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Contact:	Ellisys Corporation	Attn:	Chuck Trefts, VP Marketing
	Phoenix, AZ, USA	Phone:	866-724-9185
		Email:	chuck.trefts@ellisys.com

Ellisys Rolls Out Advanced Bluetooth 5.2 LE Audio Capture and Analysis Features

Multiple Innovations Solve Difficult Challenges for Bluetooth LE Audio Developers

Geneva, Switzerland — March 23, 2021 — Ellisys, a leading worldwide provider of test and analysis solutions for Bluetooth®, Wi-Fi®, Universal Serial Bus (USB), and other wireless and wired communications technologies, today released a broad complement of innovative features to support development of emerging Bluetooth LE Audio products, including controllers, stacks, and devices. These features, available on the company's industry-leading Bluetooth protocol analysis systems, not only broaden support for the latest Bluetooth LE Audio specifications but deliver unique technical innovations that solve complex issues for developers. Features released include the new t_{ZERO}™ tracking technology for full and accurate capture of isochronous traffic on connected and broadcast links, an innovative auto-detection capability built into a test-equipment grade integration of the power-friendly LC3 audio codec, and support for several new audio profiles.

"Our primary design goal from the early days of Bluetooth was to create a robust Bluetooth analyzer capable of capturing traffic without blind spots or other limitations, believed nearly impossible by many at the time," said Mario Pasquali, Ellisys president and CEO. "That development enabled thousands of engineers in the creation of the wide variety of Bluetooth technology and products that we know today, and with these advancements, we bring further disruption that will accelerate the introduction of the Bluetooth devices of tomorrow."

New Technology Enables Precise Capture of LE Audio Traffic

Bluetooth LE Audio uses a new isochronous physical channel to carry two types of audio transports — broadcast and connection-oriented, called Broadcast Isochronous Streams and Connected Isochronous Streams. Each transport is designed for specific types of new end-user applications and functionalities, like audio sharing (personal and public), surround audio, and auditoriums. Each transport also presents new challenges to Bluetooth test and analysis equipment due to new protocol requirements involving the establishment and security of isochronous connections. Bluetooth is a particularly challenging wireless technology to sniff, and the implementation details of these new isochronous protocols adds even further complexities leading to debugging limitations and difficulties.

To address these limitations and difficulties, Ellisys engineers have developed t_{ZERO}, a proprietary technology that delivers high-fidelity capture of isochronous traffic from the initial instance of isochronous traffic, without gaps or any other limitations. This technology, available on the Bluetooth Vanguard™ Advanced Wireless Analysis System, also eliminates the cumbersome requirement for engineers to provide the security keys to the analyzer in advance of an isochronous capture process, thus removing time-wasting and frustrating restrictions, so engineers can focus on their work without worrying about limitations of their tools.

Bluetooth Vanguard includes a deep set of state-of-the-art capabilities, including Capture Diversity™, a capture quality improvement technique important for audio development that employs a co-operational replication of the Ellisys whole-band digital capture engine.

Innovative Auto-Detection for LC3 and Coverage of New Specs

The Low Complexity Communications Codec, or LC3, is particularly ideal for Bluetooth Low Energy as it provides a high degree of quality, even at its lowest data rates. This architectural flexibility, which includes a wide selection of bit rates, allows developers to easily manage trade-offs between audio quality and power consumption, enabling extensions to battery life or even smaller battery sizes. For Bluetooth Low Energy devices, LC3 enables a new wave of development for hearing assistive devices, music, speech, and other audio applications.

This latest Ellisys update, available on all Ellisys Bluetooth analyzer models, not only includes detailed decoding for LC3 traffic, but a new, innovative feature, based on an Ellisys-designed, test equipment-grade LC3 codec, which allows for automatic determination of advertised LC3 configuration parameters. Historically, test equipment implementations have required a complete and error-free capture of (wirelessly transmitted) audio codec configuration parameters to properly capture, characterize, and replay audio. With this auto-detect innovation, even with otherwise critical configuration packets corrupted by interferences or low signal strength, LC3 audio is still recognized, understood, captured, and available for further analysis. Even incorrect configuration implementations will not prevent LC3 capture. These attributes make the Ellisys approach truly robust and allows engineers to immediately focus on the audio aspects of the analysis rather than wireless quality challenges or other non-audio issues. These LC3 updates integrate with a range of existing audio analysis features available on all analyzer configurations.

Additionally, support has been added for several recently released audio specifications that define services and profiles that can operate over Bluetooth Low Energy atop its GATT protocol. These include:

- Audio Input Control Service (AICS)
- Volume Control Service (VCS)
- Volume Offset Control Service (VOCS)
- Basic Audio Profile (BAP)
- Audio Stream Control Service (ASCS)
- Media Control Service (MCS)
- Telephone Bearer Service (TBS)
- Coordinated Set Identification Service (CSIS)

Comprehensive Line of Bluetooth Solutions

Ellisys Bluetooth test and analysis solutions are used by developers worldwide, including radio and controller manufacturers, IP companies, including software stack creators, makers of consumer electronics, cyber security services, automotive companies, test labs, and others. The company's solutions include the Ellisys Bluetooth Qualifier (EBQ) platform, and several protocol analyzer tools supporting both Bluetooth radio types – Low Energy and Classic (BR/EDR). EBQ is a comprehensive compliance, validation, and development system for Bluetooth technology, targeting the behaviors of the lower communications layers, including implementation of more than a thousand test cases defined by the Bluetooth SIG. Ellisys Bluetooth protocol analyzers include the ubiquitous

Tracker™, Explorer™, and Vanguard systems, offering deep features sets designed to meet a variety of customer requirements.

Availability, Product Photos, and Information

Existing customers can upgrade their software installation online to add these features at no cost. Ellisys Bluetooth solutions are available for immediate purchase with shipments 2-4 weeks from order placement. Various configurations are provided to meet a variety of customer price and feature requirements. For more information, including software downloads, please contact sales@ellisys.com or visit www.ellisys.com.

About Ellisys

Ellisys is a leading worldwide supplier of advanced protocol test solutions supporting Bluetooth, Wi-Fi, WPAN 802.15.4 protocols, USB 2.0, SuperSpeed USB 3.2, USB Power Delivery, USB Type-C®, DisplayPort™, and Thunderbolt™. More information is available on www.ellisys.com.

Ellisys · Chemin du Grand-Puits 38 · CH-1217 Meyrin Geneva · Switzerland

World Class Protocol Test Solutions for Bluetooth, USB, Wi-Fi, and other Technologies

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