

FAQ: Changes of available frequencies for wireless microphones in the UK in 2012 as a result of Ofcom's Digital Dividend Review (DDR)

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Which frequency ranges are affected?

The changes will affect the frequencies 854-862 MHz (TV channel 69), which is available nationwide in the UK on a light license basis. Nearly 80% of the wireless microphone systems currently in use operate in this frequency range. Other frequency ranges affected - mostly used by professionals in the rental and broadcast media on a licensed basis - are 550-606 MHz (TV channels 31-37) and 790-854 MHz (TV channels 61-68).

What will happen with the current available frequencies?

The affected bands will be auctioned off to other services and the 790-862 MHz band will be auctioned to the International Mobile Telecommunications industry (IMT) for the provision of wireless broadband internet services. When the new IMT services are activated, wireless microphones will experience severe interference. **Please note that sharing frequencies is illegal.**

When will this be implemented?

Wireless microphones will have to 'vacate' the above-mentioned bands from January 1, 2012 and TV channel 69 will no longer be available nationwide. It is thought that wireless microphones will still have regional access until the completion of the Digital Switch Over (DSO) expected by the end of 2012.

Which frequencies will then be available for us to use?

- 1.) The main alternative for TV channel 69 users will be 606-614 MHz (TV channel 38), the new band available nationwide from January 1, 2012 on a light license basis. Currently Audio-Technica has no systems available in this frequency band.
- 2.) 470-550 MHz (TV channels 21 to 30) and 614-790 MHz (TV channels 39 to 60) will be available for wireless microphones on a secondary use with Digital Terrestrial Television (DTT) and on a license basis (called: "interleaved spectrum: spectrum between TV transmitters that cover only regions"). Audio-Technica wireless microphone systems in D, G, I, and M band can be used here (please contact Audio-Technica for availability).
- 3.) The deregulated band **863 – 865 MHz** will be available throughout Europe for wireless microphones, license free. In this very small frequency band it is possible to run 3 - 4 wireless microphones simultaneously, depending on the series used. This band is programmed in all Audio-Technica F-band systems.

Which frequency bands are recommended beyond 2012?

This depends on the number of channels you want to use simultaneously.

- 1.) With 3 - 4 systems we advise sticking to current Audio-Technica F band systems.
- 2.) When more channels are needed, we advise Audio-Technica systems in D, G, I and M band, depending on spectrum availability per region. Please contact Audio-Technica for planning and availability.
- 3.) TV channel 38 equipment which also covers TV channels 39 and 40 are not available yet. We will inform you as soon as these become available.

Are there any other possible frequency bands?

- 1.) The VHF band 174-216 is not yet affected by the Digital Dividend, and there is some interleaved VHF spectrum availability. There are three frequencies within the VHF that can be used license free - 173,800 MHz, 174,500 MHz and 175.000 MHz. Audio-Technica's 200 series operates in these frequencies.
- 2.) Because the new IMT services use an up and down link and these need to be separated to overcome interference, the band 790-862 MHz will be split in 2 parts of 30 MHz. In the middle will be a "Duplex Centre Gap" running from 821-832 MHz. There is a possibility that this gap will become available for wireless microphones in the future. However, with current technology and the noise created in this band by the IMT service, we would question its suitability for wireless microphones at this time. It is anticipated that only 3-4 MHz in the middle of the gap will be usable. This band is under investigation on European and national levels.
- 3.) In the 1.8GHz band (1785-1800 MHz) Ofcom grants access for digital wireless microphones only. Audio-Technica has no digital systems currently in this band, and until now digital wireless microphones have not proven to provide as good a sound quality as analogue wireless microphones. This frequency range is not really suited for wireless microphones, as the higher frequencies (i.e. shorter wavelengths) create more body absorption and shadow effects due to the directivity, etc. The use of these frequencies will only work adequately when there is a line of sight and a short distance between the transmitter and the receiver.

When will alternative solutions reach the market?

Audio-Technica has some solutions already available (D-Band, G-band and M-Band) and other options will come soon. Please contact Audio-Technica directly for availability, all our contact details can be found at the end of this document.

Are new solutions affordable?

Absolutely. The Audio-Technica systems in the new D, G, I and M band retail for the same price as the current systems. Please contact Audio-Technica for availability.

Do I need to change hardware when changing to new frequencies?

Possibly, yes. We have to take into account how the signal is distributed through splitters, antennas and cables and are more than happy to assist and advise you in this matter.

Do I need a spectrum analyzer for frequency planning?

Not really if you're running 4 or less wireless microphone systems in the license free band 863-865 MHz. If you are using a greater number of channels in the interleaved spectrum (470-550 and 614-790 MHz), we highly recommend using an RF spectrum analyzer. The Audio-Technica Artist Elite Wireless 5000 series has a spectrum analyzer in the PC management software which comes free of charge with the product. It is also possible to buy a stand-alone mobile RF spectrum for approximately £1,000.

My mobile phone works perfectly in very high frequencies, why are those frequencies and properties not usable for wireless microphones?

We have to be more efficient with our energy. Where mobile phones operate with transmitter powers of 1-2 Watts, wireless microphones operate with only 50mW (0,05 Watt). Because mobile phones are digital, they suffer from very audible latency. If we used this in a wireless microphone, every singer would be out of time with the band and the band will be out of time, too. Also the audio frequency range and the dynamic range of a mobile phone are too limited for professional audio applications.

How about licenses and license fees?

- 1.) Only the deregulated band 863-865 MHz, which is deregulated in the European Union, and the VHF frequencies 173,800 MHz; 174,500 MHz and 175,000 MHz are license free.
- 2.) The UK shared microphone license (so called light license) is used by users of TV channel 69 and after January 1, 2012, for TV channel 38. Only spot frequencies provided by the band manager can be used. Prices are £75.00 annually or £135.00 per 2 years when ordered online. The number of channels is not relevant, only the user.
- 3.) Coordinated frequency licenses have pricing and frequencies depending on site, date, time, usage, number of channels, etc.

The Joint Frequency Management Group (JFMG) is the UK's band manager for the Program Making and Special Events (PMSE) industry. For further licensing details please contact JFMG at www.jfmfg.co.uk.

Is it possible to modify current Audio-Technica wireless microphones to other frequency ranges?

Whilst it will be possible to modify certain systems, as this may require a total replacement of all circuit boards you might find it more economical to purchase a new system.

Does Ofcom compensate equipment becoming redundant as a result of these plans?

Yes, some funding is available to cover the movement of equipment out of TV channel 69 towards TV channel 38. On August 14, 2009 Ofcom published a consultation document on eligibility criteria (http://www.ofcom.org.uk/consult/condocs/pmse_funding/). We recommend users to read this consultation, and to respond to it **before September 10, 2009**, according to your circumstances. However, the proposed criteria is far from satisfactory. From Audio -Technica's point of view, all equipment becoming redundant (not only for TV channel 69 but for all systems operating in 550-604 MHz and 790-862 MHz), licensed or not, should be compensated for. Our industry seems to pay the price for the auction benefits to the Treasury and the benefits for the IMT industry.

What will happen if I do nothing and just wait and see?

If you own Audio-Technica F band equipment you will have access to the license free deregulated band 863-865 MHz beyond 2012, and this will be sufficient when working with 4 or less systems simultaneously. If you need more systems please contact Audio -Technica for available bands in your territory and on the availability of alternative bands. If you would like to benefit from movement funding by Ofcom you need to respond to their consultation as detailed above.

Where can I find more detailed information on available frequencies beyond 2012?

If your query is related to Audio-Technica products please contact our office or Technical Support via email at techsupport@audio-technica.co.uk. The British Entertainment Industry Radio Group (BEIRG) provides a lot of information and makes a great effort to preserve the spectrum for our industry. See www.beirg.co.uk. Audio-Technica is member of BEIRG and we recommend users get membership, too. Find more helpful information on the JFMG website www.jfmg.co.uk and regular updates from www.ofcom.co.uk.

How do I obtain a frequency plan for an available spectrum?

Audio-Technica can provide any frequency plan required. On our website we have a useful frequency planning tool: <http://eu.audiotechnica.com/en/support/inside/tutorials/>. If

you need any support please contact our Technical Support via email at techsupport@audio-technica.co.uk. Also JFMG can provide frequency plans: <http://www.jfmfg.co.uk/pages/freq/freq.htm>.

Where do I get help when my wireless microphone system doesn't work anymore?

Our Technical Support team can help, please see the end of this document for all of our contact details. We also have a dedicated regional dealer network that can assist you.

Why has nobody informed me of these changes earlier?

The allocation to IMT in 790-862 MHz was an international decision made in late November 2007 at the World Radio Conference in which Ofcom participated. It wasn't until February 2009 that Ofcom published their first plans on clearing TV channel 69 in a consultation on their website. Before this date Ofcom repeatedly guaranteed TV channel 69 would not be affected by the plans. On June 30, 2009 Ofcom published the decision. Due to the international aspect of this issue, Audio-Technica Europe employs a regulatory specialist who is in contact with European regulators, the European Commission and other relevant European and national organizations with the goal to preserving as much of the available spectrum for our industry as possible, to the best conditions.

How do I get in contact with Audio-Technica?

If you have any questions about any of the issues in this document, please contact us directly at:

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Our service department or sales team are available by telephone, Monday to Friday from 09.00am till 5.00pm to take your calls on +44 (0)113 277-1441

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