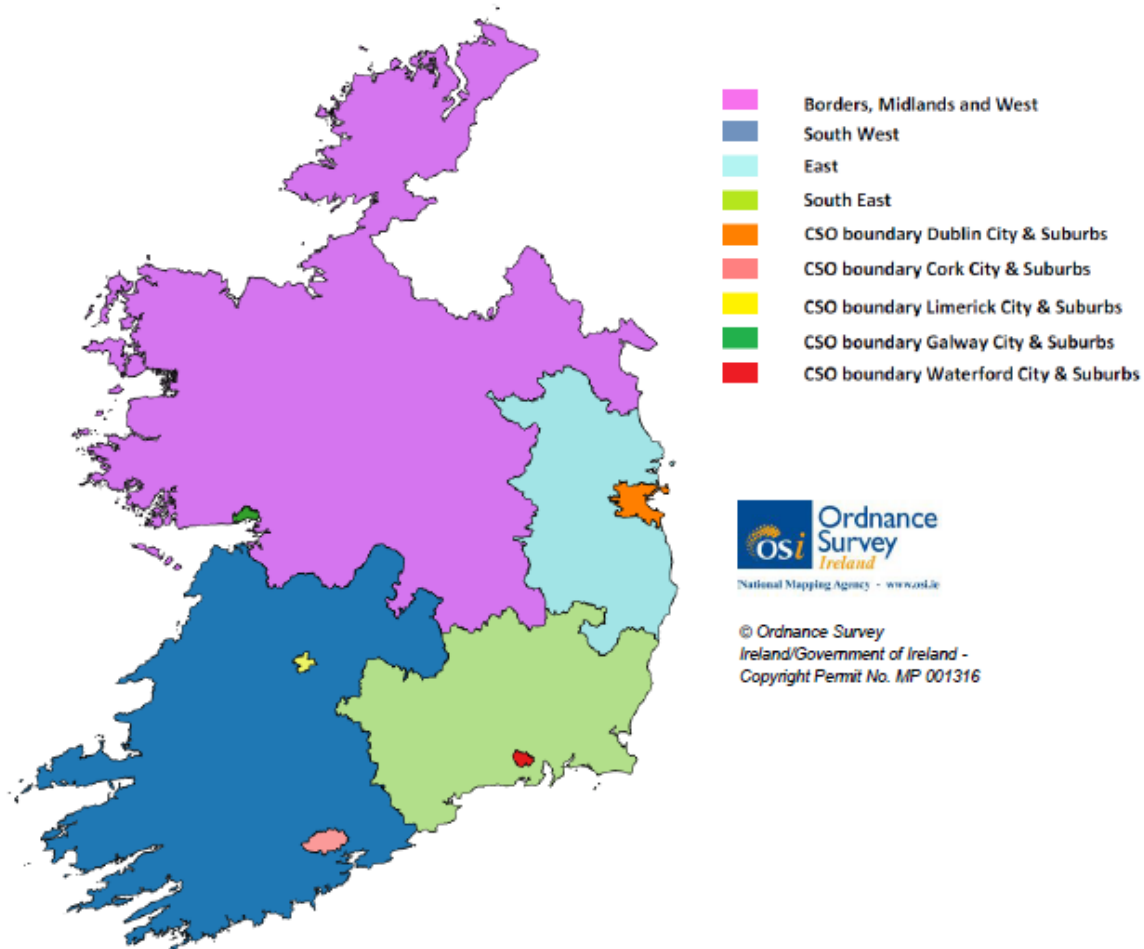


Figure 1: Graphical representation of the nine (9) Regions of Award

¹ <https://www.comreg.ie/industry/radio-spectrum/spectrum-awards/3-6ghz-band-spectrum-award/>

² The Winning Bidders are: Densair Ltd. (formerly known as Airspan Spectrum Holdings Ltd); Imagine Communications Ireland Ltd (“Imagine”); Meteor Mobile Communications Ltd (“Meteor”); Three Ireland (Hutchison) Ltd (“Three”); and Vodafone Ireland Ltd (“Vodafone”). See ComReg Document 17/46 – Information Notice: Results of the 3.6 GHz Band Spectrum Award – published 1 June 2017.

2. Prior to the Award, the 3.6 GHz Band was used by eleven Fixed Wireless Access Local Area (“FWALA”) operators to provide wireless broadband services (and phone services in some cases) to circa 21,665 existing customers, predominantly in rural areas³ under the FWALA licensing scheme⁴. In those areas, the FWALA operators may have been the only available providers of broadband services in the area, including to homes and schools.

1.1 Background - ComReg’s 3.6 GHz Band Transition Principles and Framework

3. In order to ensure continued services for those existing customers who were at risk of losing their service while Winning Bidders of the Award prepared for the deployment of their new services, ComReg developed a Transition licensing framework. That framework was consulted upon extensively with interested parties and implemented by way of the rules of the Award, which all participants to the Award agreed to be bound by. Those rules are contained in the 3.6 GHz Band Spectrum Award Information Memorandum (“IM”)⁵.
4. Essentially, this framework enables Existing Licensees⁶ to continue to provide services, across over 292 service areas (see Figure 2 below), to their customers until such time that Winning Bidders are ready to roll-out commercial services in the nine regions. The service areas were defined by a circle, with 20km radius from a nominated centre point.

³ The 3.6 GHz Band was one of four bands used for the provision of fixed wireless access (“FWA”) services along with the licence exempt 5.8 GHz band, 10.5 GHz band and 26 GHz band. As of 2016, there were 46,599 FWA subscribers in total (Q4 2016 ComReg Quarterly Report), 21,665 in the 3.6 GHz band.

⁴ <https://www.comreg.ie/industry/radio-spectrum/licensing/search-licence-type/fixed-wireless-access-local-area-fwala/>

⁵ ComReg Document 16/71 – Information Memorandum: 3.6 GHz Band Spectrum Award – published 24 August 2016.

⁶ Enet Telecommunications Networks Limited (formerly known as Airspeed Communications Unlimited); Eircom Ltd (“Eircom”); Imagine Communications Ireland Ltd (“Imagine”); Lighthouse Networks Ltd (“Lighthouse”); PermaNET Ltd (“permaNET”); Ripple Communications Ltd (“Ripplecom”); Western Broadband Networks Ltd (“Western Broadband”).

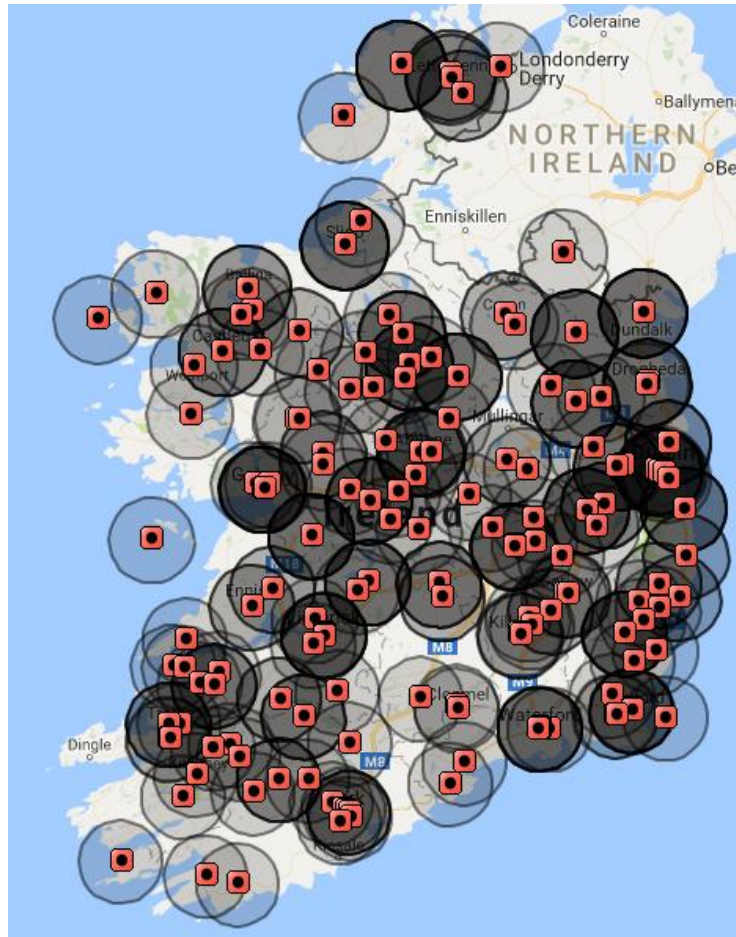


Figure 2: Graphical representation of the 292 service areas prior to the Award

5. The principles underpinning this framework can be summarised as follows⁷:
 - a. minimise the potential for disruption to existing consumer services;
 - b. introduce liberalised licences as soon as possible not unnecessarily delaying the delivery of future liberalised services;
 - c. maximise benefits to end users; and
 - d. ensure the efficient use of spectrum during the Transition period.
6. Since the Award, ComReg has been actively engaging with Winning Bidders and Existing Licensees in order to develop and implement appropriate Transition

⁷ See paragraph 7.5 of ComReg Document 15/140 – Response to Consultation and draft Decision on Proposed 3.6 GHz Band Spectrum Award – published 22 December 2015.

Plans⁸, which are progressed and prioritised where Winning Bidders have sufficiently developed plans to roll-out new services.

7. The purpose of this report is to provide interested parties with an update on the progress of 3.6 GHz Band Transition and associated Transition Activities by Existing Licensees and Winning Bidders.
8. Appendix 1 of this report shows the Lots⁹ which have commenced as of 2 December 2019 under the Winning Bidders' 3.6 GHz Band Liberalised Use Licences.

⁸ Paragraph 3.206 of the IM states that Winning Bidders and Existing Licensees who have agreed to abide by the Transition Rules are required to formulate Transition Plan Proposals, and to submit them to ComReg.

⁹ The 3.6 GHz Band spectrum award consisted of 594 lots spread over nine geographic regions (four rural and five urban), see ComReg Document 17/38 – Information Notice: Results of the 3.6 GHz Band Spectrum Award – published 22 May 2017.

2: Progress update on the 3.6 GHz Band Transition

9. As noted above, ComReg has actively engaged with Winning Bidders and Existing Licensees since the completion of the Award in order to develop and implement appropriate Transition Plans, with particular importance placed in areas where Winning Bidders have sufficiently-developed plans to roll-out new services.
10. ComReg has also encouraged Winning Bidders and Existing Licensees to engage and develop mutually-agreeable Transition Plan Proposals, which ComReg would consider with a view to finalising a Transition Plan.
11. Notably, and while ComReg requested in December 2017 that Winning Bidders submit detailed Transition Plan Proposals by which to develop Localised Transition Plans (“LTPs”), Meteor¹⁰ and Vodafone provided their respective Transition Plan Proposals to ComReg in 2019, while Densair and Three have yet to submit Transition Plan Proposals. Imagine has not submitted a proposal as ComReg has commenced 100% of the Lots won by Imagine.

2.1 Localised Transition Plans

12. To date, just one set of LTPs have been developed and implemented, being those required for the transition by Imagine from 3.6 GHz Band Lots awarded to Vodafone.
13. In April 2019, Vodafone submitted its final Transition Plan Proposal to develop LTPs for the rollout of new services across ten sites using 3.6 GHz Band spectrum previously held by Imagine under the FWALA licensing scheme. ComReg consulted on the proposal, and on 25 June 2019, ComReg implemented LTPs for Vodafone’s rollout of these ten sites. Those LTPs required Imagine to complete all relevant Transition Activities by 5 November 2019. Upon receipt of a joint request from Imagine and Vodafone, however, ComReg extended the relevant Commencement and Transition Dates and all Transition Activities are expected to be completed by 2 February 2020.

¹⁰ In light of ComReg’s preference for Winning Bidders to engage with Existing Licensees to develop mutually-agreeable Transition Plan Proposals, ComReg notes that Eir is engaging with relevant Existing Licensees with a view to progressing Transition by coordinating and agreeing Transition Activities.

14. ComReg notes that Imagine and Vodafone are also coordinating and agreeing Transition Activities for other areas in parallel to the formal LTPs. ComReg will continue to monitor the progress of both Imagine and Vodafone in respect of their Transition Activities in line with the LTPs.

2.2 Transition Activities – Existing Licensees

Existing Licensees

15. Progress has also been made in the orderly transition of the Existing Licensees from the 3.6 GHz Band, including:

- Lighthouse and Western Broadband have completed their transition from the 3.6 GHz Band;
- Ripplecom has migrated from 75% of the Transition Service Areas (“TSAs”)¹¹ licensed under its 3.6 GHz Band Transition Unprotected Licence (“TUL”)¹²;
- Enet has migrated from 35% of the TSAs licensed under its 3.6 GHz Band TUL, and has reduced its spectrum usage by 60% in the remaining TSAs;
- PermaNET has migrated from 14% of the TSAs licensed under its 3.6 GHz Band TUL; and
- Imagine has migrated from 34% of the TSAs licensed under its 3.6 GHz Band Transition Protected Licence (“TPL”)¹³, and has reduced its spectrum usage by 53% in the remaining TSAs licensed under its TPL.

¹¹ Under Transition Licences existing licensees are permitted to operate in local service areas, referred to as Transition Service Areas (“TSAs”), where they previously operated under the 3.6 GHz Band FWALA licensing scheme which ceased following the Award on 31 July 2017. At the start of Transition, all TSAs had a 20 km radius boundary around a defined centre point. As Transition has progressed, the area of some TSAs has been reduced to reflect completion of Transition activities which affect only part of a TSA and to facilitate ongoing Transition Activities in the remainder of the TSA.

¹² A Licence in the form as set out in Schedule 4 of the Wireless Telegraphy (3.6 GHz Band Licences) Regulations 2016, which entitles the holder to keep and have possession of Apparatus for the provision of FWA services in one or more than one FWALA Service Area on a Non-Interference and Non-Protected Basis, subject to the terms and conditions set out therein.

¹³ A Licence in the form as set out in Schedule 4 of the Wireless Telegraphy (3.6 GHz Band Licences) Regulations 2016, which entitles the holder to keep and have possession of Apparatus for the provision of FWA services in one or more than one FWALA Service Area, subject to the terms and conditions set out therein.

2.3 3.6 GHz Band spectrum availability

Winning Bidders

16. Significant progress has been made in the orderly transition of the 3.6 GHz Band and this progress has facilitated the commencement of spectrum rights for all new 3.6 GHz Band licensees to varying degrees:

- As of 2 December 2019, ComReg has commenced 79% of the Lots won by Densair;
- On 1 September 2018, ComReg commenced 100% of the Lots won by Imagine;
- As of 2 December 2019, ComReg has commenced 80% of the Lots won by Meteor;
- As of 2 December 2019, ComReg has commenced 88% of the Lots won by Three; and
- As of 2 December 2019, ComReg has commenced 58% of the Lots won by Vodafone. ComReg also offered (in July 2018) to commence a further 10% of Vodafone's Lots but this was declined by Vodafone.

Figure 3 below shows the percentage of commenced lots by each Winning Bidder as at 2 December 2019.

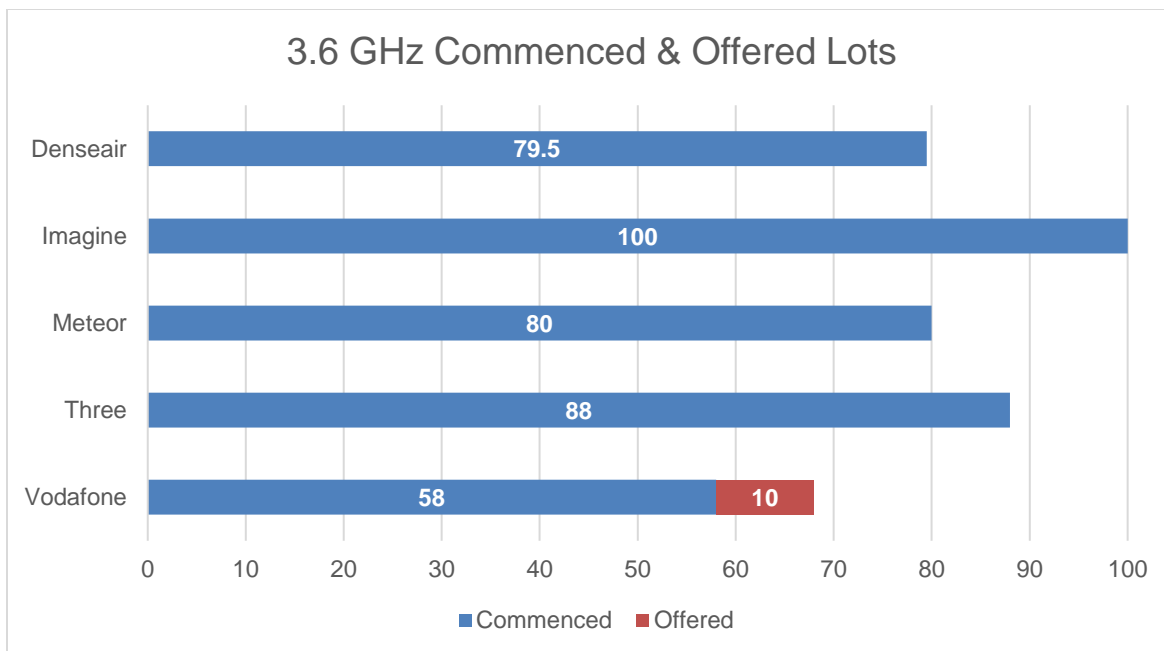


Figure 3: 3.6 GHz Commenced & Offered Lots (%)

2.4 Commercial services

17. While the rollout of services by Winning Bidders has been slower than ComReg had anticipated, a substantial amount of the 3.6 GHz Band spectrum has been made available for use by Winning Bidders, which has enabled Winning Bidders to launch higher speed FWA¹⁴ and, more recently, new 5G services.¹⁵

¹⁴ In February 2019, Imagine launched its plans for a fixed wireless broadband network in rural areas, see <https://www.irishtimes.com/business/technology/imagine-plans-300m-wireless-broadband-network-1.3792296>

¹⁵ For example:

- In September 2019, Vodafone launched commercial 5G services in 5 cities: [Vodafone Ireland press release of 17 September 2019](#); and
- in October 2019, Eir launched commercial 5G services in 10 towns and cities: <https://www.rte.ie/news/business/2019/1024/1085356-eir-launches-its-5g-network-in-10-towns-and-cities/>

In relation to Three:

- whereas it had previously indicated plans to roll-out its 5G network before end of 2019 (<https://www.siliconrepublic.com/companies/three-ireland-5g-network-roll-out-2019.>);
- it recently stated that it is delaying the launch of 5G services until 2020: <https://www.irishtimes.com/business/technology/three-delays-5g-rollout-until-next-year-1.4099752>

3: Next Steps

18. ComReg will continue to actively engage with Winning Bidders and Existing Licensees in order to develop and implement appropriate Localised Transition Plans in line with the principles of the Transition licensing framework. Additionally, ComReg will commence Lots for Winning Bidders as they become available following the completion of necessary Transition Activities.
19. ComReg intends to publish non-confidential, substantive material relating to 3.6 GHz Band Transition following completion of same.

Appendix 1: Commencement of Lots under 3.6 GHz Band Liberalised Use Licences

A 1.1 Following completion of Transition Activities by Winning Bidders and Existing Licensees in the areas and frequency ranges affected, ComReg has commenced Lots in Regions under 3.6 GHz Band Liberalised Use Licences as follows. The tables below show the frequency assignments and associated regions for each 3.6 GHz Band Liberalised Use Licence granted to date, and the status of the associated Lots as of 2 December 2019.

A 1.2 The colours in the tables indicate the following:

Green – Lots that have commenced.

Pink – Lots that have not yet commenced.

Amber – Lots that ComReg offered to commence, but were declined by the relevant licensee.

Black – Lots that are not applicable to the Licensee.

Dense Air									
	FREQUENCY RANGE		3580 - 3585 MHz	3585 - 3590 MHz	3590 - 3595 MHz	3595 - 3600 MHz	3600 - 3605 MHz	3605 - 3610 MHz	3610 - 3615 MHz
		3410 - 3435 MHz							
	LOT	A1	B22	B23	B24	B25	B26	B27	B28
REGION	Borders, Midlands and West								
	South West								
	East								
	South East								
	Dublin City and Suburbs								
	Cork City and Suburbs								
	Limerick City and Suburbs								
	Galway City and Suburbs								
	Waterford City and Suburbs								

Imagine													
REGION	FREQUENCY RANGE	3560 - 3565 MHz	3565 - 3570 MHz	3570 - 3575 MHz	3575 - 3580 MHz	3580 - 3585 MHz	3585 - 3590 MHz	3590 - 3595 MHz	3595 - 3600 MHz	3600 - 3605 MHz	3605 - 3610 MHz	3610 - 3615 MHz	3615 - 3620 MHz
	LOT	B18	B19	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29
Borders, Midlands and West													
South West													
East													
South East													

Meteor																		
REGION	FREQUENCY RANGE	3615 - 3620 MHz	3620 - 3625 MHz	3625 - 3630 MHz	3630 - 3635 MHz	3635 - 3640 MHz	3640 - 3645 MHz	3645 - 3650 MHz	3650 - 3655 MHz	3655 - 3660 MHz	3660 - 3665 MHz	3665 - 3670 MHz	3670 - 3675 MHz	3675 - 3680 MHz	3680 - 3685 MHz	3685 - 3690 MHz	3690 - 3695 MHz	3695 - 3700 MHz
	LOT	B29	B30	B31	B32	B33	B34	B35	B36	B37	B38	B39	B40	B41	B42	B43	B44	B45
Borders, Midlands and West																		
South West																		
East																		
South East																		
Dublin City and Suburbs																		
Cork City and Suburbs																		
Limerick City and Suburbs																		
Galway City and Suburbs																		
Waterford City and Suburbs																		

Three		FREQUENCY RANGE																				
		3700 - 3705 MHz	3705 - 3710 MHz	3710 - 3715 MHz	3715 - 3720 MHz	3720 - 3725 MHz	3725 - 3730 MHz	3730 - 3735 MHz	3735 - 3740 MHz	3740 - 3745 MHz	3745 - 3750 MHz	3750 - 3755 MHz	3755 - 3760 MHz	3760 - 3765 MHz	3765 - 3770 MHz	3770 - 3775 MHz	3775 - 3780 MHz	3780 - 3785 MHz	3785 - 3790 MHz	3790 - 3800 MHz		
REGION		LOT	B46	B47	B48	B49	B50	B51	B52	B53	B54	B55	B56	B57	B58	B59	B60	B61	B62	B63	B64	B65
	Borders, Midlands and West																					
	South West																					
	East																					
	South East																					
	Dublin City and Suburbs																					
	Cork City and Suburbs																					
	Limerick City and Suburbs																					
	Galway City and Suburbs																					
	Waterford City and Suburbs																					

Vodafone		FREQUENCY RANGE																					
		3475 - 3480 MHz	3480 - 3485 MHz	3485 - 3490 MHz	3490 - 3495 MHz	3495 - 3500 MHz	3500 - 3505 MHz	3505 - 3510 MHz	3510 - 3515 MHz	3515 - 3520 MHz	3520 - 3525 MHz	3525 - 3530 MHz	3530 - 3535 MHz	3535 - 3540 MHz	3540 - 3545 MHz	3545 - 3550 MHz	3550 - 3555 MHz	3555 - 3560 MHz	3560 - 3565 MHz	3565 - 3570 MHz	3570 - 3575 MHz	3575 - 3580 MHz	
REGION		LOT	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19	B20	B21
	Borders, Midlands and West																						
	South West																						
	East																						
	South East																						
	Dublin City and Suburbs																						
	Cork City and Suburbs																						
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