中汽中心 | 检测

中汽研新能源汽车检验中心（天津）有限公司

Proposal of RF immunity test below 20MHz

2022-03

Shortwave station scene in real environment

Many similar radio station scenes in China

The transmission frequency is **below 20MHz**, coexistence of multiple frequency signals

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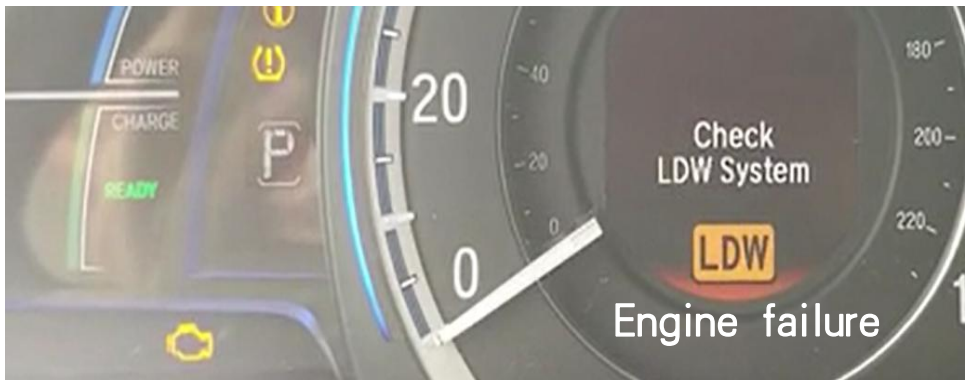
Vehicle failure in shortwave station scene



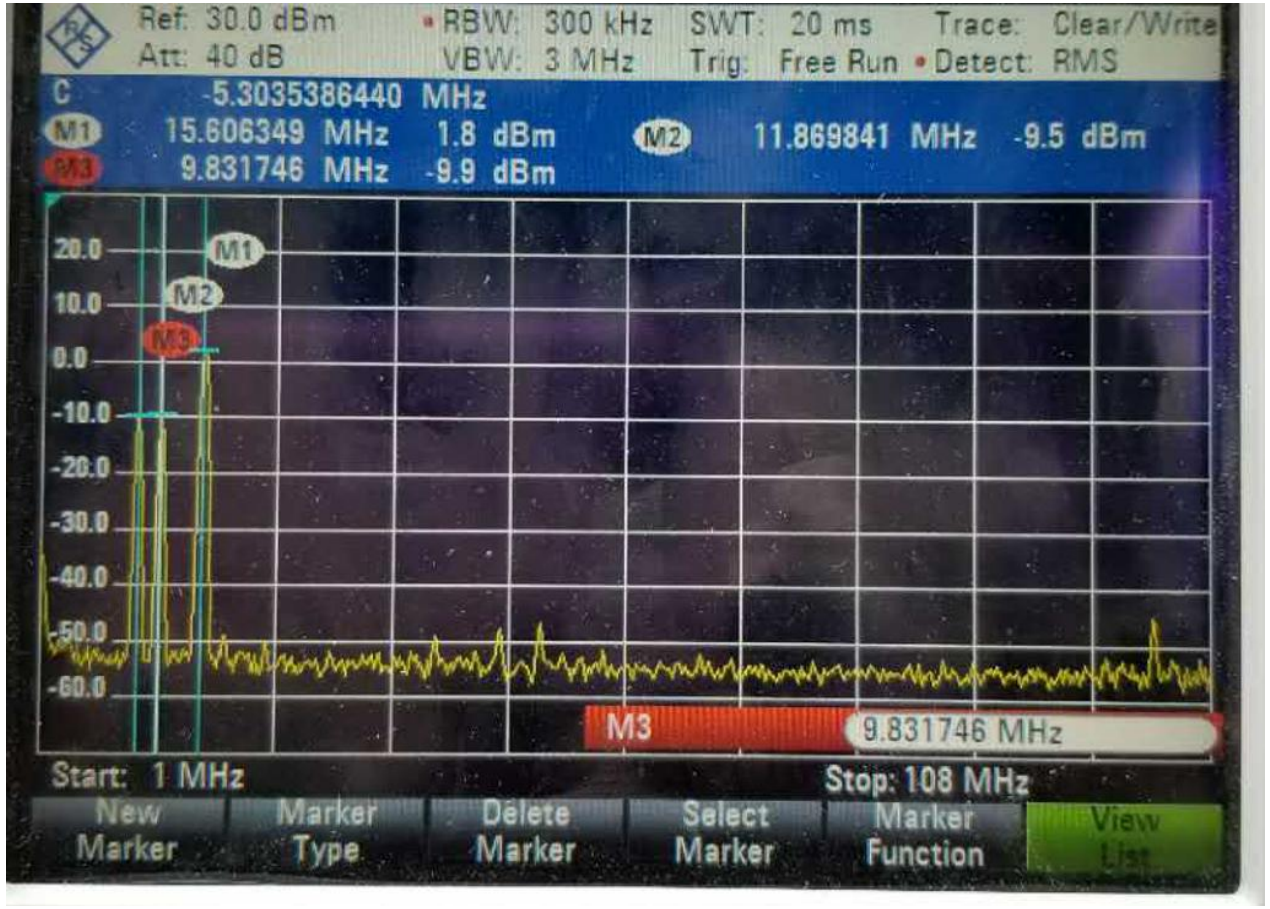
- Power steering system failure
- Reversing camera failure
- Wiper failure
- Cruise control failure

Safety driving

Driving experience

Radiated immunity test **below 20MHz** is necessary

Our research in EME



Spectrum on the road near shortwave station

The *specific* topic of this paper is extending or developing the existing continuous radio-frequency (RF) immunity test methodologies to cover the simultaneous presence of two or more frequencies, at significant levels, in the real-world EM environment, so that they cover intermodulation possibilities.

RF immunity test with multiple RF signals has been taken into consideration in IEC 61000-4-3 edition 4 for reducing test time

ISO/TC22/SC32/WG3 N xxxx
Date: 2021-12-17

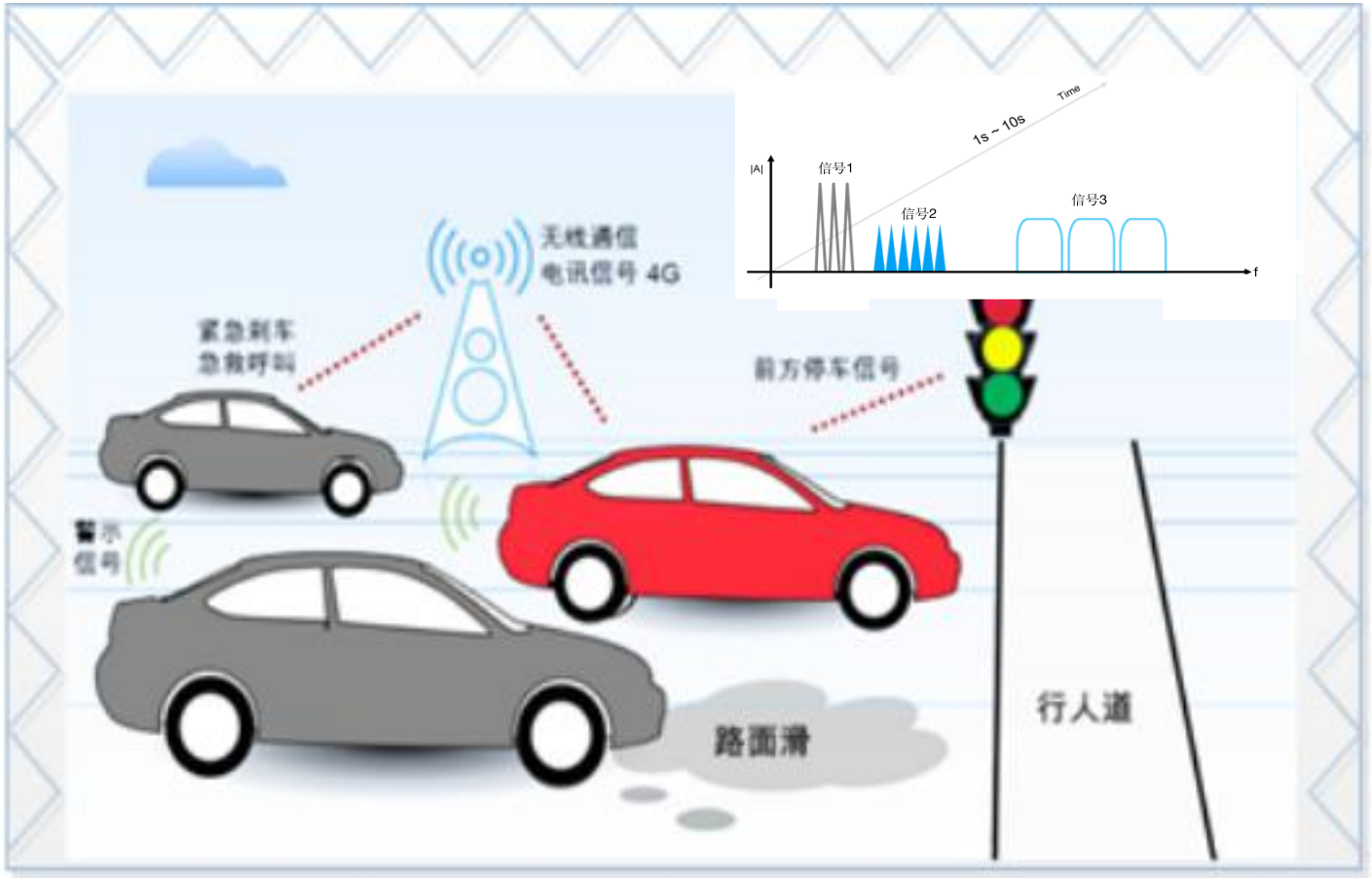
ISO 11451-2 / 202x
Road vehicles — Vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy — Part 2: Off-vehicle radiation sources

SUBJECT: Proposal of multiple signals testing as a new annex.

REFERENCE DOCUMENTS: IEC 61000-4-3 Edition 4.0 Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency electromagnetic field immunity test

KR proposed multiple signals testing in ISO 11451-2

Our research in EME



Record and playback of electromagnetic environment signal

Through test in the lab and the application of some measures, EMC performance can be significantly improved in related scenes

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