

# **Possibility of frequency shift test on the road**

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# Study content



## ◎ Possibility of frequency shift test on the road

- Frequency shift test on the dynamometer
- Frequency shift test on the road
- Comparison of results of test on the dynamometer and road

## ◎ Minimum Level & Maximum Level

- Opinion on the Maximum Level

# Frequency Shift test at the Road

## ◎ Kinds of Frequency shift test

### Component test

- Need for separate equipment for speed change
- Verification of equipment – How would the speed change be verified?

### Indoor test

- Issue of certification of the dynamometer
- Measures for large vehicles (Insufficient capacity of the dynamometer)
- Issue of inputting of road load

### Test on the road

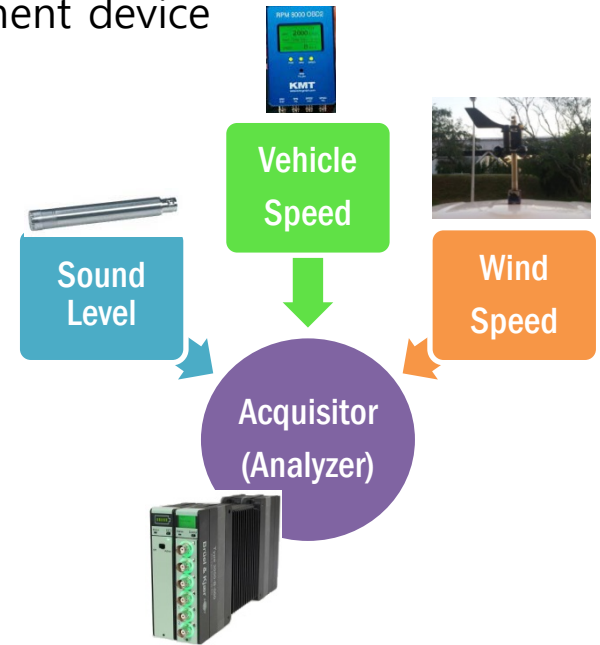
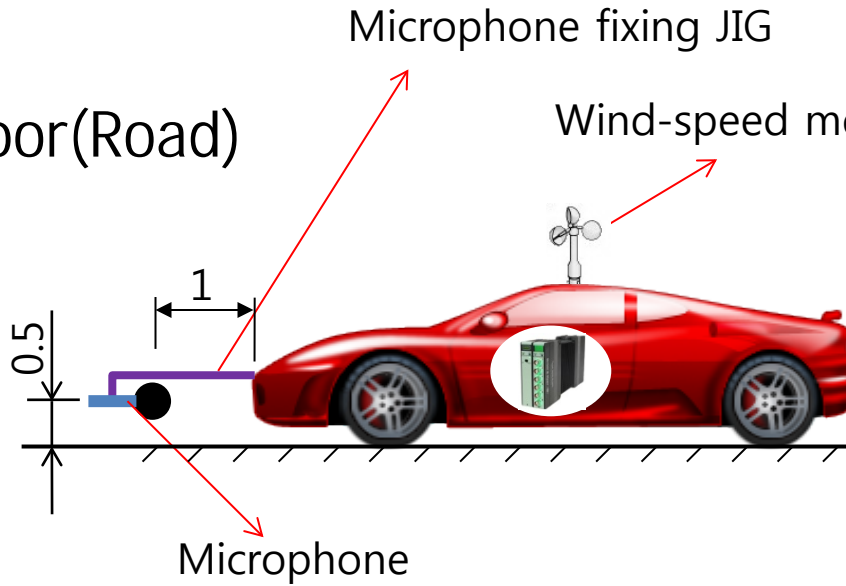
- Noise in the surroundings
- Effect of wind

# Test vehicles

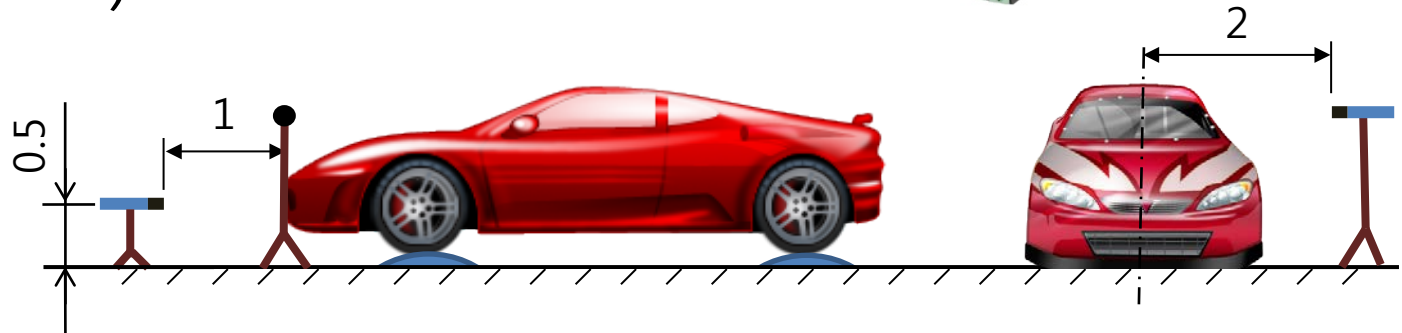
			
Vehicle name	CARENS	SANTAFE	LABO
Type	Passenger	Passenger	Truck
Fuel	LPG	Diesel	LPG
Displacement(cc)	1,999	1,995	796
Weight(kg)	1,520	1,760	760
Transmission	Automatic	Manual	Manual

# Concept

Outdoor(Road)



Indoor(Chamber)



# Test scene

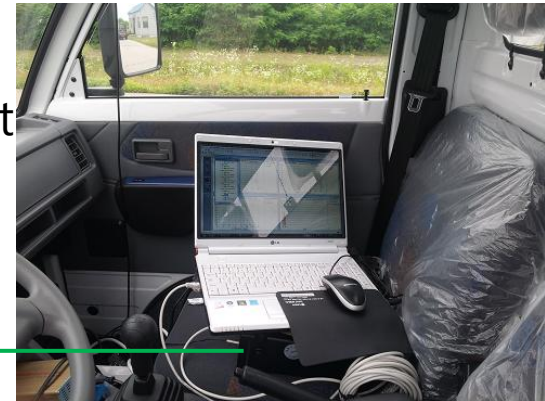
## Semi-anechoic Chamber



## Road



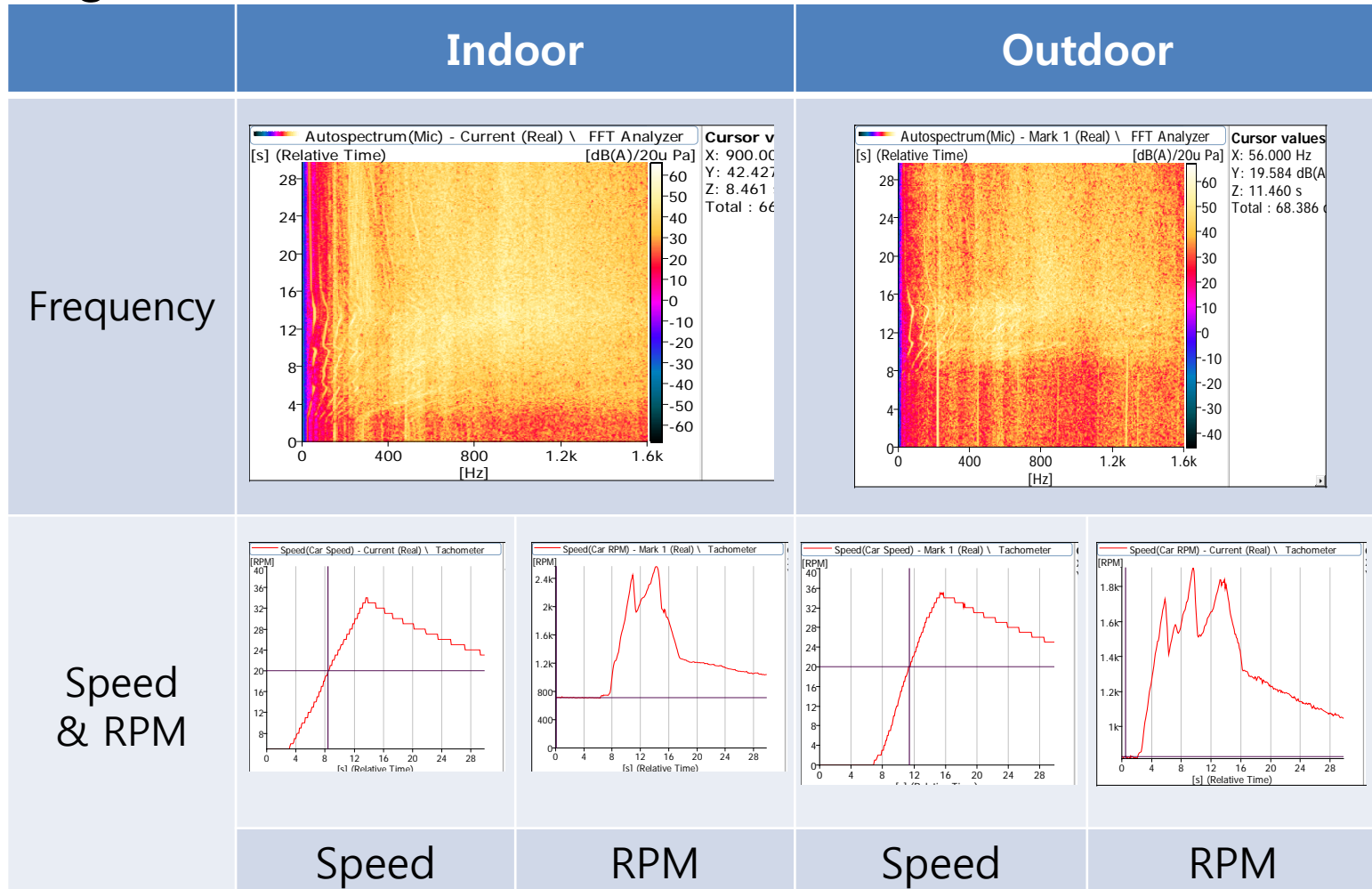
Speed measurement Device



Analyzer

# Test results - A Vehicle

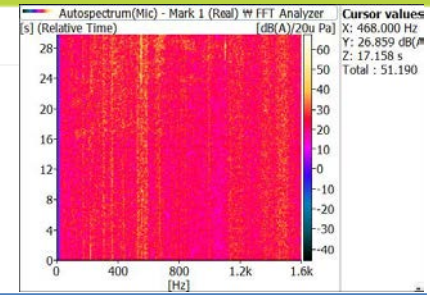
## ◎ D gear



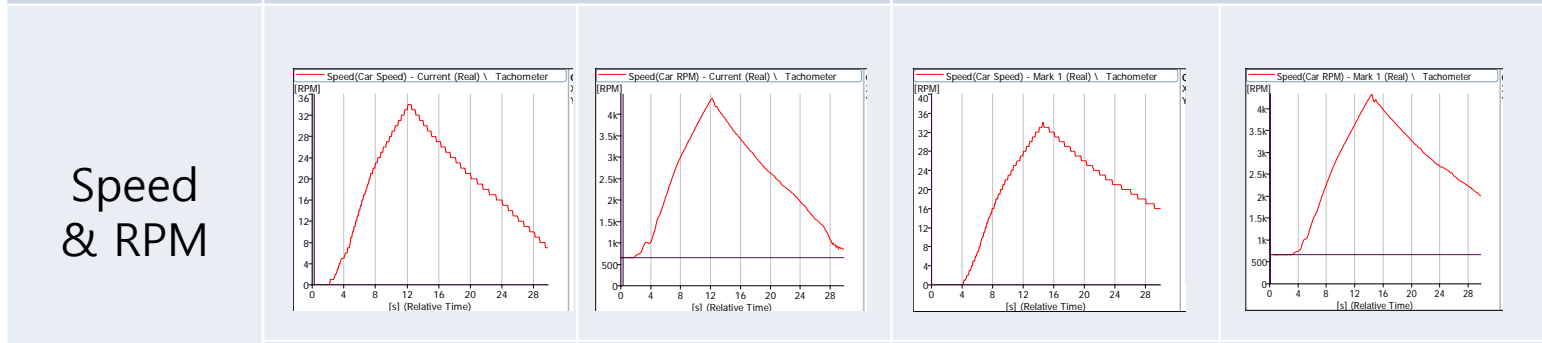
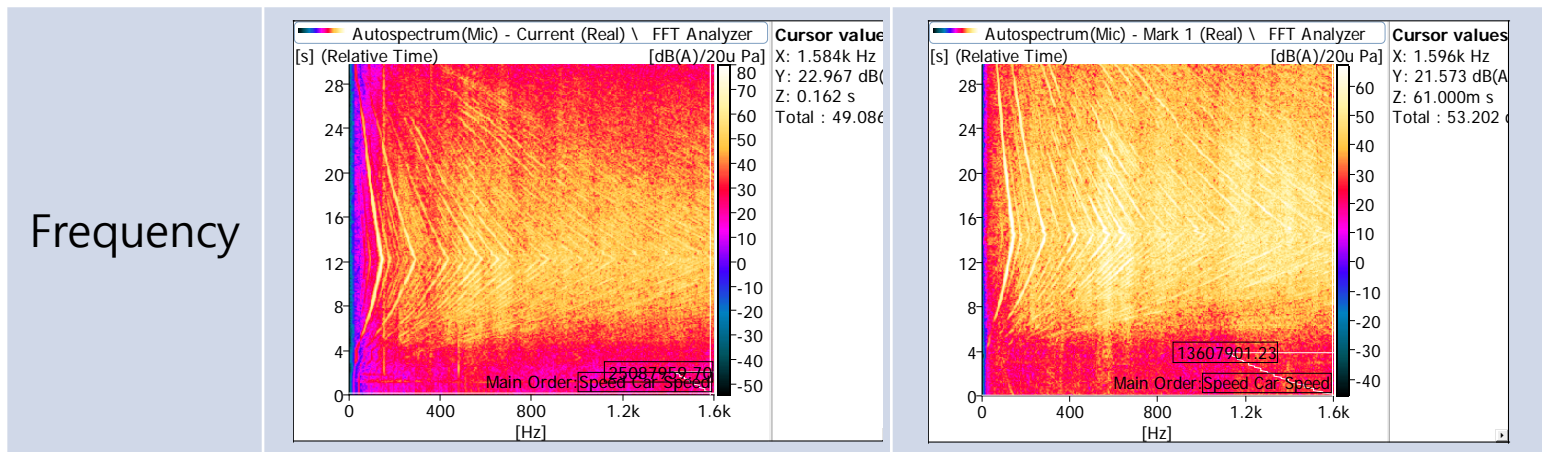


# Test results - A Vehicle

## ◎ 1th Gear



	Indoor	Outdoor
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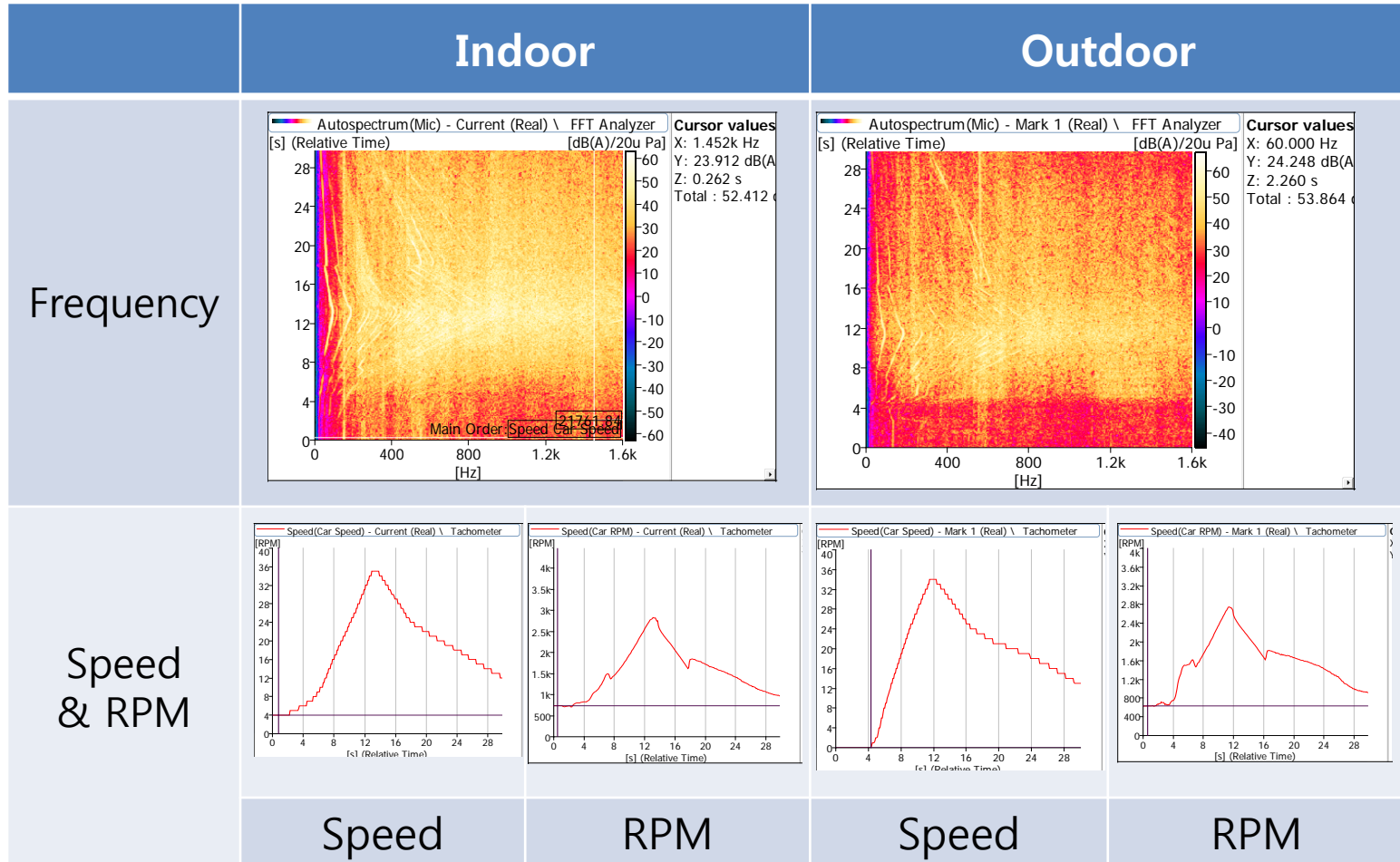


Speed	RPM	Speed	RPM
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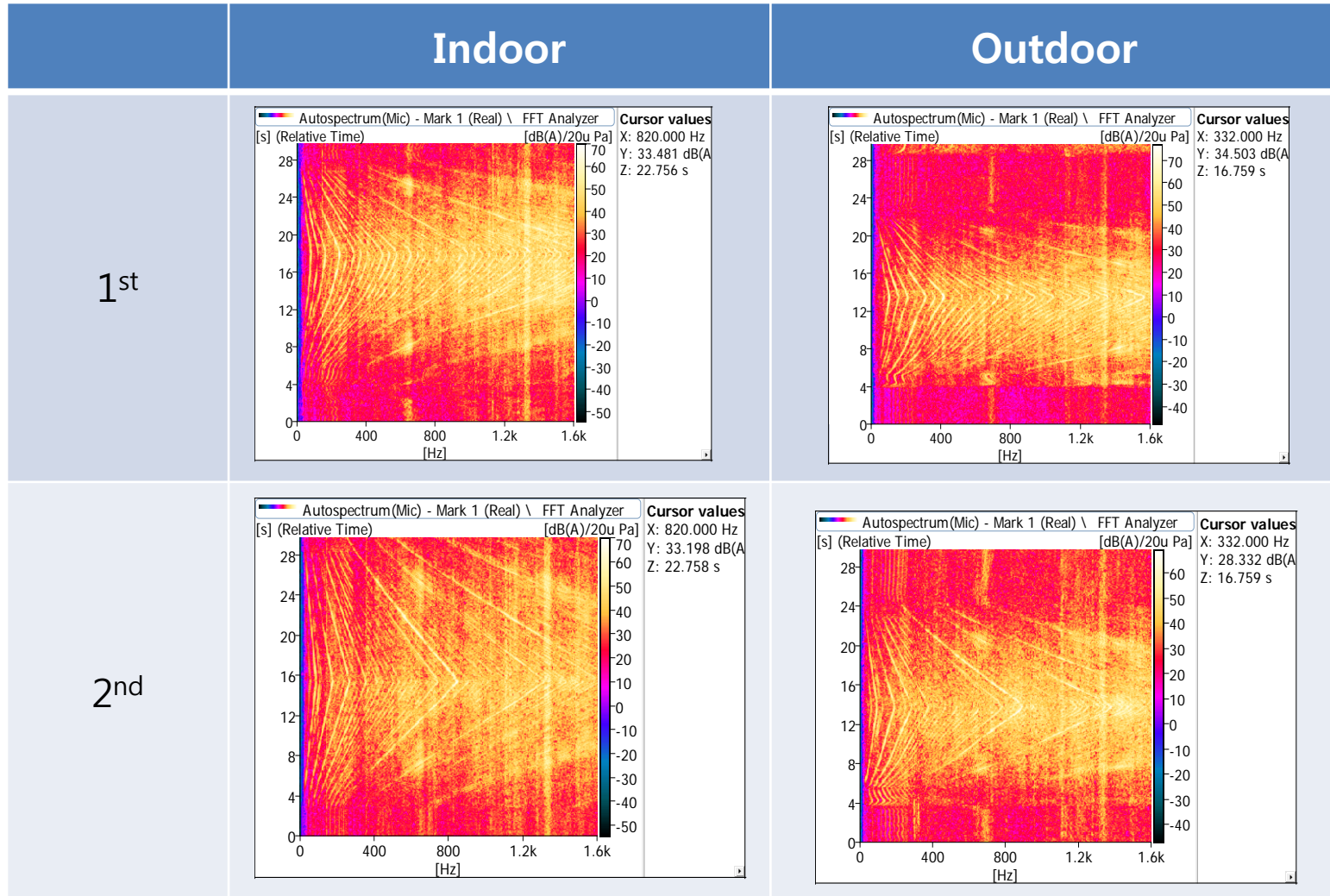
# Test results - A Vehicle

## ◎ 2nd Gear



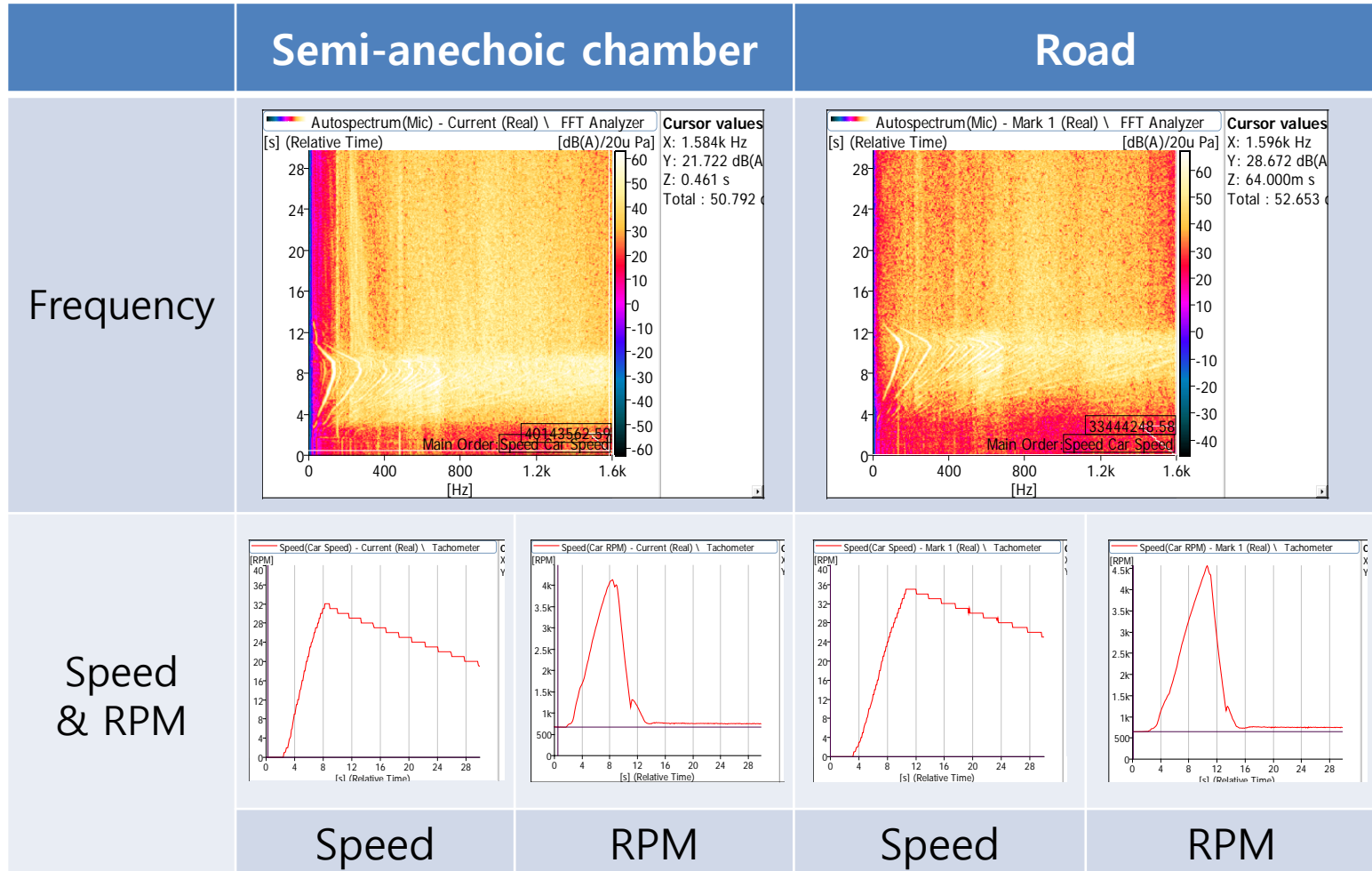
# Test results - C Vehicle

◎ Labo



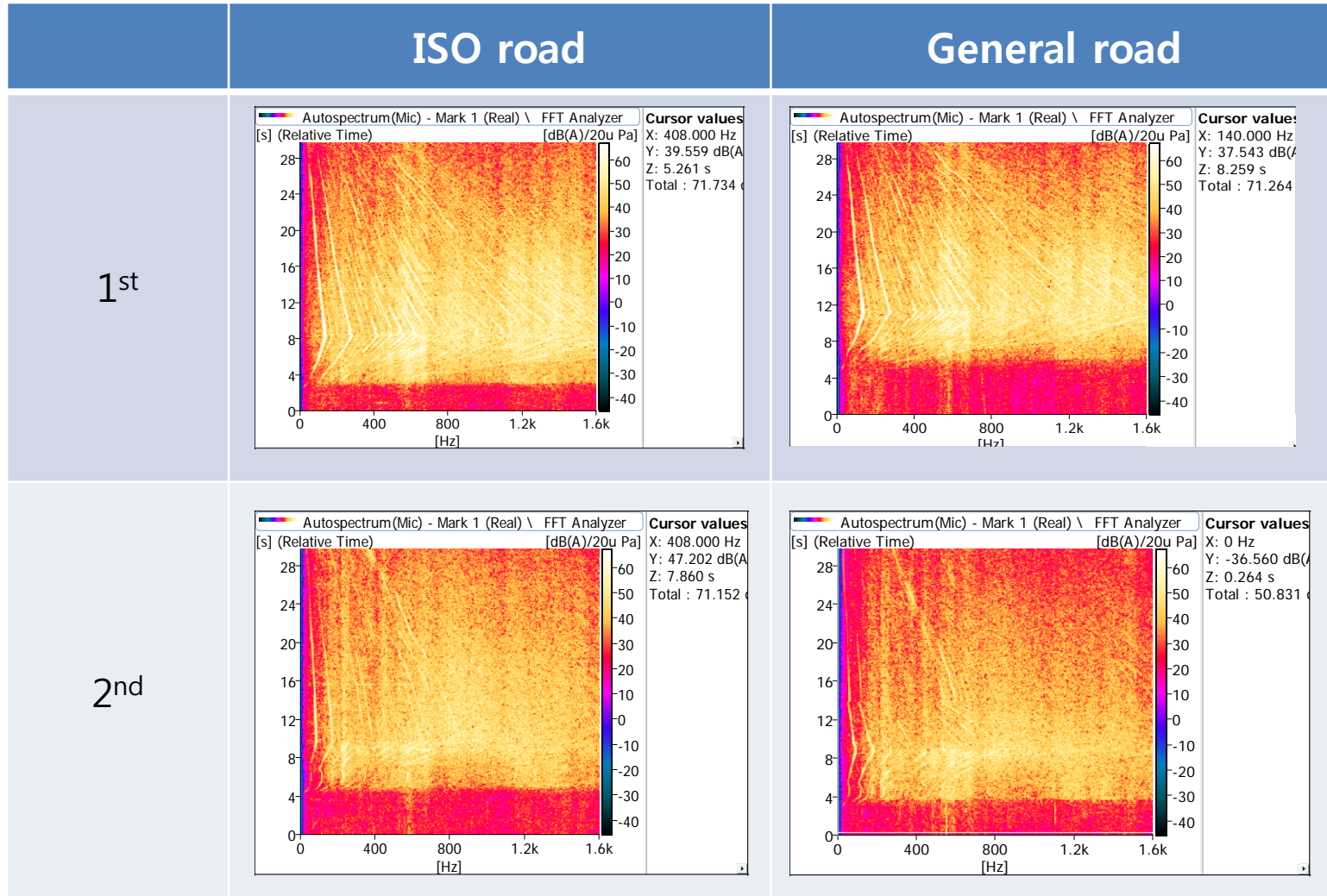
# Test results - A Vehicle

## ◎ Evaluation of the effect of wind



# Test results - A Vehicle

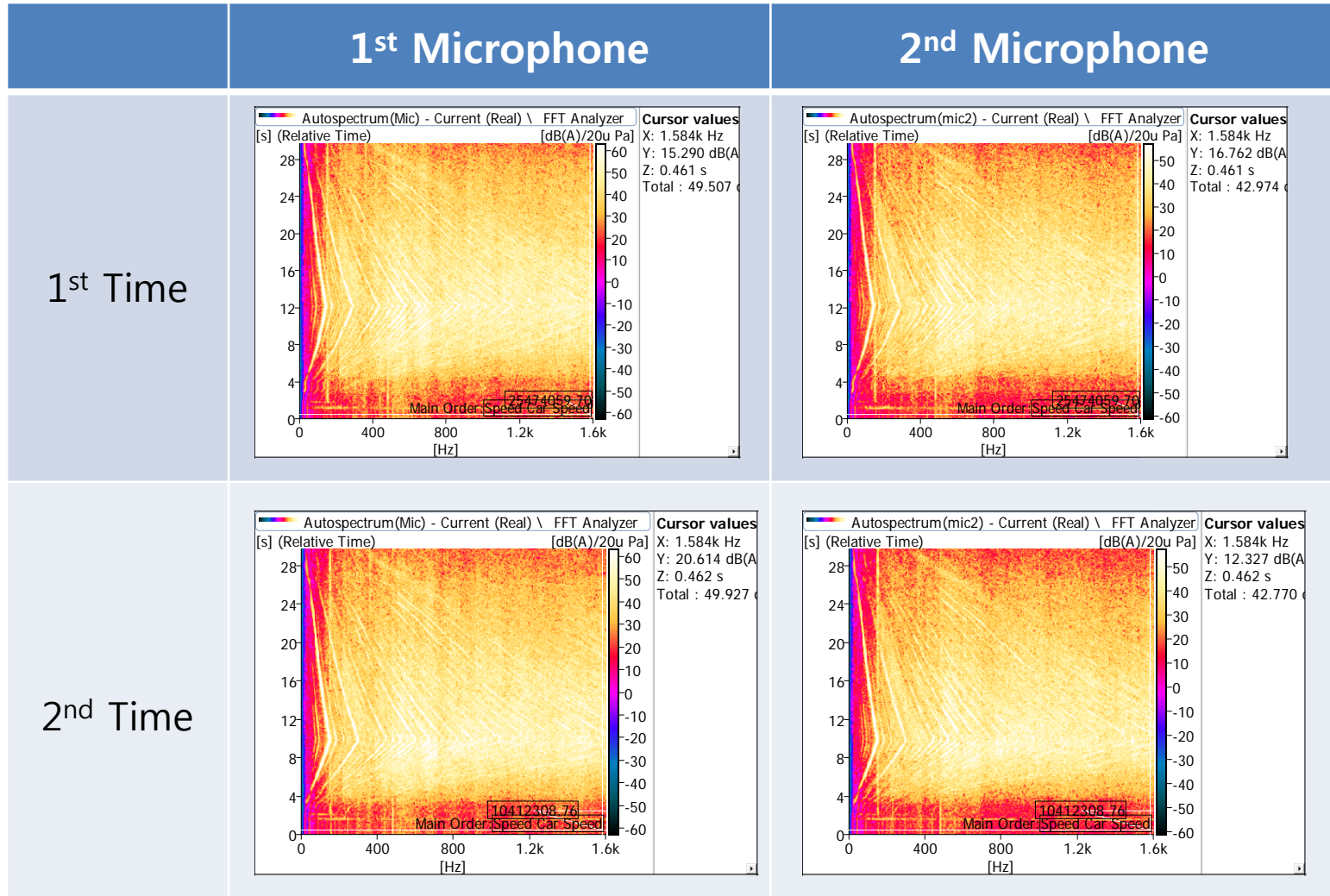
## ◎ ISO 10844 Road & General Road





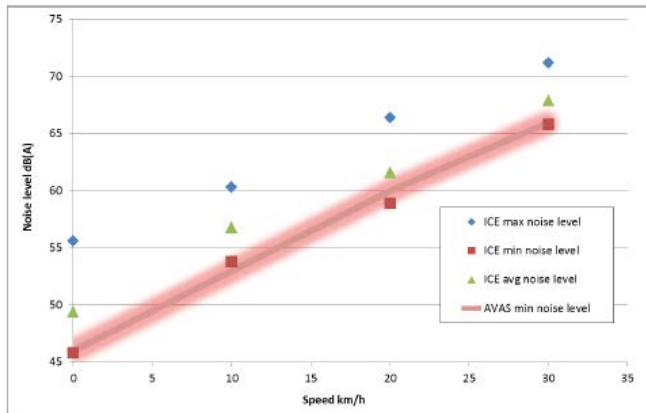
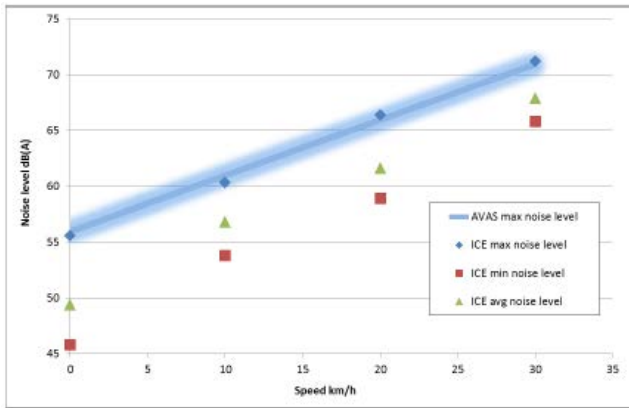
# Test results - A Vehicle

◎ Compare the microphones 1<sup>st</sup>&2<sup>nd</sup> (1<sup>st</sup> gear in chamber)

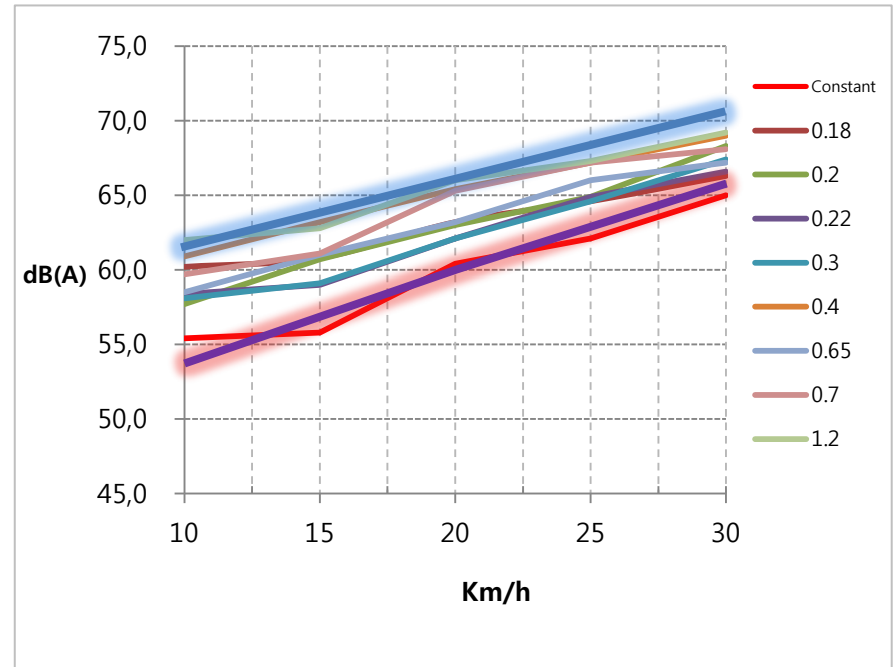


# Minimum & Maximum

## France



## Korea



# Conclusions

1. The results of test in anechoic chamber were similar to those of test on the road, and, accordingly, it is deemed that tests on the road are also possible.
2. Although there may be effects of wind on the road, such can considered as insignificant since the tests were conducted at relatively low speed, particularly because of the Frequency Shift Test examines the frequency shift in accordance with the changes in the speed rather than measuring the sound pressure level.



## Conclusions

3. When the results of our experiment on the sound pressure level introduced during the 2<sup>nd</sup> session with the values presented by France, they illustrate similar results. Therefore, I think the suggestion of France is suitable.
4. Korea wishes to set the limit values not only for the minimum level but also up to the maximum level.

Thank you  
for your attention!

