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April 21, 2014

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: WT Docket No. 12-268, *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*

Dear Ms. Dortch:

Throughout this proceeding, GE Healthcare (“GEHC”) has urged the Federal Communications Commission (“Commission”) to ensure that wireless medical telemetry service (“WMTS”) operations can remain in television Channel 37 with adequate protection from harmful interference.¹ In particular, GEHC has warned that the profound shift in 600 MHz band usage following the incentive auction will create a heightened risk of interference to Channel 37 WMTS operations that, if not addressed, could cripple thousands of WMTS systems and jeopardize patient safety throughout the county.² To avoid such a result, GEHC believes that the Commission should continue to prevent unlicensed devices from operating on Channel 37.

On March 28, 2014, Broadcom filed an *ex parte* letter urging the Commission to find that sharing in Channel 37 appears to be feasible. Among other things, Broadcom asserted that its recent discussions with GEHC, as well as GEHC’s most recent filing in this proceeding,³ made

¹ See, e.g., Comments of GEHC, WT Docket No. 12-268 (filed Jan. 25, 2013) (“GEHC Comments”); Reply Comments of GEHC, WT Docket No. 12-268 (filed Mar. 12, 2013) (“GEHC Reply”); Letter from Ari Fitzgerald, Counsel, GEHC, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 12-268 (filed Mar. 7, 2014) (“GEHC Mar. 7, 2014 Ex Parte Letter”).

² See, e.g., GEHC Reply at 3.

³ See GEHC Mar. 7, 2014 Ex Parte Letter.

clear that using a geo-location database and a reasonable protection radius would allow unlicensed devices to coexist safely with WMTS in Channel 37.⁴

Although GEHC appreciates its recent engagement with Broadcom, it disagrees with Broadcom's assertions. The parties' recent discussions left unresolved a number of issues, including not only the appropriate size of the exclusion zones that would be required to protect WMTS,⁵ which as a safety service requires extremely low outage probability, but also the fundamental reliability and security of the automated geo-location database scheme on which exclusion zone enforcement (and, therefore, WMTS protection) would be entirely dependent. Regardless of size, exclusion zones can only be effective when enforced.

Because each of the millions of unlicensed devices that could eventually operate across the nation would represent an independent opportunity for failure, any automated exclusion zone enforcement scheme must be *extremely* robust and reliable. Among the many failure modes that must be considered are failures of the databases, individual unlicensed device hardware and software failures, and failures related to the device-database access protocol. Experience with high-reliability software systems has shown that despite best efforts in up-front design analysis, subtle and elusive failures often surface only after widespread system deployment. This reality poses a serious concern for unlicensed consumer devices that cannot practically be recalled, corrected or disabled when such "latent defects" eventually manifest. Moreover, it is GEHC's understanding that only a handful of TV White Space devices, all of which are fixed devices that rely upon professional installation for manual configuration of location coordinates (as opposed to the personal-portable devices proposed by Broadcom), are currently FCC certified, with relatively few actual deployments. At this time, automated geo-location database schemes remain largely untested—even to protect broadcast television.

Unfortunately, virtually no details regarding the automated geo-location database scheme have been provided in the record of this proceeding. Moreover, the limited information provided during the parties' discussions—for instance, that Google's device-database access protocol uses only hard-coded URLs and lacks secure authentication—only served to heighten concerns that these systems may be highly vulnerable to security and reconfiguration threats both by individual unlicensed device users wishing to improperly gain access to Channel 37, as well as by malicious third parties.

As GEHC has previously pointed out, just one instance of interference to WMTS could simultaneously affect a large portion (*e.g.*, a hundred or more) of a health care facility's WMTS

⁴ Letter from Jennifer K. Bush, Associate General Counsel, Broadcom Corporation, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 12-268 (filed Mar. 28, 2014).

⁵ See GEHC Comments at 32-35, Technical Appendix at 44 and 51, Table 5.

devices, overwhelm its staff, and endanger its patients.⁶ With so much at stake, the Commission should not trust geo-location databases to safeguard WMTS operations unless and until these issues are resolved.

Pursuant to Section 1.1206 of the Commission's rules, an electronic copy of this letter is being filed for inclusion in the above-referenced docket.

Respectfully submitted,

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⁶ See GEHC Mar. 7, 2014 Ex Parte Letter at 2.