

RESPONSE OF xG TECHNOLOGY, INC.
TO ET Docket No. 15-105 (PUBLIC NOTICE DA 15-516):
INFORMATION ON CURRENT TRENDS IN LTE-U AND LAA TECHNOLOGY
June 11, 2015

xG Technology, Inc. (“xG” or “The Company”), by its representatives, hereby submits its response to the Office of Engineering and Technology and the Wireless Telecommunications Bureau Public Notice released May 5, 2015, seeking discussion about how proposed LTE-Unclicensed technologies will coexist with other technologies in unlicensed spectrum bands.

General Comments

Of primary importance are the means by which LTE-U will share spectrum with existing unlicensed operations and technologies that are widely used by the public. As described in the Notice, parties within the wireless industry developing a version of LTE technology intended for operations in certain unlicensed frequency bands (LTE-U) propose to operate in conjunction with licensed commercial wireless services by utilizing Licensed Assisted Access (LAA). To date, numerous parties have expressed concern that LTE-U and LAA operations will have a detrimental impact on existing and future use of unlicensed spectrum.

While certain inherent efficiencies of LTE-U and LAA that may facilitate the sharing of unlicensed spectrum, careful consideration must be given to the incorporation of features that will consistently and reliably ensure no detrimental impact on existing users of the spectrum. While the specific frequency bands envisioned for deployment of LTE-U and LAA are still undetermined, the Commission notes this impact would be quite different in various unlicensed

bands – for example, in those already heavily used by Wi-Fi in the 5 GHz band, and newly available spectrum in the 3.5 GHz band. Therefore, consideration of reliable techniques and technologies that are employable and consistently effective across multiple frequency bands is of particular importance.

As unlicensed spectrum become increasingly crowded and contentious with emerging technologies and demand for faster, more reliable, and high-quality communications, interference mitigation technology will be critical for all unlicensed users -- specifically, active and real-time interference mitigation capability that can resolve spectrum conflict dynamically, beyond the administrative protection afforded by regulation and databases, and thereby minimize the need for burdensome pre-deployment frequency planning.

xG Technology proposes the consideration of an advanced and proven technology that is ideally suited to resolving the challenges of spectrum sharing and interference mitigation, is interoperable and fully compatible with both legacy and emerging communications platforms, and is readily and economically adaptable across a broad range of spectrum for incorporation as a component of proposed shared spectrum wireless communications technologies.

The Company and the Background of its Technology

xG (NASDAQ: XGTI) is a leading developer of innovative communications technologies for wireless networks. The Company has commercialized its technologies to create xMax™, the world's first carrier-class cognitive radio network using licensed or unlicensed spectrum. The xMax™ software defined cognitive radio system is a breakthrough technological advancement in the radio art that has been proven to work as designed and developed by xG in Fort Lauderdale, Florida. Systems have been

successfully deployed in both urban and rural settings, as well as in tests and exercises conducted by the Department of Defense in battlefield Electronic Warfare (EW) environments.

The core xMax™ technology eliminates frequency planning issues that arise in other traditional (non-cognitive) wireless networks that cause delays and consume valuable manpower and other resources. Antenna selection and radio filters dictate the actual operating frequencies that are controlled by software, thereby allowing instant (sampled 33 times per second) changes to the operating frequencies as conditions change.

The technology incorporates orthogonal frequency division multiplexing (OFDM) and four-by-two multiple input-multiple output (MIMO) features.¹ This permits virtually interference-free operation on any of the selected frequency ranges. A key feature of the cognitive aspect of the system is the ability to detect and avoid potentially interfering radio signals seamlessly. This is part of the cognitive radio strategy pioneered by xG and is, to xG's knowledge, the only such cognitive radio technology that has been proven successful in actual field operating conditions. This feature, known commonly as Dynamic Spectrum Access, or DSA, actively spots interferers and causes the equipment to change frequencies before communications are impacted. In addition, xMax utilizes a multi-tier interference mitigation technology to actually factor out interference at the receiver. Both short burst interference and long burst interference are removed by parallel digital signal processing (DSP) engines in real time. Even interferers many times stronger than the xG signal are removed in real time. Problematic interferers are then dealt with by the DSA feature. Thus, xG equipment operates without interference in high density and shared radio spectrum with near impunity for a virtual dedicated spectrum experience.

An LTE-U system incorporating the xMax cognitive radio technology would require no frequency planning or use pattern analysis prior to system deployment due to its ability to create its own

¹ xG incorporates 4X2 MIMO, which uses two antennas for transmit / receive and two more for receive only. A powerful Digital Signal Processing (DSP) system receives four independent signals and mathematically negates interference.

RF plan in real time. This Self Organizing Networking (SON) eliminates the need for complex, error prone and expensive frequency planning. An on-going complication of fixed small-cell networks, including the proposed 3.5 GHz network, is self-interference. The patented SON attributes of xMax fully eliminate this problem, reducing manpower and expense, reducing system engineering and buildout costs dramatically and eliminating self- interference.

Additional information may be found online at <http://www.xgtechnology.com>

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