

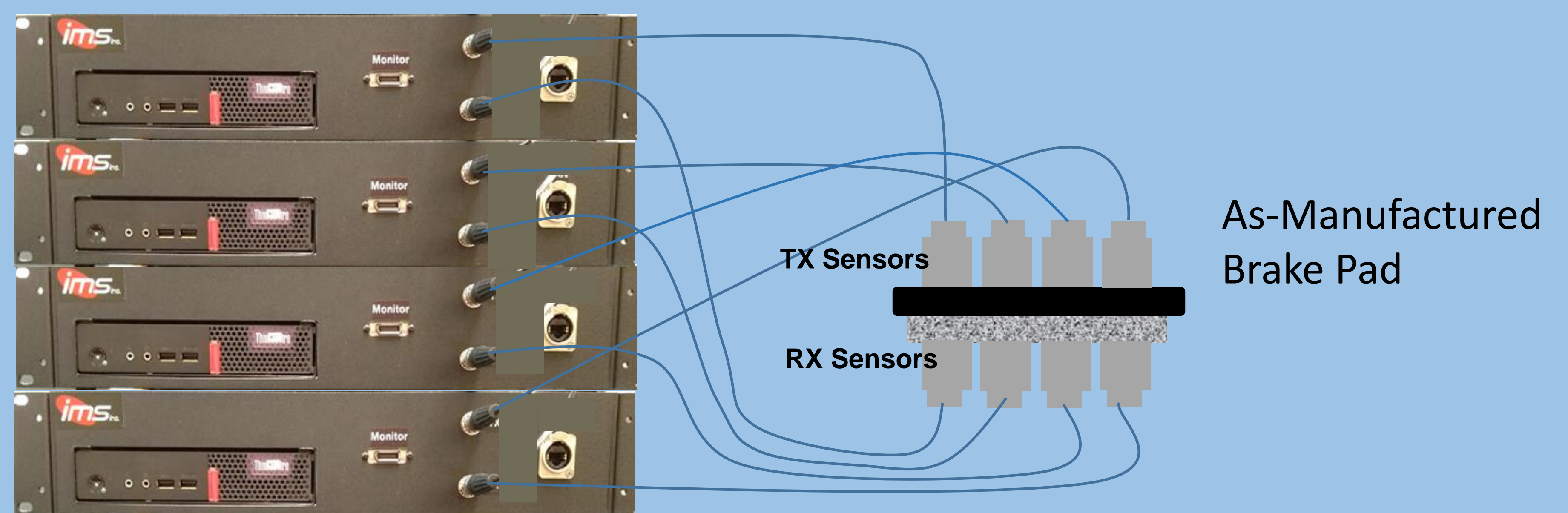


Dynamic Modulus Measurement on As-Manufactured Brake Pads using the Rapid iETEK in a Production Environment

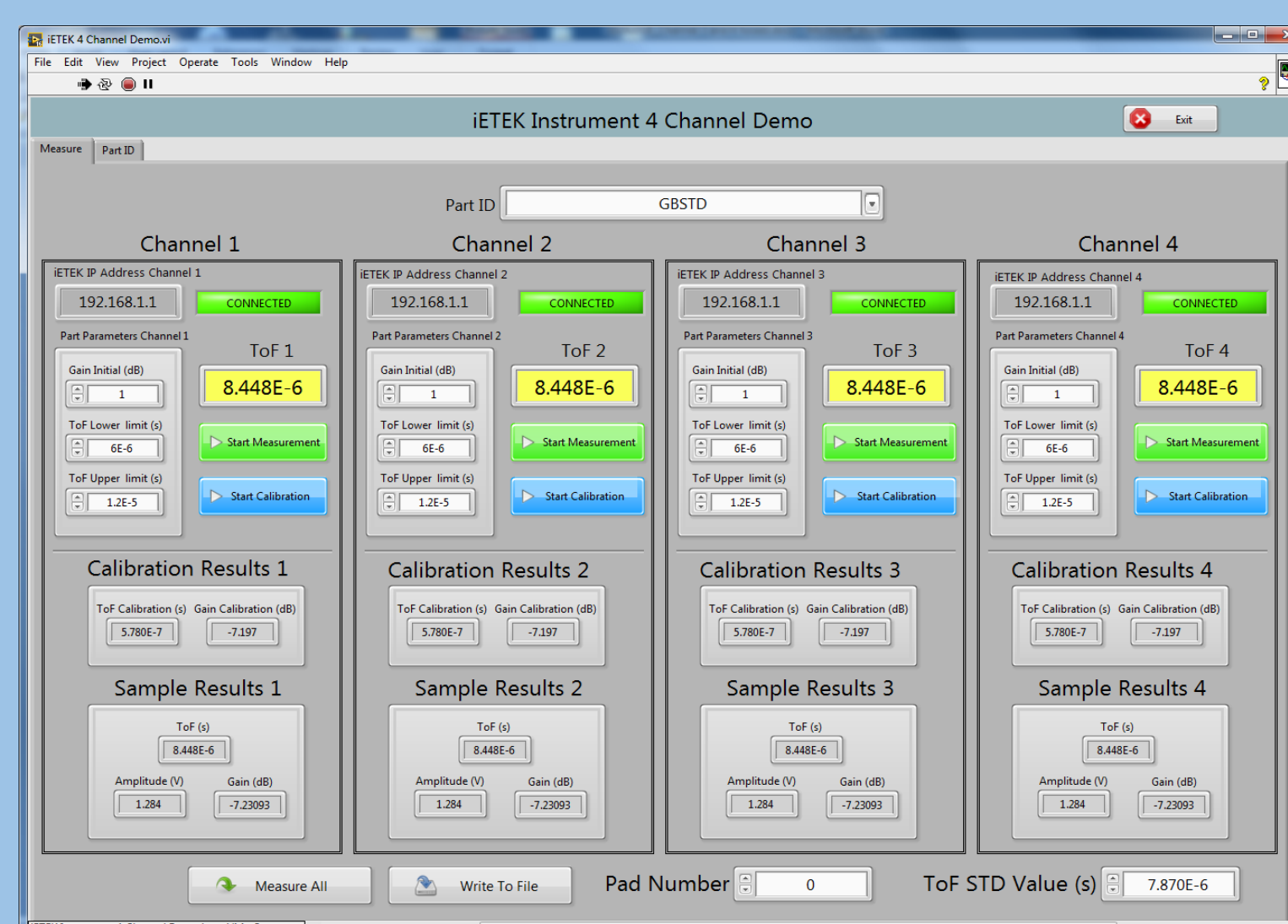
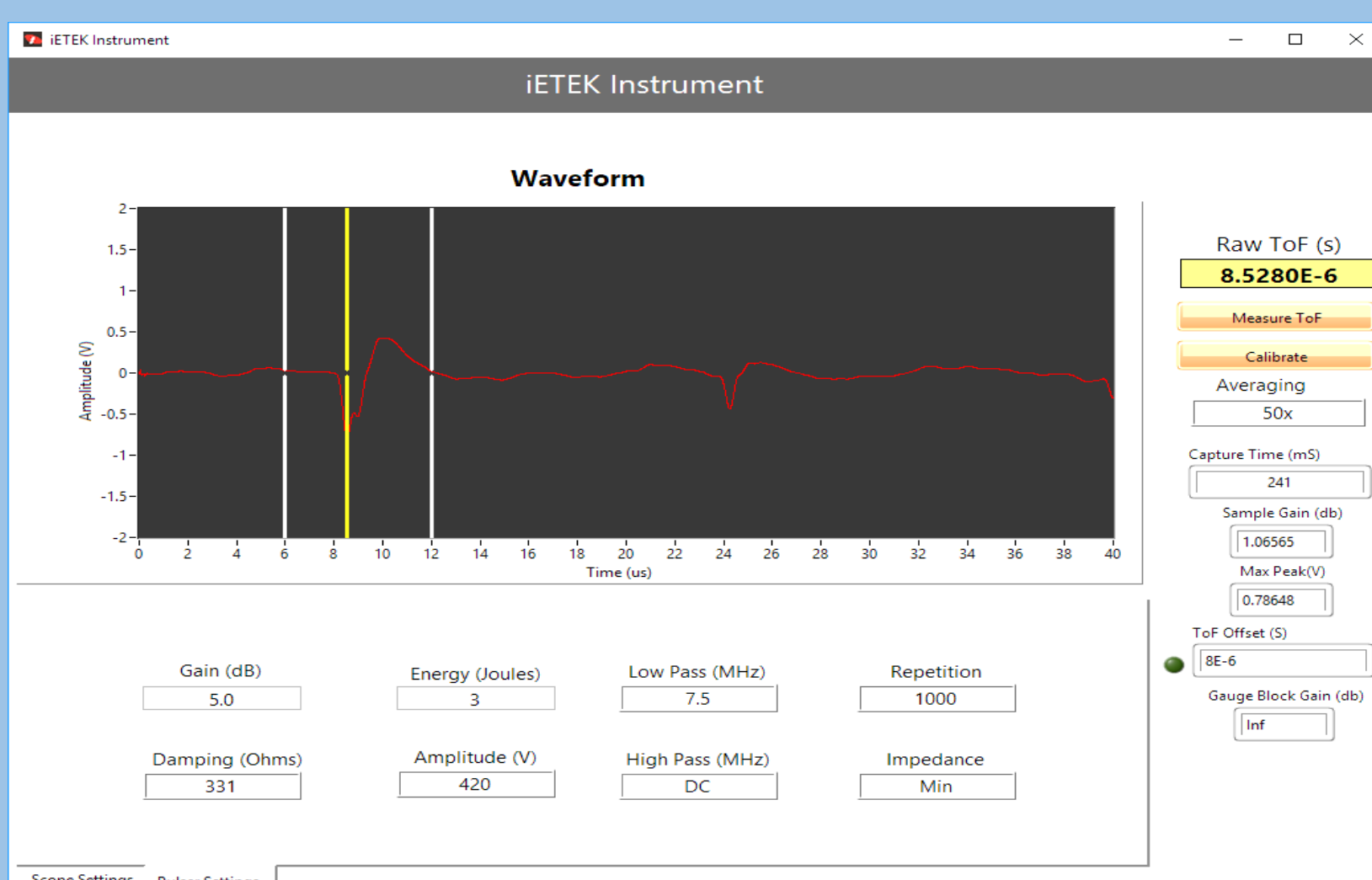
The Rapid iETEK, **RiETEK**, is a non-destructive, ultrasonic instrument used to measure uniformity and dynamic modulus in as-manufactured pads. **RiETEK** uses the same technology as the ETEK 3000 (SAE specification J2725). Measurement time is less than 300 milliseconds in a production environment. **RiETEK** is specifically designed for automation companies and system integrators as an essential component for in-line testing of automotive brake pads.

Inspection speed is limited only by the parts handling system. IMS Inc. works with system integrator and automation vendors to customize the parts handling to suit specific needs to make Rapid iETEK measurements in a production environment.

Modular RiETEK units allow simultaneous measurement of multiple positions per brake pad



The **RiETEK** is a quality control tool for spatial uniformity and batch-to-batch consistency. No sample preparation is required and all sizes of pads can be measured.



	A	B	C	D	E	F	G	H	I
1	Channel #	Pad ID	Position	Raw ToF (us)	ToF Offset (us)	Initial Gain (dB)	Amplitude (V)	Sample Gain (dB)	GB Gain (dB)
2	Channel 1	1	1	14.440	0.678	27	0.6093	25.283	2.435
3	Channel 1	1	2	14.808	0.678	27	0.4488	27.939	2.435
4	Channel 1	1	3	14.680	0.678	27	0.5591	26.029	2.435
5	Channel 1	1	4	14.224	0.678	27	0.5457	26.240	2.435
6	Channel 2	2	1	14.648	0.683	27	0.3857	29.254	3.900
7	Channel 2	2	2	14.824	0.683	27	0.3376	30.411	3.900
8	Channel 2	2	3	14.728	0.683	27	0.3503	30.091	3.900
9	Channel 2	2	4	14.272	0.683	27	0.3282	30.656	3.900
10	Channel 3	3	1	14.672	0.686	27	0.5207	26.647	1.239
11	Channel 3	3	2	14.896	0.686	27	0.3332	30.524	1.239
12	Channel 3	3	3	14.856	0.686	27	0.4582	27.758	1.239
13	Channel 3	3	4	14.472	0.686	27	0.5286	26.518	1.239
14	Channel 4	4	1	14.192	0.715	27	0.4791	27.370	1.857
15	Channel 4	4	2	14.280	0.715	27	0.3078	31.214	1.857
16	Channel 4	4	3	14.344	0.715	27	0.4056	28.818	1.857
17	Channel 4	4	4	13.872	0.715	27	0.4339	28.231	1.857

Processor Control and Monitor Functions provided for initialization and Part ID files control parameter initialization

Example of 4-channel Interface to measure 4 positions simultaneously per brake pad.

RiETEK Test Data for Modulus Calculation and Signal Loss written to Excel file.

RiETEK Components: Each unit consists of an ultrasonic system, including specifically designed sensors, high-speed A/D, Processor and Modbus TCP communication software used to initiate the measurement and transfer the test results to a host computer.

