

China Proposal for Micro-Van and Micro-Truck



Micro-van and Micro-truck :

GVM \leq 2.5 ton

R-point height \geq 800mm from the ground
Mid-engine and with Rear axle drive

Limit value
74dB(A)

China's proposal is already
included in the document "**GRB-
59-04**" **Paragraph 6.2.2.1.6.**
highlighted in red.

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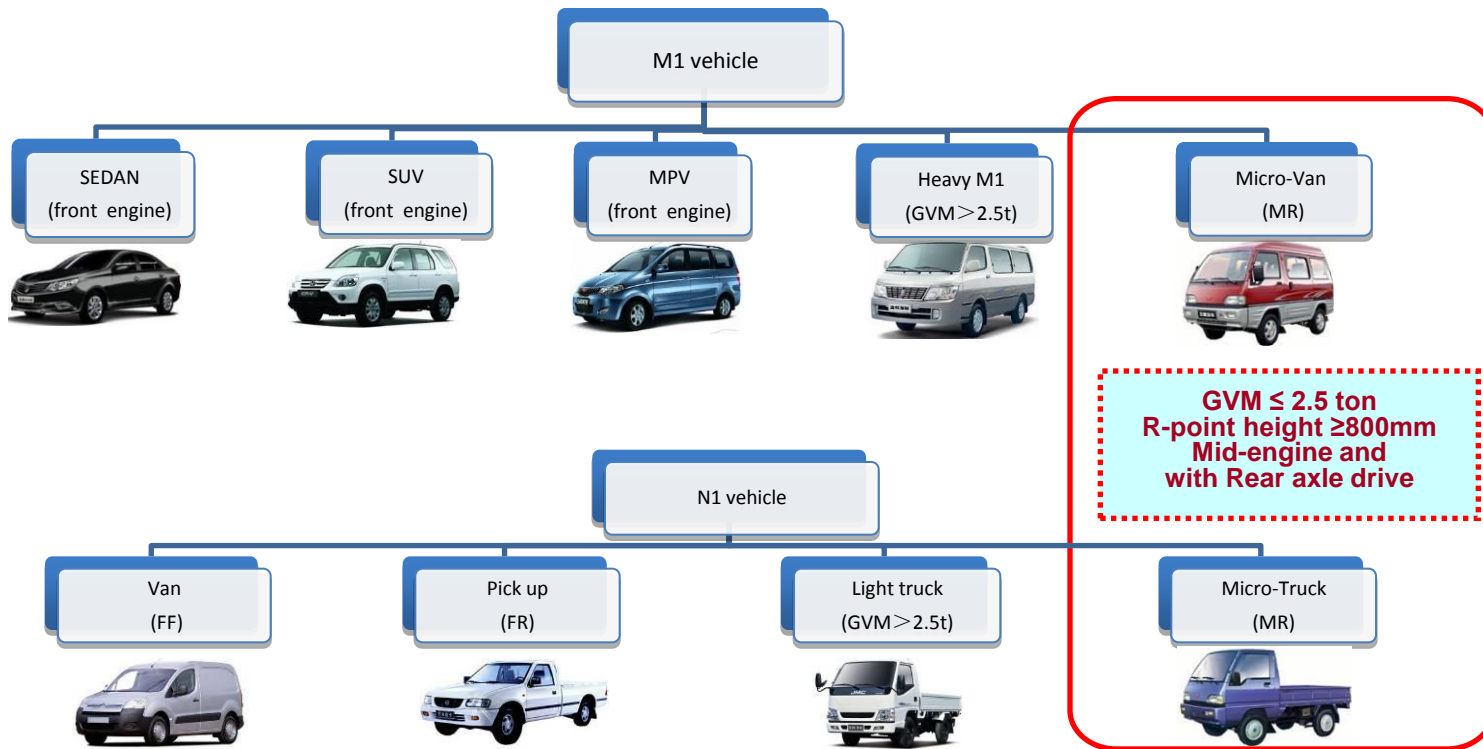
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What are Micro-Van and Micro-Truck?

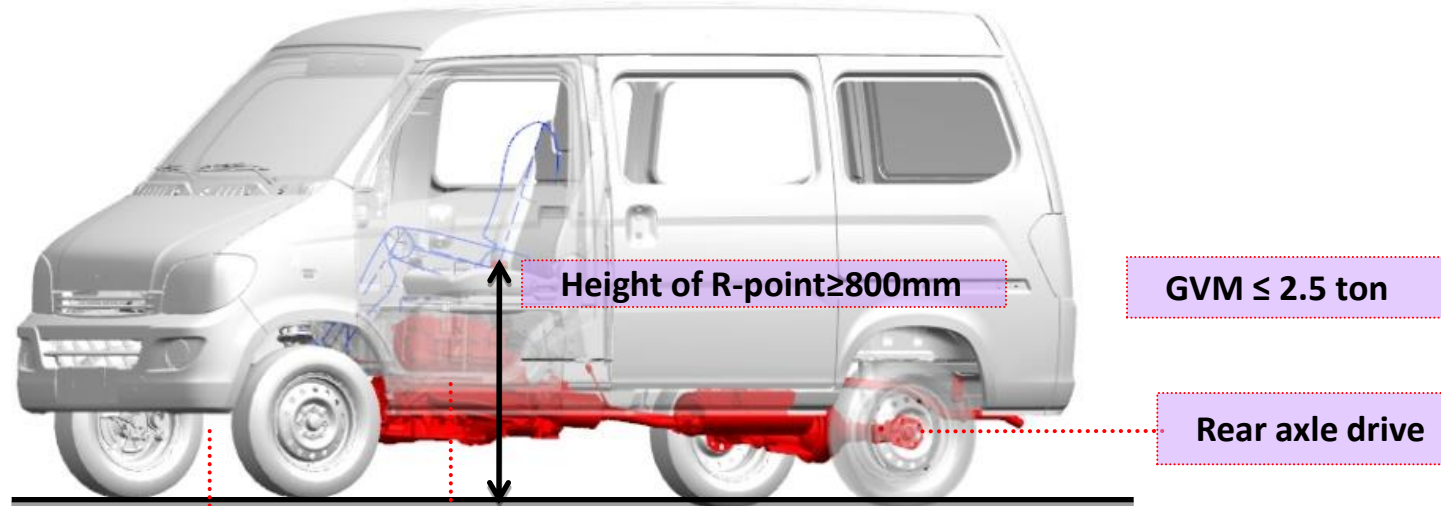
GVM ≤ 2.5 ton

R-point height ≥800mm from the ground

Mid-engine and with Rear axle drive



How to define Micro-Van and Micro-Truck?



Height of R-point $\geq 800\text{mm}$

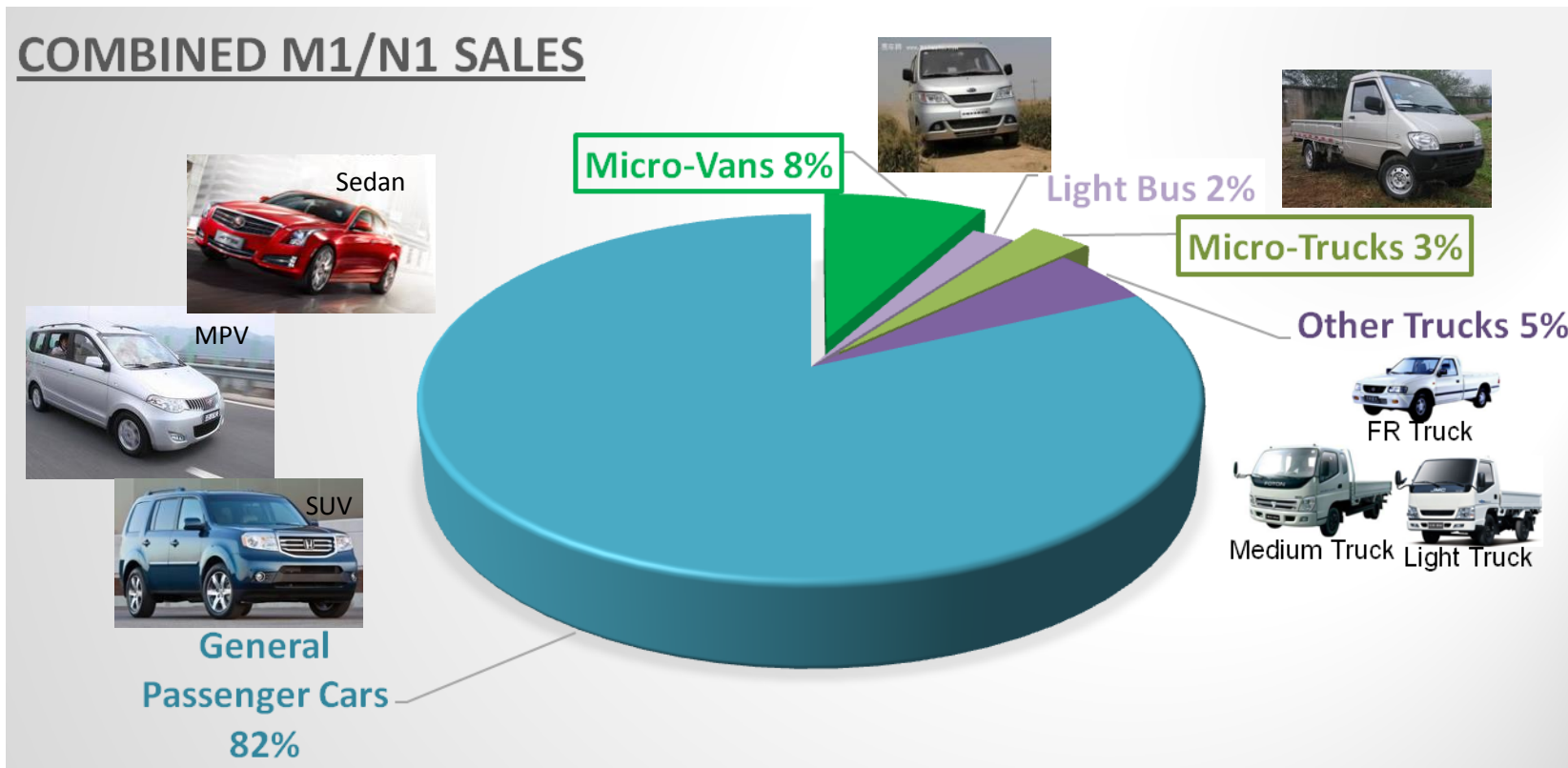
GVM ≤ 2.5 ton

Rear axle drive

Mid-engine: Center of gravity of engine is between the front and rear axles, and the longitudinal distance from center of front axle to center of gravity of engine $\geq 300\text{mm}$.

Market share of Micro-Van and Mirco-Truck in China(2013)

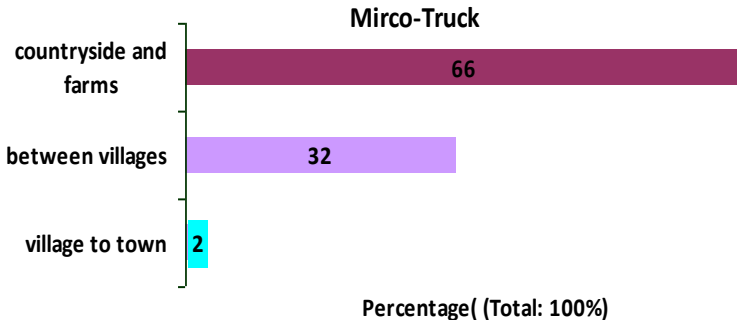
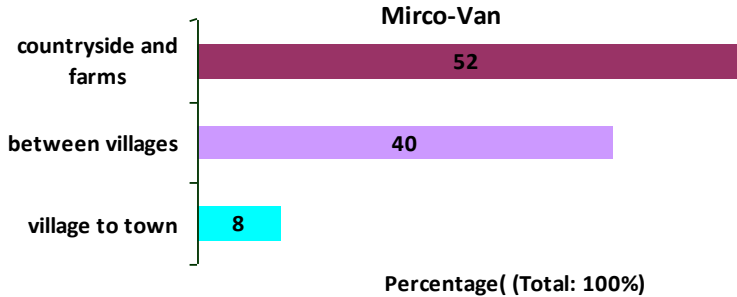
COMBINED M1/N1 SALES



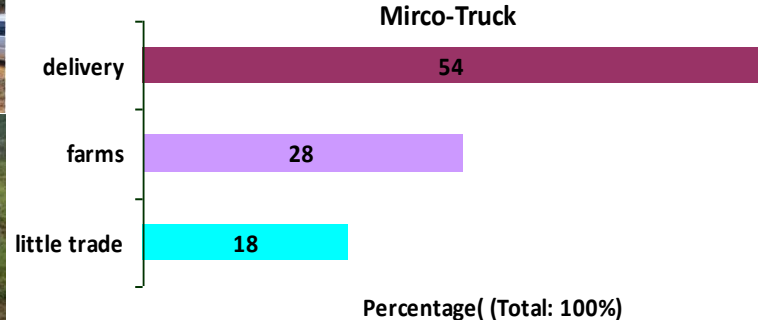
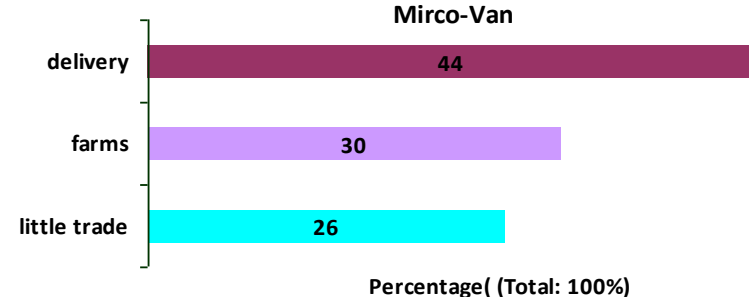
Total sales of vehicles: 22 million, M1 and N1: 20 million, Micro-Van and Mirco-Truck: 2.2 million

Micro-Van and Micro-Truck usage in China







By locations (%)



By usage (%)



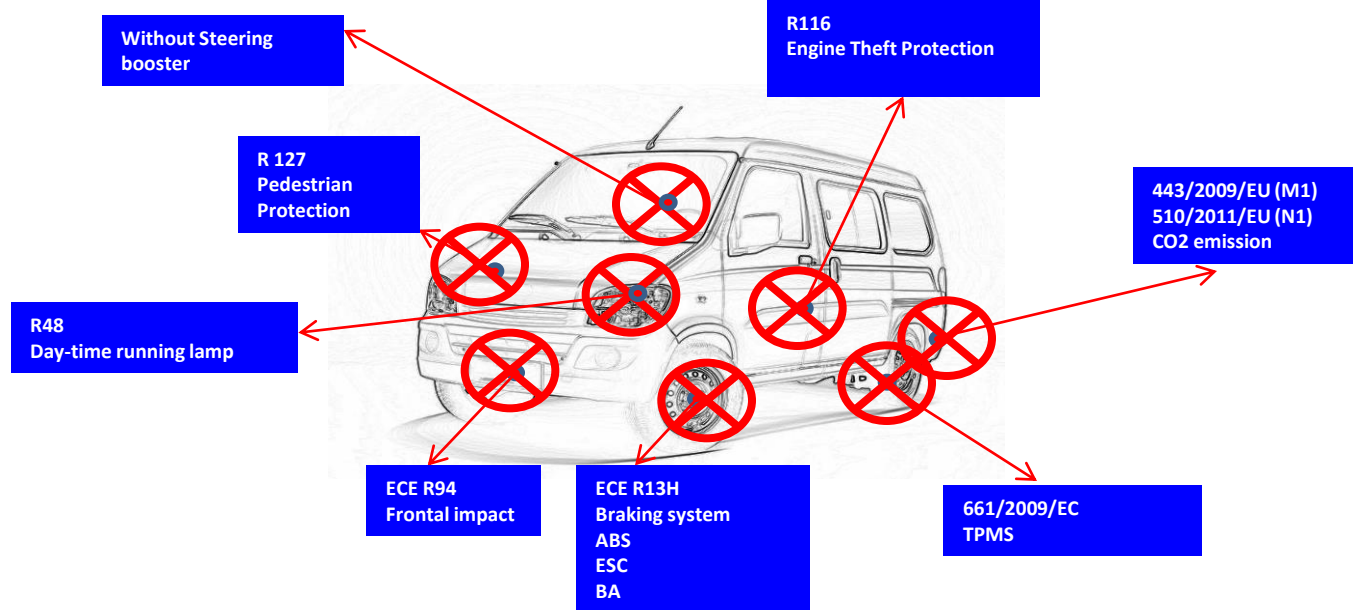
Micro-Van Micro-Truck and other vehicles Parameters Comparison

Model	SGMW Micro-Van	SGMW Micro-Truck	Renault Kangoo	PSA Partner	Japan Kei-truck	Piaggio Porter
Picture						
Dimension and Weight						
Exterior dimension OL/OW/OH(mm)	3810/1510/1820	4250/1510/1760	4010/1672/1860	4137/1960/1800	3395/1475/1735	3390/1395/1730
Cabin dimension OL/OW/OH(mm)	N/A	2500/1430/340	N/A	N/A	1700/1240/235	1760/1270/-
Wheelbase(mm)	2500	3050	2600	2693	1900	1810
Treads(F/R)(mm)	1290/1290	1280/1290	1400/1415	1420/1440	N/A	1205/1220
Kerb mass(kg)	955	920	1230	----	790	850-1100
Gross vehicle mass (kg)	1575	1720	1875	2054	1140	1500-2200
R Point(mm)	895	845	691	711-724	-	780-800
Powertrain						
Displacement(ml)	995	1051	1598	1560	658	1300, 1202
Max Power(kw/rpm)	47.5/5600	38.5/5200	70/5000	66/4000	37	52/5300, 47/3500
Max Torque(N.m/rpm)	90/4000	83/3000-3500	130/3750	225/1750	63	105/4300, 140/1800
Transmission	5MT	5MT	5MT	5MT	5MT	5MT
Engine position	Middle	Middle	Front	Front	Front / Middle	Front
Drive axle	Rear	Rear	Front	Front	Rear	Rear
Tyre size	165 / 70 R13	165 / 70 R13	175 / 65 R14	185 / 65 R15	-	155/80 R13, 165/65 R 14
Performance						
Max Speed(km/h)	120	105	164	154	104	130
Payload(kg)	----	800	----	----	350	550-700

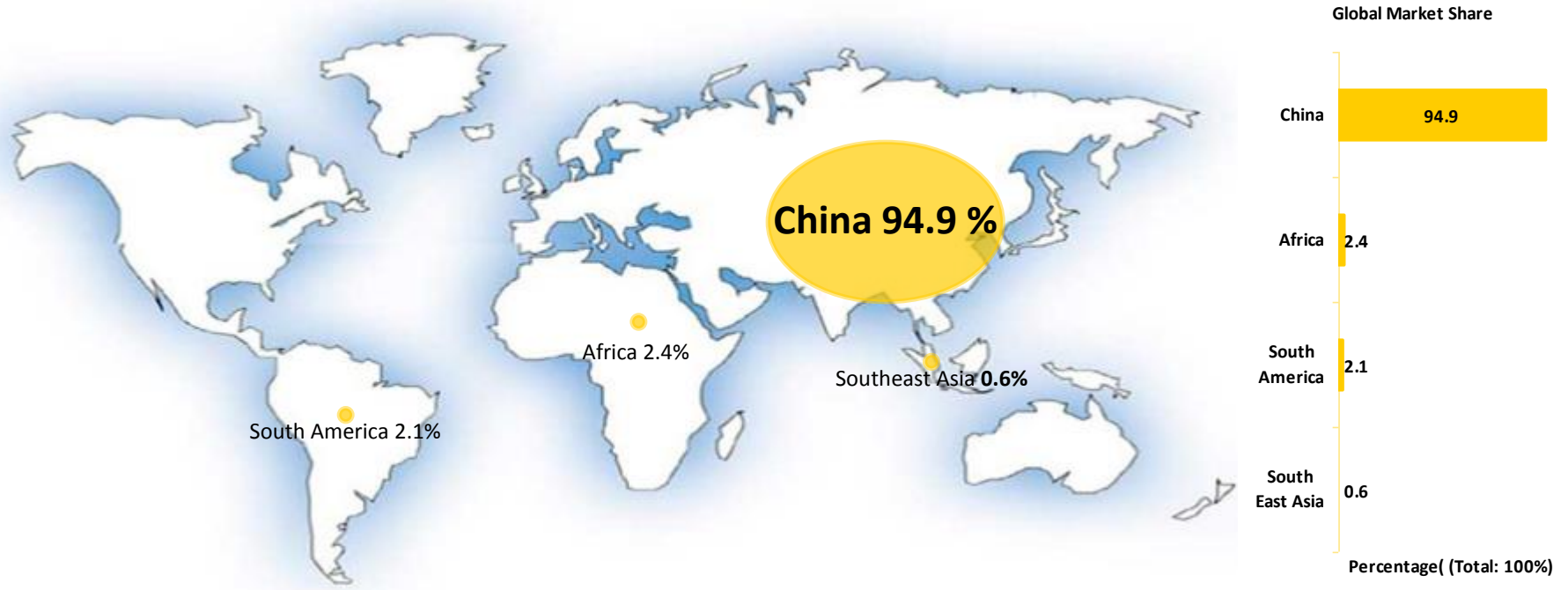
Chinese micro-vehicles are not designed or planned for sales in Europe, Japan or US.



- The requirements of ECE, FMVSS and EPA regulations (R13H, R127, R94, FMVSS 208, EPA Tier II, etc.) are too difficult for Micro-Van and Micro-Truck.



Global market of Micro-Van and Micro-Truck (2013)

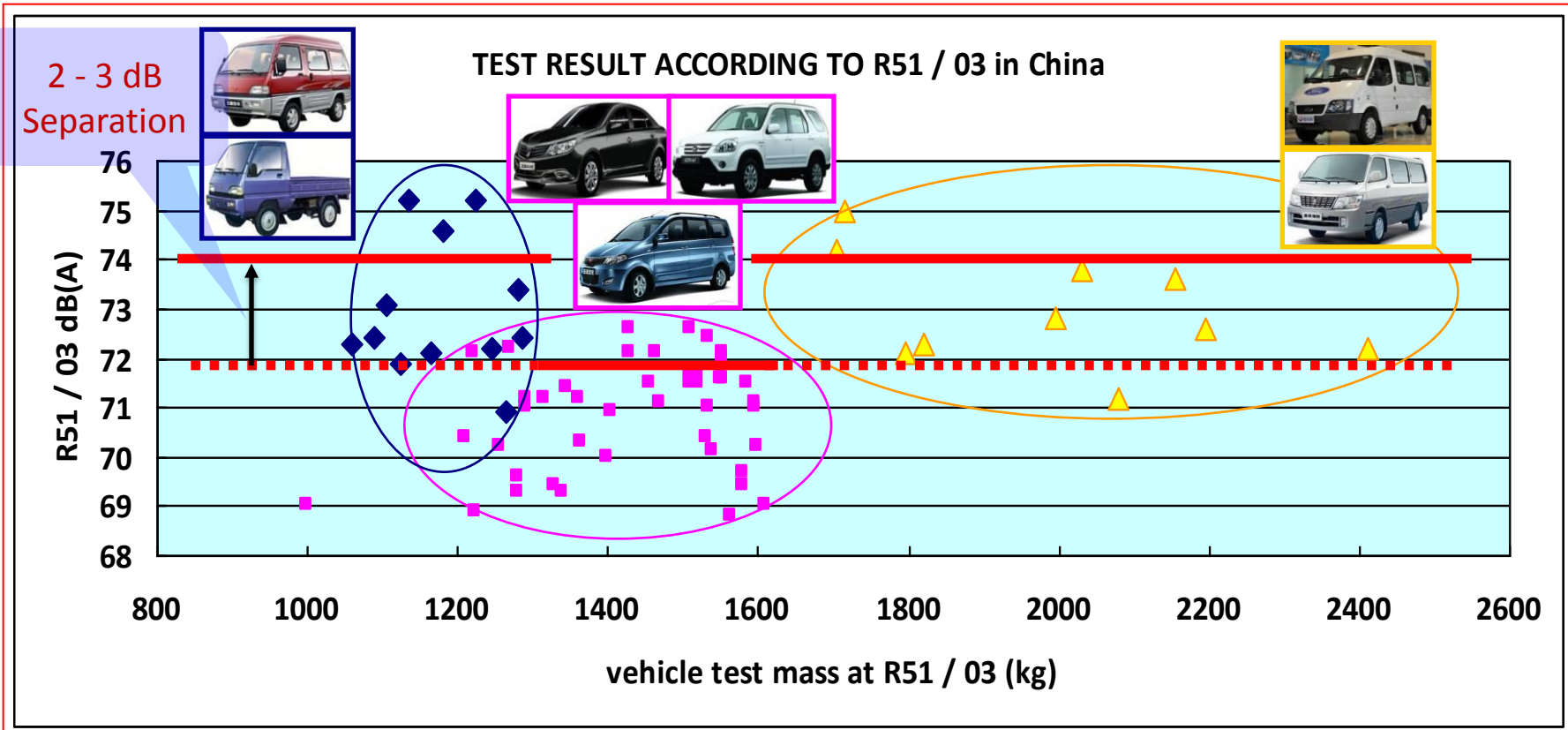


* Over 2,180,000 Micro-Vans and Micro-Trucks were sold in 2013 globally, within this nearly 95% were sold in China, and others were sold into other Third World in Africa, South America and South East Asia. Europe, Japan and US are not our target markets.

* Although Micro-vehicles are very inexpensive and with poor performance, also will not be accepted by the customers in Europe, Japan, or US, it's really an important type of vehicle for developing areas and developing countries.

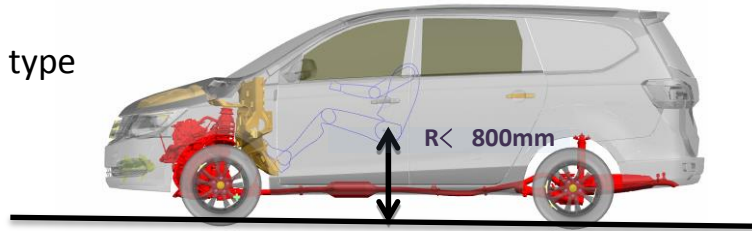
Micro-Van and Micro-Truck are typically 2 to 3 dB(A) higher than front engine type.

- Micro-Van & Micro-Truck need the **74 dB(A)** limit value for phase 1 like heavy M1.

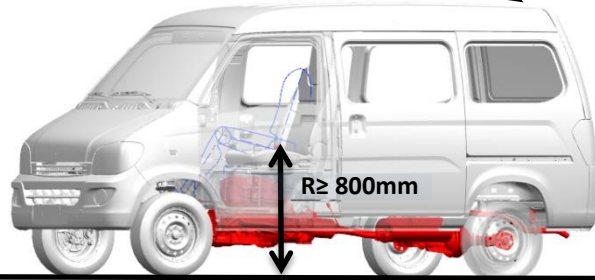


Micro-Van and Micro-Truck noise sources are much more exposed than front engine type

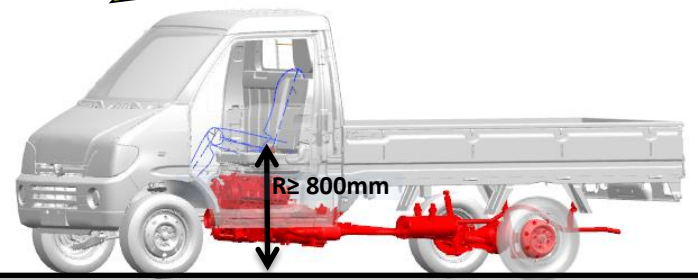
Front Engine type
GVM \leq 2.5t



Different type

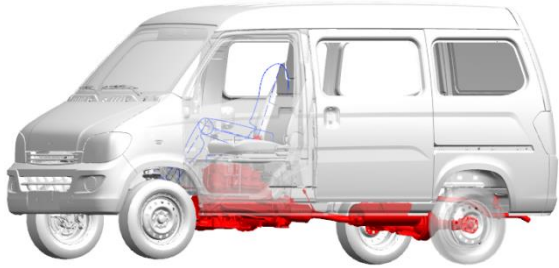


Same type

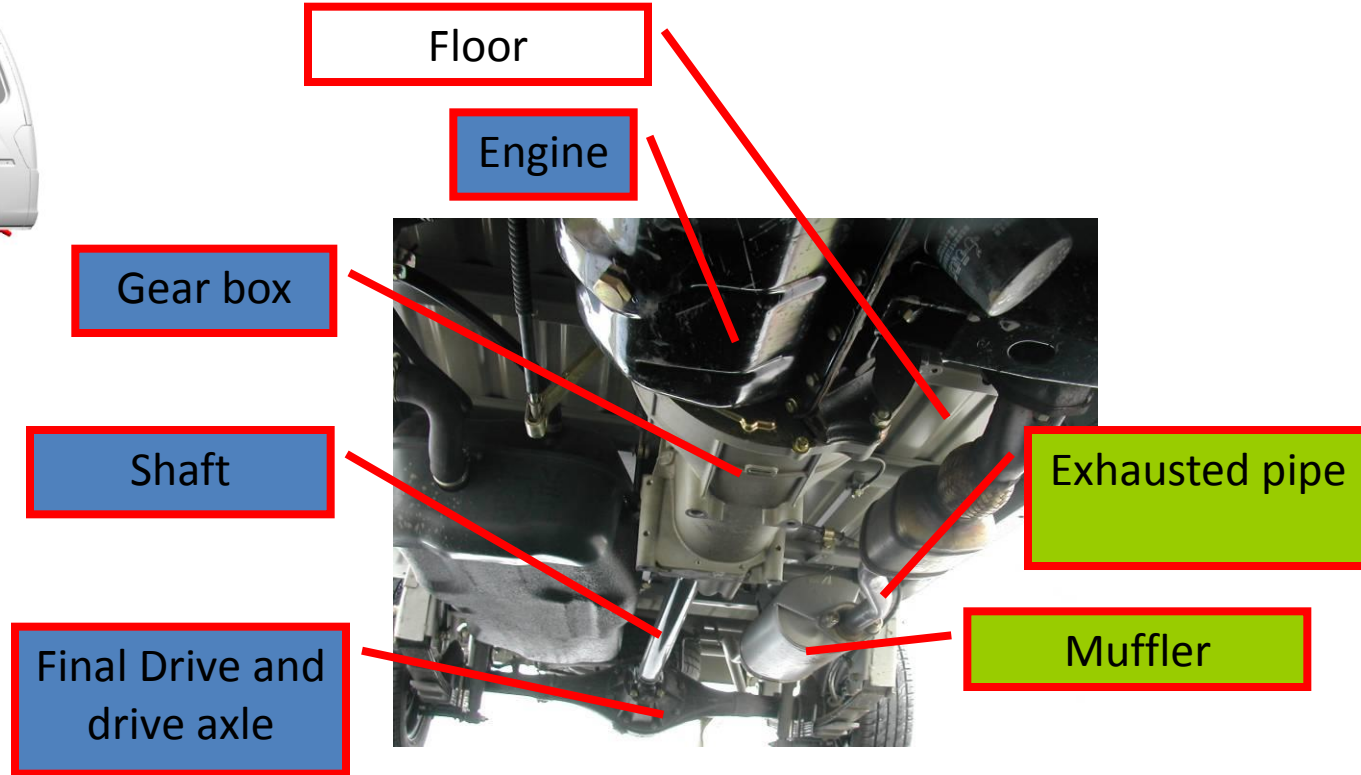


GVM \leq 2.5 ton
R-point \geq 800mm from the ground
Mid-engine and with rear axle drive

Micro-Van and Micro-Truck noise sources are much more exposed than front engine type

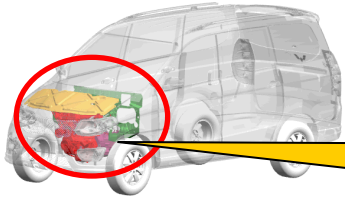


The majority of noise sources in Micro-Van and Micro-Truck are directly exposed, resulting in inherently louder noise.

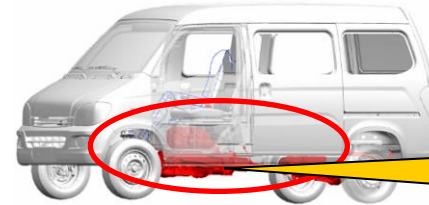


Difficulty of adding noise shield for Micro-Van and Micro-Truck

* There is no engine-compartment for Micro-Van and Micro-Truck, and it's impossible to cover the whole powertrain system for the purpose of reducing noise, as what front engine type does.

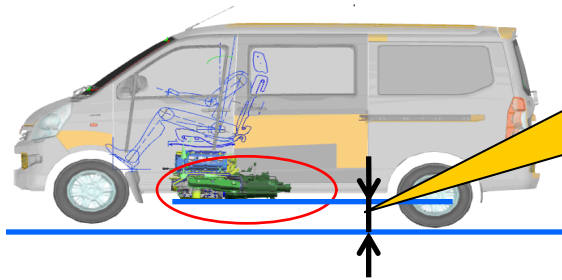


Front engine type



Micro-Van and Micro -Truck

* Adding Noise shield will greatly reduce ground clearance, key characteristic for Micro-Van and Micro-Truck used in mountain, farm, and rural areas.



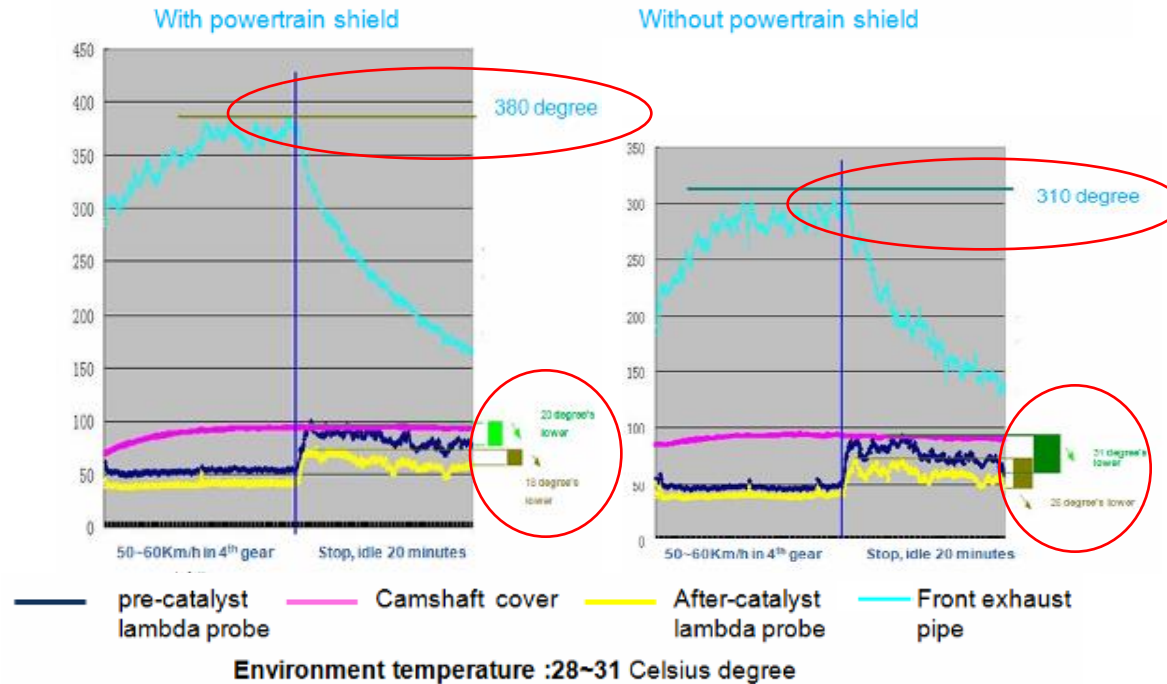
The ground clearance is about 140-155mm, adding noise shield will reduce ground clearance by 10mm, resulting in poor passing capacity.



The ground clearance and passing capacity are very important for Micro-vehicles used in mountain, farm, and rural areas.





Difficulty of adding noise shield for Micro-Van and Micro-Truck

Temperature changing trend around engine



* The thermal performance of Micro-Van and Micro-Truck is not as good as front type for the reason of structure and powertrain differences, and adding noise shield will greatly reduce thermal performance.

Limit value table for special M1 / N1 category

Sub-category	Figure	Country of Origin	China suggestion (GRB-55-05, GRB-56-07, GRB 57-05, GRB-58-09, GRB-59-04)	Limit value now (GRB/2014/5)	Ok?
Heavy M1		Global	Support GRB	74	Ok
Micro-Van Micro-truck	 	China	74	72	NG
Kei-truck		Japan	Support GRB	74	Ok

“GRB-59-04”

6.2.2.1.6. For vehicle types of category M1 and N1 having a maximum technically permissible laden mass of less than or equal to 2.5 tons, a R-point height greater than 800mm from the ground and a mid engine with the longitudinal distance from center of front axle to center of gravity of engine≥300mm and with rear axle drive, the limits of the vehicle types of category N1 having a maximum technically permissible laden mass above 2.5 tons apply.

Conclusion

- ❑ The structure and powertrain system of Micro-Vans and Micro-Trucks are quite different from the front-engine type vehicles, which will lead to a 2-3dB(A) higher test results according to ECE R51 / 03.
- ❑ The Micro-Van and Micro-Truck need a 74dB(A) limit values for phase 1st with a cut-off nearly 15-20%.
- ❑ China suggests modify “***GRB 59-04 6.2.2.1.6. For vehicle types of category M1 and N1 having a maximum technically permissible laden mass of less than or equal to 2.5 tons, a R-point height greater than 800mm from the ground and a mid engine with the longitudinal distance from center of front axle to center of gravity of engine≥300mm and with rear axle drive, the limits of the vehicle types of category N1 having a maximum technically permissible laden mass above 2.5 tons apply.***”

Reference

- **GRB-55-05** - (China) Discussion for limit values to Regulation No. 51
- **GRB-56-07** - (China) Proposal of new sound limit values to the draft 03 series of amendments to UN Regulation No. 51
- **GRB-56-22** - (China) Summary of the opinions of the expert from China for the noise test method of UN Regulation No. 51
- **GRB-57-05** - (China) Common solutions for Sub-categories of M1 and N1 Categories
- **GRB-57-07** - (China) Sub-categories suggestion from China
- **GRB-58-08** - (China) Comments on Japanese limit value suggestion of commercial vehicles
- **GRB-58-10** - (China) Set of sub-categories of M1 \ N1
- **GRB-59-04-Rev.1** - (GRB Expert Group on Regulation No. 51) Proposal for the 03 series of amendments to Regulation No. 51 (Noise of M and N categories of vehicles)

Experience of driving this new vehicle type

* Experience of driving Micro-Van and Micro-Truck .



* Check the mid-engine under driver seat and the different chassis.



Thank you for your attention