



# NovaUCD

## Technology Licensing Opportunity



# iDTX – An Interpolative Digital Transmitter

*- Quantization Noise and Replicas Rejection in Digital Transmitters*



### Opportunity:

Digital Transmitters (DTXs) are a promising solution to the long-range Internet-of-Things (IoT) connectivity problem which is important for remote-sensing and in dense urban environments. DTXs can support complex communication standards, are compact in size as well as having high power efficiency and frequency flexibility. Existing DTXs suffer from the presence of frequency replicas in the output spectrum and DTX architectures are susceptible to quantisation noise.

To overcome these issues researchers from University College Dublin have developed an analog linear interpolation technique, iDTX, that can suppress the replicas and lower the quantization noise floor level in DTXs thus easing the requirement for on board digital signal processing techniques to compensate.

### Applications:

Wireless communications for Internet-of-Things applications.

### Key Features/Advantages:

- Fundamental frequency replicas are suppressed by discrete-time analog linear interpolation.
- Alternative to on-chip digital interpolation – no high-speed digital signal processing required.
- Applicable to both Cartesian and Polar RF-DACs in DTXs.

In collaboration with:



### Value Proposition:

Suppression of quantization noise and frequency replicas whilst minimizing the need for high-speed digital signal processing in DTXs.

### Market:

Internet-of-Things, Wireless Communications and Networks, Consumer Electronics.

### Lead Inventors:

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### IP Status/Publication:

Invention Disclosure.



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FUNDERS

