

EnSURE™ Touch takes ATP Monitoring to the Next Level

Introduction

The [EnSURE™ Touch](#) Monitoring System provides several ways to verify cleaning/sanitation, including detecting enzymes, microorganisms, and ATP – similar to the original EnSURE™ system. It is used in a wide range of facilities, from food processing to hospitals to ensure surfaces are clean. To demonstrate similarity of the systems, Hygiena scientists compared EnSURE Touch ATP detection with Hygiena’s other ATP monitoring systems (EnSURE and SystemSURE Plus™). Results showed that EnSURE Touch is superior in linearity, and equivalent in sensitivity and repeatability to the original EnSURE system. In addition, EnSURE Touch was shown to be comparable to SystemSURE Plus, Hygiena’s other ATP detection system. Correlating these results with an earlier study by Siliker Laboratories, Inc., which found that the SystemSURE Plus system was superior to competitors’ instruments when tested in a similar manner, it is safe to say EnSURE Touch will perform in the same superior manner. Lastly, EnSURE Touch makes collecting data even easier by using smartphone technology to access SureTrend™ Cloud software, eliminating the need to connect via USB to upload data, saving valuable time and money.

Linearity

Linearity is essential to ensure devices measure targets accurately across a wide range of data values and helps to validate lower limits of detection. Systems that deviate from linear results are less reliable and typically less sensitive. We found that EnSURE Touch was identical to EnSURE when detecting relative light units (RLUs) based on known ATP amounts. (Figure 1). In addition, EnSURE Touch showed more linearity at low ATP concentrations (RLUs) when compared to EnSURE. Furthermore, EnSURE Touch showed similar linearity when compared to SystemSURE Plus. (Figure 2).

Figure 1

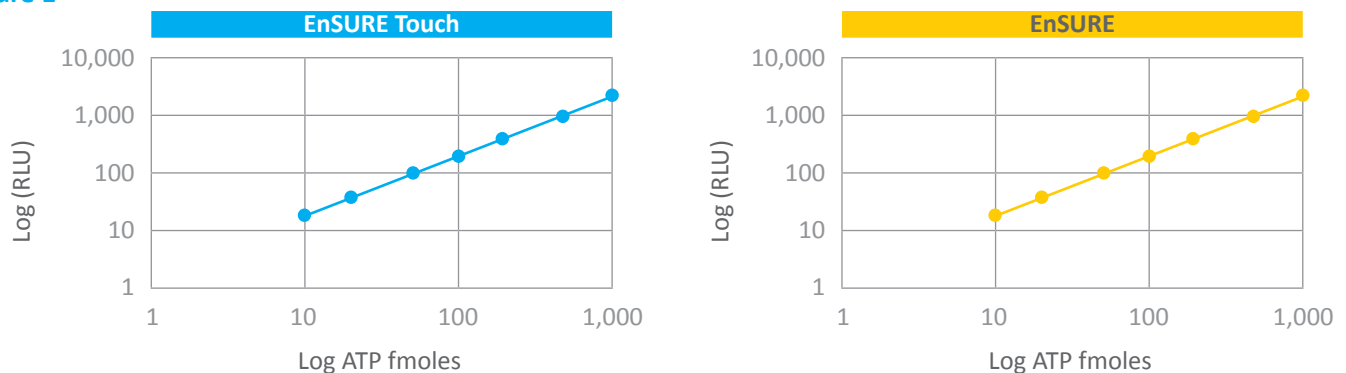
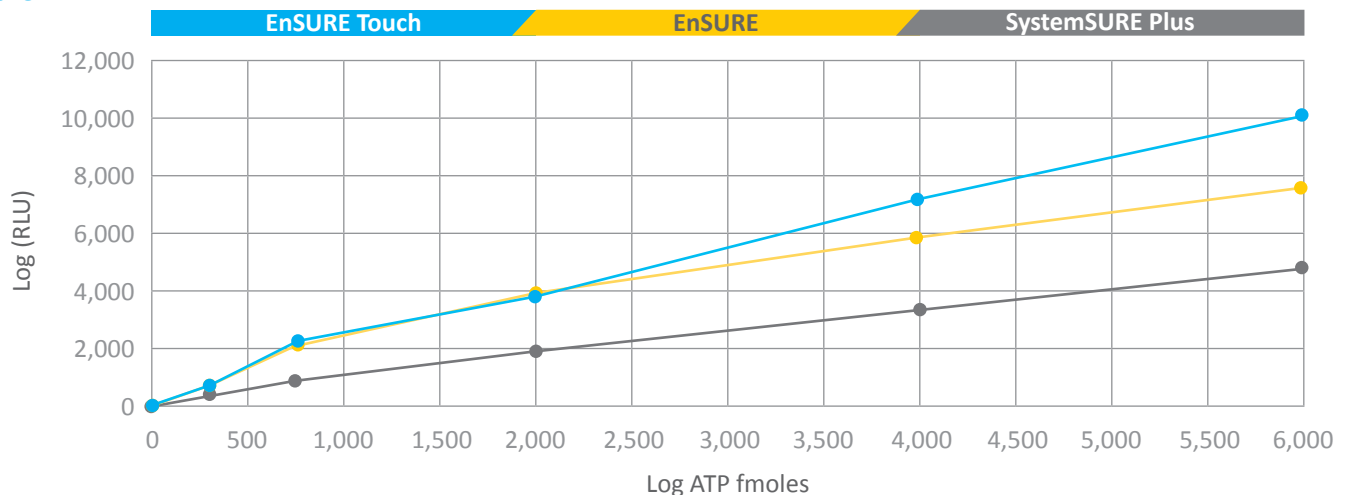


Figure 2



Sensitivity

It is critical that ATP monitoring systems be sensitive with detection levels below those normally observed in clean facilities. EnSURE Touch was tested to verify this was the case. Using the UltraSnap™ swab test, EnSURE Touch detected ATP down to 0.5 femtomoles. Using the SuperSnap™ swab test, EnSURE Touch detected ATP down to 0.1 femtomoles. This data is very similar to that obtained with the original EnSURE system and is up to 8 time more sensitive than the SystemSURE Plus/UltraSnap combination. **Table 1** shows sensitivity data for both swab tests at their lowest range.

Table 1

Sample	2 fmoles ATP	1 fmoles ATP	0.5 fmoles ATP	0.1 fmoles ATP	0 ATP (- control)	Limit of detection
System:	UltraSnap (RLU)					
EnSURE Touch	6	3	1	0	0	0.4 fmoles
	SuperSnap (RLU)					
EnSURE Touch	13	8	3	1	0	0.1 fmoles
Other Hygiena tests						0.2 - 0.8 fmoles

Repeatability

Repeatability indicates the ability of the instrument and the swab chemistry to deliver consistent measurements for the same sample/concentration multiple times. Results over 90% are considered excellent. Results obtained with EnSURE Touch demonstrated between 95.1% and 97% repeatability. Previous Hygiena instruments had shown 90% -93% repeatability. Repeatability is often reported using a coefficient of variation (CV), which is the ratio of the standard deviation to the mean. Lower CV values indicate less variation between test runs. EnSURE Touch showed CVs between 3.0 and 4.9% while other systems had higher CVs. (**Table 2**).

Table 2

CV%	Reproducibility%	
4.9	95.1%	20 fmoles
4.4	95.6	200 fmoles
4.6	95.4	2,000 fmoles
3.0	97.0	All data
Other instruments (EnSURE, SystemSURE Plus)		
7-10	90-93	All systems

Ease of Use/ Simplified Operation

While linearity, sensitivity, and repeatability are essential features for accurate ATP monitoring, ease of use is also important. EnSURE Touch utilizes the same advanced photodiode sensor technology as EnSURE, so the solid-state detector will not be affected by drops or shakes. In addition, EnSURE Touch is powered by a rechargeable Lithium-ion battery with USB-C charging capabilities, rather than two standard AA batteries which require periodic replacement (found in the original EnSURE or SystemSURE Plus devices). Also, EnSURE functions like a smartphone with easy touch-screen navigation through locations, plan, users and setting with just a few touches, even while wearing gloves. The original system relied on a simple keypad to bring up menu options, including up and down selection arrows and a standard LCD screen, which was not as user-friendly. Most importantly, EnSURE Touch utilizes private, cloud-based technology to directly interface with SureTrend Cloud via WiFi, without hard-wired connections, making it faster and easier to collect and share data for reporting. (The original system required a USB connection to transfer data for analysis and reporting).

Conclusion

The EnSURE Touch Monitoring System demonstrated complete linearity of RLUs through a range of ATP concentrations, with results at least comparable, if not superior to previous Hygiena luminometer systems. It showed high sensitivity and improved repeatability. EnSURE Touch's comparability with previous Hygiena instruments means its performance should be superior or identical to the EnSURE ATP System and SystemSURE Plus, which was extensively tested by [Silliker Laboratories](#) Inc. In this prior study, the SystemSURE Plus System showed superior linearity, sensitivity and repeatability over several competing instruments, demonstrating that Hygiena's luminometers, including EnSURE Touch, will produce superior results in any similar comparative study, as is demonstrated with our data above. Demonstrating improved linearity with high repeatability, high sensitivity and now an even easier user interface, EnSURE Touch can be used to replace existing original EnSURE or SystemSURE Plus systems for ATP monitoring.