



GRBP 69th session  
Document GRB-69-12  
Agenda item 7.a

## **EMT**

**ETRTO answer to Contracting Party  
question from GRB 68<sup>th</sup> session**

## From report GRB 68th session

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- 28. The expert from ETRTO proposed amendments to UN Regulations Nos. 30 and 64 which introduce provisions related to extended mobility tyres (EMT) (ECE/TRANS/WP.29/GRVA/2018/6, ECE/TRANS/WP.29/GRVA/2018/7 and GRB-6814). He pointed out that EMT were already available on the market and needed to be regulated. The experts from Germany, Italy and Japan supported the proposals. The experts from France, Netherlands and Switzerland posed questions. The expert from UK requested data on the availability of EMT on the market. GRB was of the view that Contracting Parties needed more time to study the proposals and decided to defer this item to the next session.

# EMT: WHAT WE ARE TALKING ABOUT

**YOU GOT A PUNCTURE**



**RADIAL TYRES**

**Without extended mobility capability**



**With extended mobility capability**



**To regulate as EMT tyres**

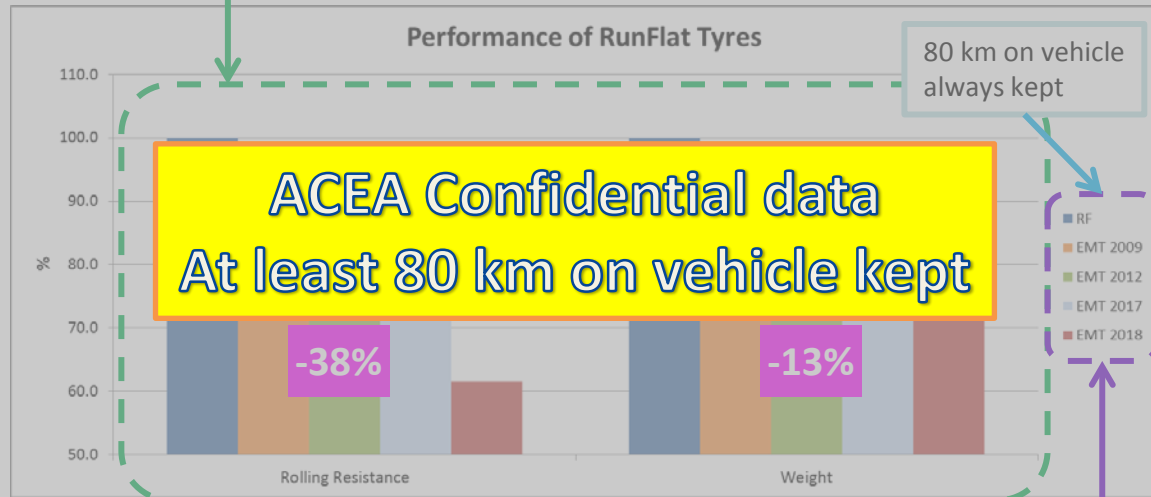
In addition to the performances set for conventional inflated tyres,

## OEMs / Tyre Manufacturers needs

- **Rolling resistance improvement** → Fuel consumption / CO<sub>2</sub> reduction.
- **Weight and stiffness improvement** → better NVH (comfort, acoustics).
- **Chassis loads reduction** → enabler for light-weight chassis components and consequent reduction of fuel consumption/CO<sub>2</sub> and safety increase due to reduced inertia.

## Considerations

All the performance improvements were obtained without compromising vehicle dynamics **in flat mode**. Running EMT projects still show margin for improvement in weight and rolling resistance. EMT completely fulfils customer expectations as no complaint from the market was received.



# EMT PERFORMANCE EVIDENCE BIG PICTURE

FROM GRB-68-14

SW	AR	STRUCTURE	RIM CODE	LI	SS
225	45	R	17	91	W
225	60	R	17	99	V
255	40	R	18	95	Y
195	55	R	16	87	V
225	50	R	17	94	W
245	50	R	18	100	W
255	55	R	18	109	V
255	50	R	19	103	Y
315	35	R	20	110	Y
285	40	ZR	19	103	Y
225	50	R	18	95	W
225	55	R	17	97	W
255	40	R	18	95	Y
205	60	R	16	96	H
225	50	R	17	98	H
265	50	R	19	110	H
185	65	R	15	92	V
205	55	R	16	94	W
215	65	R	16	98	V
225	45	R	17	94	Y
245	45	R	18	100	Y
255	35	R	19	96	Y

ACTUAL EMT ON M1 SEGMENTS = 80 x 80 ON VEHICLE

C: medium cars

D: large cars

E: executive cars

F: luxury cars

G: sport utility cars

GRB SEPT18: CPs requested additional data

M: Multi purpose cars

S: Sports cars



LIST OF SIZES FROM ETRTO DoE & PRIVATE MANUFACTURERS DATA

PICTURES ARE EXAMPLES ONLY

# EMT PERFORMANCE EVIDENCE – ADDITIONAL DATA

SW	AR	STRUCTURE	RIM CODE	LI	SS
225	45	R	17	91	W
225	60	R	17	99	V
255	40	R	18	95	Y
195	55	R	16	87	V
225	50	R	17	94	W
245	50	R	18	100	W
255	55	R	18	109	V
255	50	R	19	103	Y
315	35	R	20	110	Y
285	40	ZR	19	103	Y
225	50	R	18	95	W
225	55	R	17	97	W
255	40	R	18	95	Y
205	60	R	16	96	H
225	50	R	17	98	H
265	50	R	19	110	H
185	65	R	15	92	V
205	55	R	16	94	W
215	65	R	16	98	V
225	45	R	17	94	Y
245	45	R	18	100	Y
255	35	R	19	96	Y

AVAILABLE FOR	EMT TEST	VEHICLE PERFORMANCE
Mercedes A Class	OK	at least 80 x 80
BMW X3	OK	at least 80 x 80
BMW 3 Series	OK	at least 80 x 80
Mini	OK	at least 80 x 80
BMW 3 Series	OK	at least 80 x 80
Mercedes S Class	OK	at least 80 x 80
BMW X5	OK	at least 80 x 80
Rolls Royce Ghost	OK	at least 80 x 80
BMW X5	OK	at least 80 x 80
BMW X5	OK	at least 80 x 80
BMW X1	OK	at least 80 x 80
Mercedes GLA	OK	at least 80 x 80
BMW 3 Series	OK	at least 80 x 80
Mercedes C Class	OK	at least 80 x 80
BMW 3 Series	OK	at least 80 x 80
BMW X5	OK	at least 80 x 80
Citroen C3	OK	at least 80 x 80
VW Golf	OK	at least 80 x 80
VW Tiguan	OK	at least 80 x 80
VW Golf	OK	at least 80 x 80
Audi A6 / BMW 5 Series	OK	at least 80 x 80
Audi A4	OK	at least 80 x 80

CO-DEVELOPED WITH OEMS

REPLACEMENT

This list of tyres and vehicles is not exhaustive

# EMT PERFORMANCE EVIDENCE – EXAMPLE OF INDOOR TESTING

TYRE COMPANY		INDOOR TEST REPORT								
TIRE SIZE <b>255/50R19</b>	DESIGN	TT / TL		PROJECT / PID	SPEC. Nr.					
RIM <b>8.0</b>	SERIAL Nr.	TEST REQUEST Nr.			REG Nr.					
Tire Disposition	LOAD INDEX / SPEED SYMBOL <b>107 H</b>		T.U.G. / INV Nr.		D.O.T. Nr. :					
				MADE IN :						
TEST MACHINE	TREAD BUFFING <b>0</b>	AMBIENT °C <b>25+/-3</b>		TIRE WEIGHT (Kg)	TEST PROCEDURE <b>EMT DURABILITY</b>					
CONDITIONING COMPLETE <input checked="" type="checkbox"/> Date:                      Hour:                      Temp °C: <b>25</b> Infl. Press.: <b>2.5</b> Cond Operator:										
I.Press(bar) <b>0</b>		Slip Angle <b>0</b>		NOTES :						
Speed(Km/h) <b>80</b>		Camber Angle <b>0</b>								
Load <b>574</b> daN										
Pos No.	Date	Time	Step Time	Speed Km/H	Mileage Km	Amb. T. °C	Camber Angle	Load daN	Infl.P. bar	Operator Signature
1			1 Min	40		24.7				
1			1 Min	50						
1			1 Min	60						
1			1 Min	70						
1			1 Min	80						
1			60 Min	80	<b>80</b>	25.0				

This tyre was tested according to EMT indoor procedure:

- Zero inflation pressure,
- 80 km/h
- 60% Load Index
- 25°C

And achieved 80 km distance

# EMT PERFORMANCE EVIDENCE – EMT ON VEHICLES

TYRE SIZES <sup>1)</sup>
245/40R19 98Y
245/45R17 99Y
245/45R18 100Y
255/40R19 100Y
255/40R20 101Y
255/45R20 101Y
255/55R18 109V
285/45R19 111W

TYRE	EMT test	ROAD test
A	98 km	80 km stop
B	91 km	80 km stop
C	99 km	80 km stop
D	100 km	80 km stop
E	93 km	80 km stop
F	78 km	80 km stop
G	90 km	80 km stop
H	87 km	80 km stop

1) May include tires still under development

## Road test

Circuit length	> 20 km
Vehicle Load	+/- 80% max axle load
Speeds (acceleration, deceleration)	up to 80 km/h
<b>Corners</b>	<b>yes</b>
<b>Lateral Acceleration</b>	<b>yes</b>
0 kPa & valve out (drive axle)	yes
Running flat requirement	80 km

Although there is no strong correlation between drum and vehicle tests, tyres that pass the drum test can provide safe performance on vehicle at least for the minimum requirement of 80 km at 80 km/h.



# CONCLUSIONS

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- ETRTO considers that there is the evidence that a tyre meeting the drum test requirements will be able “to provide the vehicle with the basic tyre functions at a speed of 80km/h and a distance of 80 km when operating in flat tyre running mode.”
- ETRTO recommends to provide the proper legal framework to Extended Mobility Tyres within UN R.30 while recognising EMT as an emergency mobility equipment in UN R.64, as per GRVA/2018/6 and GRVA/2018/7 Working Documents.