

TOYOTech launches “BlueBox,”
a mobile EMC motor test bench compliant with
CISPR 25 Ed.4 for EV and HV motors

- Installable in an existing chamber and enables cost reduction -

January 8, 2018 - TOYOTech (HQ: Fremont, California USA, CEO: Bo Han), a supplier of cutting-edge measurement solutions from around the world including unique products and solutions developed by TOYO Corporation in Japan (TOYO) launched on December 20th “BlueBox,” a mobile motor test bench for EMC testing manufactured by Frankonia Germany EMC Solutions GmbH (HQ: Heideck, Bavaria Germany), a leading worldwide supplier of EMC test facility and equipment.

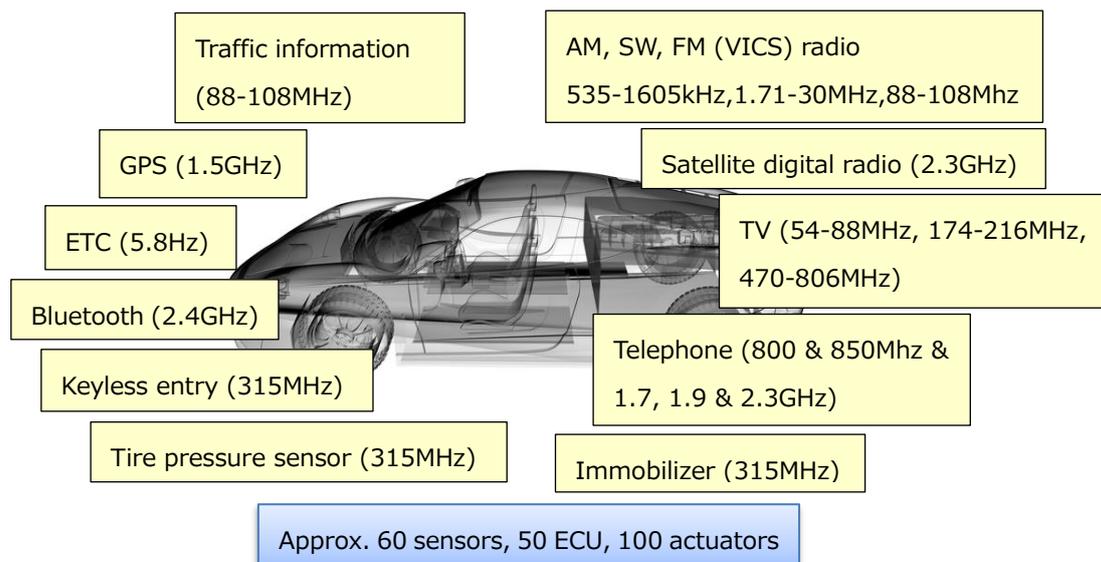
“BlueBox” is a mobile EMC motor test bench, which enables you to perform EMC test compliant with CISPR25:2016 (Edition 4) (international standard published by CISPR*¹ that defines the limits and methods of measurement for the protection of on-board receivers) using the existing facility and without having to build a new and costly large anechoic chamber. With increased popularity of electric vehicles and hybrid vehicles (EV and HV) in the future, the need for the above-mentioned EMC test on on-vehicle electronics for EV and HV (powertrain components) is expected to rise.

TOYO, the parent company of TOYOTech, has 40-plus-year experience in EMC testing and is one of the frontiers in this field in Japan. Using the strength of having many iNARTE-certified EMC engineers*², we propose not only stand-alone test instruments, but also test solutions that best suit the need of individual customers. TOYOTech also launched EMC business in the United States in 2016.



<Mobile EMC motor test bench "BlueBox">

EMC stands for Electromagnetic Compatibility and represents electronic instruments and systems' capability of not emitting to other instruments electromagnetic interference (electromagnetic wave noise at the level that affects the equipment and humans) and of working as designed without causing performance deterioration or malfunction. Taking insufficient measures against EMC issues may lead to serious or even fatal accidents. Among the instruments having highest concern over such a risk are on-vehicle electronics. In addition to the fact that a lot of electronics are installed close to each other on the automobile, they include both receivers sensitive to electromagnetic interference and transmitters outputting high-level signal, which, as a result, creates a harsh environment to ensure EMC.



<Example of on-vehicle receivers and transmitters>

CISPR25, originally published in 1995, is international standard that includes definitions of EMC measurement methods for on-vehicle electronics, and the latest revision, CISPR25:2016 (Edition 4) was published in October 2016 after adding descriptions on testing of EV and HV electronics. As the future ban on the sales of petrol and diesel cars announced in Europe suggests, the replacement of those cars with EV or HV has been accelerating there. The same also applies to U.S., and the test compliant with CISPR25 Ed.4 would be increasingly required along with this trend.

For conducting this test on motors, inverters, charging systems or other systems that are connected to high-voltage DC power supply or AC power, a load system (dynamometer) is needed. As the traditional fixed-type load system generates electromagnetic interference wave, however, it has to be installed outside of the anechoic chamber and so a large chamber specifically for this test needs to be newly built.

Meanwhile, “BlueBox,” a compact and mobile system, can easily be installed in an existing chamber and help reduce test time and cost as it does not generate such noise and allows you to conduct the test quickly by eliminating the need to secure land and funds to build a new chamber. It also contributes to the reduction of cost, required number of manhours and test time by allowing you to carry out the test within your organization.

TOYOTech is a wholly owned subsidiary of TOYO, who is one of the pioneers in the EMC test field in Japan and has been active in this field for more than 40 years with proven track record – it has delivered more than 1500 systems and 2500 licenses of its own EMC test software to public organizations, EMC test houses and many other customers around the world. One of the strong points of our team is the capability of proposing a comprehensive solution covering from the environment to operation that fulfills your purpose and request. Furthermore, our team’s active involvement in activities at EMC standardizing bodies enables us to grasp the latest information on the standard in a timely manner and quickly reflect it on our own software for the benefit of our customers.

Key features of “BlueBox”

“BlueBox” is a mobile EMC motor test bench compliant with CISPR25:2016 (Edition 4) for powertrain components and can replace the large traditional facility with a fixed-type dynamometer installed externally.

- Radiated Emission (EMI): Full compliant according to CISPR 25 Ed.4
- Radiated Immunity (EMS): Full compliant according to ISO 11452-2
- Load machine (dynamometer) available as a mobile version from 32kW up to 120kW
- Additional battery simulation up to 1,000V, 350kW and 600A available
- 360 degrees EMC test with position on a turntable, or in combination with CISPR test table
- Test setup preparation outside the EMC chamber possible, Plug&Play function
- Bulk body of BlueBox can be considered as a vehicle structure
- Highest European safety standards
- Integration kit for existing chambers available

Product Specifications

BlueBox – Power Range and Specifications				
Version:	BlueBox-30	BlueBox-40	BlueBox-63	BlueBox-120
Power range (kW)	30	40	63	120
Speed max. (1/min)	8.000	7.000	6.500	6.000
Acceleration (rad/s ²)	100	100	100	100
Torque (Nm)	82	130	240	470
Input Power (A)	63	95	125	2x120
Weight (kg)	1.000	1.300	1.700	2.500
Payload (kg)	800	1.000	1.000	1.400
Dimension (m)	2,0 x 1,3 x 1,3	2,2 x 1,3 x 1,3	2,5 x 1,3 x 1,3	2,8 x 1,6 x 1,3

Product Data

Product name: Mobile EMC Motor Test Bench - “BlueBox”

Launch date: 12 20, 2017

*1 International Special Committee on Radio Interference of IEC (International Electrotechnical Commission) established in 1934

*2 iNARTE EMC Engineer, a qualified engineer certified by iNARTE (International Association for Radio,

Telecommunications and Electromagnetics) – this is an international technical certification that started in 1988 and that qualifies the engineer’s knowledge and skills on EMC.

About Frankonia Germany EMC Solutions GmbH

Frankonia (HQ: Heideck, Bavaria Germany) is a worldwide leading supplier having 30 plus years of experience in planning and realizing EMC test laboratories. Since its foundation in 1987, it has rapidly grown through the manufacturing of large anechoic chambers and RF shielded rooms based on innovative concept and the development of new technologies for RF absorbers. Frankonia is one of a few suppliers that can manufacture all important shielding products ranging from RF/microwave absorbers to doors and gates.

Frankonia Germany EMC Solutions website: <http://frankonia-solutions.com/>

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