

COMMISSION OF THE EUROPEAN COMMUNITIES

COM(86) 735 final

Brussels, 26 January 1987

SPEED LIMITS IN THE COMMUNITY

(Communication from the Commission to the Council)

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I. INTRODUCTION

1. At the Environment Council of June 1985, the Commission undertook to present an "appropriate proposal on speed limits". This undertaking was made in respect of the influence of speed on pollutant emissions from cars. Discussions on speed limits also relate to the effect of speed on road safety, energy consumption, the economics of transport and the motor industry.

This Communication deals with speed in relation to motorways, non-urban roads and urban roads. There are legal speed limits on all types of roads in all Member States. The legal limit for motorways in Germany, however, relates only to buses and heavy goods vehicles; for cars and motorcycles the legal limit is replaced by a recommendation.

2. Speed limits in the Community for cars and other light vehicles range from 100 to 140km/h on motorways, 80 to 110km/h on other non-urban roads and 48 to 60 in built up areas (see Annex 1). In Germany the officially recommended speed for cars and motorcycles on motorways is 130km/h.
Buses and heavy goods vehicles have lower limits than cars outside built up areas, ranging from 60 to 100km/h, with up to 112km/h for buses on UK motorways.
3. Limits need to be realistic or they will not be obeyed. If drivers do not accept the speed limit, then respect for it declines and it becomes impossible to enforce, given limitations on police resources.
4. Data on observed speeds - which are measured in similar conditions and therefore allow comparisons - show that average motorway speeds in most Community Member States are either close to or below the limits (see Annex 2). Between 50 and 70% of drivers observe the limits. In Germany, the average motorway speed - measured in dry weather and with no traffic congestion - is 130km/h. The average speed over the whole motorway network, and in all conditions, is lower, at 112km/h.

II. EFFECT OF SPEED ON ROAD SAFETY

5. Road deaths in Member States have diminished steadily since 1970 (see Annex 4). Speed limits are not the only factor that has led to this steady improvement. Better vehicle design, improvements in roads, the wearing of safety belts, tighter controls on drinking and driving, have all worked in the same direction.

6. Speed - especially in relation to traffic and weather conditions - has a significant effect on accidents and their consequences. In general the seriousness of accidents is related to high speed.
 - The faster the speed, the shorter the available reaction time.
 - The faster the speed, the longer the braking distance (see Annex 6).
 - The faster the speed - or the greater the speed differential between vehicles involved in an accident - the greater the impact.

If average vehicle speeds could be lowered, fewer accidents would occur and deaths and injuries would be reduced. research results indicate that for every 1% reduction in average speed, fatal accidents would be reduced by 4%, personal injury accident by 3% and all other accidents by 2%.

The reduction in speed limits at the end of the energy crisis in 1973-74 demonstrated the beneficial effect of reducing speed limits on road safety. The introduction of a 55mph speed limit in the United States in 1974 during the energy crisis brought about a reduction in the number of fatal accidents which cannot be attributed to other factors such as improved vehicles or better roads. It is estimated that at present the reduction in the annual number of deaths on the roads attributable to the 55mph speed limit is between 2.000 and 4.000.

In Europe too there was an improvement in safety following the introduction (or reduction) of speed limits during the 1973-74 energy crisis. It is difficult, however, to assess the specific impact of these restrictions per se, as distinct from more careful driving with a view to saving fuel.

Annex 4 shows the trend in fatal accidents in Member States in the 1970s.

7. Motorways are in general more safe than other roads with four to six times fewer fatal or injury accidents. The design of motorways allows a greater reaction time and reduces the speed differentials between vehicles through the separation of opposite traffic streams and elimination of road junctions. Their better construction allows road safety objectives to be attained with higher limits on the speed on motorways and this, in turn, attracts vehicles to them - in turn reducing the use of the other, less safe, roads.
8. The impact energy and braking energy of a vehicle varies with its weight. This factor - together with their reduced manouvability - justifies the lower limits applied by all Member States to heavy vehicles. The same factors, together with the need for reinforced safety, also justify lower speed limits for buses. Such lower limits are applied for buses on motorways in all Member States except the United Kingdom.

There are two main questions which arise in any discussion on speed restrictions - to what extent will drivers accept speed limits and on which type of road should they apply? A detailed study of drivers' attitudes clearly indicates that speed limits must be realistic if they are to be complied with. The latest results of tests carried out in Germany on sections with a 100km/h speed limit are interesting in this connection.

Drivers "with a free choice" drive at the following speeds :

- up to 100km/h	30%
- 100 - 110km/h	23%
- 111 - 120km/h	22%
- 121 - 130km/h	15%
- 131km/h and over	10%

Where there were no visible police controls, average speed fell by 3km/h while with visible police controls virtually all motorists kept to the speed limit.

III. EFFECT OF SPEED ON VEHICLE EMISSIONS

9. Lower speeds outside urban areas reduce vehicle emissions especially of nitrogen oxides (NOx). NOx is one of the substances responsible for acid deposition and the death of forests in large areas of Europe. Studies show that a reduction of average speeds in the Community to 100km/h would reduce NOx emissions by some 300.000 tonnes. This is equal to 10% of car emissions and approximately 3% of NOx emissions from all sources.

The 1985 large-scale tests carried out on German motorways (see Annex 7) show that a speed limit of 100km/h would reduce NOx emissions by 32.000 tonnes or 10%. In terms of total German man-made NOx emissions this would amount to 1%. However, the reduction would have been higher if more motorists had observed the speed limits (only 30% respected the limits) and if there had been correspondingly lower limits on other non-urban roads. Recent research in the Netherlands and Switzerland shows similar results.

Another, less exhaustive test in the Federal Republic of Germany showed that a speed limit of 120km/h reduced NOx emissions by 7%. This result reflects the much better degree of compliance by motorists with a limit of 120km/h against 100km/h (65% compliance against 30%).

IV. EFFECT OF SPEED ON FUEL CONSUMPTION

10. Fuel consumption increases with speed, the rate of increase depending on the power and size of the engine. Significant impact on fuel consumption in the Community resulting from changes in speed would only arise on motorways and similar type roads.

An examination of the effects of speed limits on energy consumption was requested by the Energy Council in November 1984 and the Commission initiated a study on this issue, the final results of which are expected during 1986.

V. OTHER EFFECTS OF SPEED

11. It is not easy to assess the economic effects of speed limits on transport productivity. It is clear, however, that at high speeds, the gain in time on a given journey is relatively low (see Annex 5).

The effect on European car manufacturers of introducing lower speed limits on motorways, and possibly on other non-urban roads is also difficult to assess. One view is that low speed limits would reduce the use of cars for business purposes and restrict home markets for high performance cars. Another view is that lower speed limits would make little difference : "performance cars" are currently being sold in markets with low speed limits like the USA.

VI. CONCLUSIONS

12. Evidence gathered in the Community and elsewhere points to the conclusion that a limitation of speed leads to fewer road deaths and injuries, reduced pollution and increased fuel economy. As long as the limits are not fixed at levels far below speeds practiced by the majority of motorists, there will be no harmful effects on transport efficiency or motor car manufacture.

Moreover, since an increasing number of motorists travel from one country to another within the Community, which is working towards a complete internal market in 1992, it is unreasonable to have different speed limits for the same type of infrastructure. Different speed limits within the Community should only be authorized on a local basis.

13. The Commission believes, therefore, that the Community should adopt a Directive to set, legally-enforceable speed limits. This Directive should take account of a number of considerations concerning road safety, environmental nuisance, energy consumption, as well as industrial and transport-sector costs and benefits.

This Directive should be based on several factors.

- Legally enforceable limits should apply on all roads in the Community and to all types of traffic. Member States should introduce specific, legally-enforceable penalties for exceeding the limits.
- Speed limits applied to motorcars and motorcucles on motorways should take account of the construction and traffic volume of the motorway, of environmental factors such as pollution emissions and noise as well as of the acceptability of the limits and, therefore, ease of enforcement. This could lead to a differential approach to speed limits for cars based on the application of a "normal limit" of 120km/h.

On motorways, which are well clear of urban areas, do not carry large traffic volumes and have a high safety record, the legally-enforceable limit might be higher than the "normal limit". On those which carry large volumes of traffic, are close to or run through urban areas, are constructed with many access points or run through areas which require increased environmental protection, the legally-enforceable limit might be lower than the "normal limit".

- Limits should be fixed on all other non-urban roads at levels lower than the "normal limit" on motorways. This would have the doubly beneficial effect of encouraging traffic into the motorways, where safety standards are high, and of reducing pollutant exhaust emissions significantly since the bulk of traffic travels on these roads. The existing differential in the majority of Member States is 30km/h.
- There should be speed limits for buses and heavy goods vehicles which are significantly lower than for cars.
- Speed limits should be maintained in urban areas where there is already a wide degree of harmonisation.

14. After thorough consultation of all interested parties, the Commission will submit a proposal for a Council Directive under Article 75 of the Treaty in the first half of 1987.

MAIN GENERAL SPEED LIMITS

in km/hour

ROAD CATEGORY	OUTSIDE BUILT UP AREAS											IN BUILT-UP AREAS	
	CARS			BUSES without trailer			H. G. V. incl. combination			MOTORCYCLES (solo)			
	I	II	III	I	II	III	I	II	III	I	II		III
B	120	120	90	90	75	75	90	90	60	120	120	90	60
DK	100	80	80	70	70	70	70	70	70	100	80	80	50
D	130*	130*	100	90 ^{a)}	80 ^{a)}	80 ^{a)}	80	60	70	130*	130*	100	50
F	130	110	90	90 ^{b)}	90 ^{c)}	90	80 ^{e)}	80	60 ^{f)}	130	110	90	60
GR	100	80	80	70	70	70	60	60	60	80	80	80	50
IRL	88	88	88	80 ^{j)}	80 ^{j)}	80 ^{j)}	56 ^{k)}	56 ^{k)}	56 ^{k)}	88	88	88	48
I	140 ^{g)}	110 ^{h)}	110	90 ^{b)}	70 ^{d)}	70 ^{d)}	80 ^{b)}	60 ^{c)}	60	130	130	100	50
L	120	90	90	75	75	75	60	60	60	120	90	90	60
NL	100	100	80	80	80	80	80	80	60	100	100	80	50
UK	112	112	97	112	97	80	97	80	64	112	112	97	48
E	120	100	90	100	90	80	100	80	70	120	100	90	60
P	120	90	90	100	80	70	80	70	60	120	90	90	60
A	130	100	100	100	80	80	70	60	60	130	100	100	50
CH	120	80	80	100	80	80	80	80	60	120	80	80	50

Notes:

I = = MOTORWAYS
 II = EXPRESSWAYS
 III = OTHER ROADS

- * Recommended only
- a) 100 for technically approved buses
- b) 130 for vehicles up to 10 t (8 t in Italy)
- c) 110 for vehicles up to 10 t (8 t in Italy)
- d) 100 for vehicles up to 8 t
- e) 90 for vehicles 10 - 19 tonnes G.V.W.
- f) 80 for vehicles 10 - 19 tonnes G.V.W.
- g) Ranging down to 90 for smallest cars
- h) Ranging down to 90 for smallest cars.

- j) Single deck; double deckers 64 km/h
- k) Articulated vehicles 64 km/h

SPEED LIMITS AND OBSERVED SPEEDS FOR CARS ON MOTORWAYS
in km/h

	Official Speed Limit	Observed Speeds					
		Average		85 percentile		% in excess of official limit	
		Free Flow c)	Whole Network d)	Free Flow c)	Whole Network d)	Free Flow c)	Whole Network d)
F.R. GERMANY	130	130	112	151	139	45	25
FRANCE	130	125		143		34	
ITALY	140 ^{b)}	125		143		29 ^{e)}	
U.K.	112		109		127		40
BELGIUM	120	112		126		26	
NETHERLANDS	100	117	106	130	120	57	
DENMARK	100	102		112		51	
AUSTRIA	130	132				53	
SWITZERLAND	120	120				45	
U.S.A. f)	88		95			74	

Notes:

- a) Recommended
- b) For cars > 1300 cc
- c) Source : ADAC (German Automobile Club)
- d) Source : Official Government data
- e) % in excess of 130 km/h
- f) Rural Interstate Highways - all vehicles

The 85 percentile speed means that 15% of motorists exceed the number of km/h indicated in the column.

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EFFECT OF SPEED ON VEHICLE EMISSIONS (NO_x)

1. NO_x emissions by EEC car categories : present and future values as proposed

in g/km

Car Types	Non-urban roads ¹⁾		Motorways ²⁾		Urban	
	Standard 15.04	Future value	Standard 15.04	Future value	Standard 15.04	Future value ³⁾
- 1400 cc	2.3	1.6	3.5	2.4	2.1	1.5
1401- 2000 cc	2.5	1.1	5.2	2.2	2.4	1.0
2001 cc +	3.0	0.6	7.0	1.4	2.7	0.875

1) At 90 km/h constant

2) At 110, 120, 130 km/h for small, medium, large vehicles

3) Based on limits per test of 6g, 4g and 3.5g.

2. Total NO_x emissions in EEC 1990 - 2005, as a result of speed reductions

million tonnes

Year	NO _x values	New EEC	New EEC	New EEC + 5g/test Small cars	New EEC + 5g/test Small cars	New EEC
	Speed	No change	90 km/h	No change	90 km/h	100 km/h
1990		3.01	2.62	3.01	2.62	2.71
2000		1.84	1.60	1.77	1.54	n.a.
2005		1.56	1.39	1.41	1.24	n.a.

n.a. = not available

ROAD DEATHS IN THE COMMUNITY 1970 - 1984

As reported by countries

	1970	1973	1975	1978	1980	1981	1982	1983	1984 ^{b)}
D	19,193	16,302	14,870	14,662	13,041	11,674	11,608	11,732	10,199
F	15,034	15,469	12,996	11,957	12,384	12,190	12,030	11,677	11,525
I	10,208	10,728	9,511	7,965	8,537	8,072	7,706	7,685	7,184
NL	3,181	3,092	2,321	2,294	1,997	1,807	1,710	1,756	1,615
B	1,544	2,905	2,346	2,589	2,396	2,216	2,064	2,090	1,893
L	132	108	124	102	98	100	75	85	70
UK	7,771	7,406	6,679	7,119	6,182	6,069	6,150	5,539	5,703
IRL	540	592	586	628	564	572	533	535	465
DK	1,208	1,132	827	849	690	662	658	669	665
GR	931	1,076	1,060	1,173	1,225	1,354	1,557	1,586	
E ^{a)}	5,456	6,193	5,833	6,967	6,522	6,409	5,832	6,066	6,275
P ^{a)}	1,842	1,706	3,479	2,825	2,941	2,950	2,764	2,831	
EUR-12 ^{a)}	69,300	68,700	62,600	60,900	58,500	55,800	54,300	53,800	
USA	52,627	55,800	44,525	52,411	51,091	49,301	43,945	42,500	
J ^{a)}	21,795	18,946	14,030	11,418	11,388	11,335	11,795	12,376	12,041

SOURCE: Eurostat and ECMT

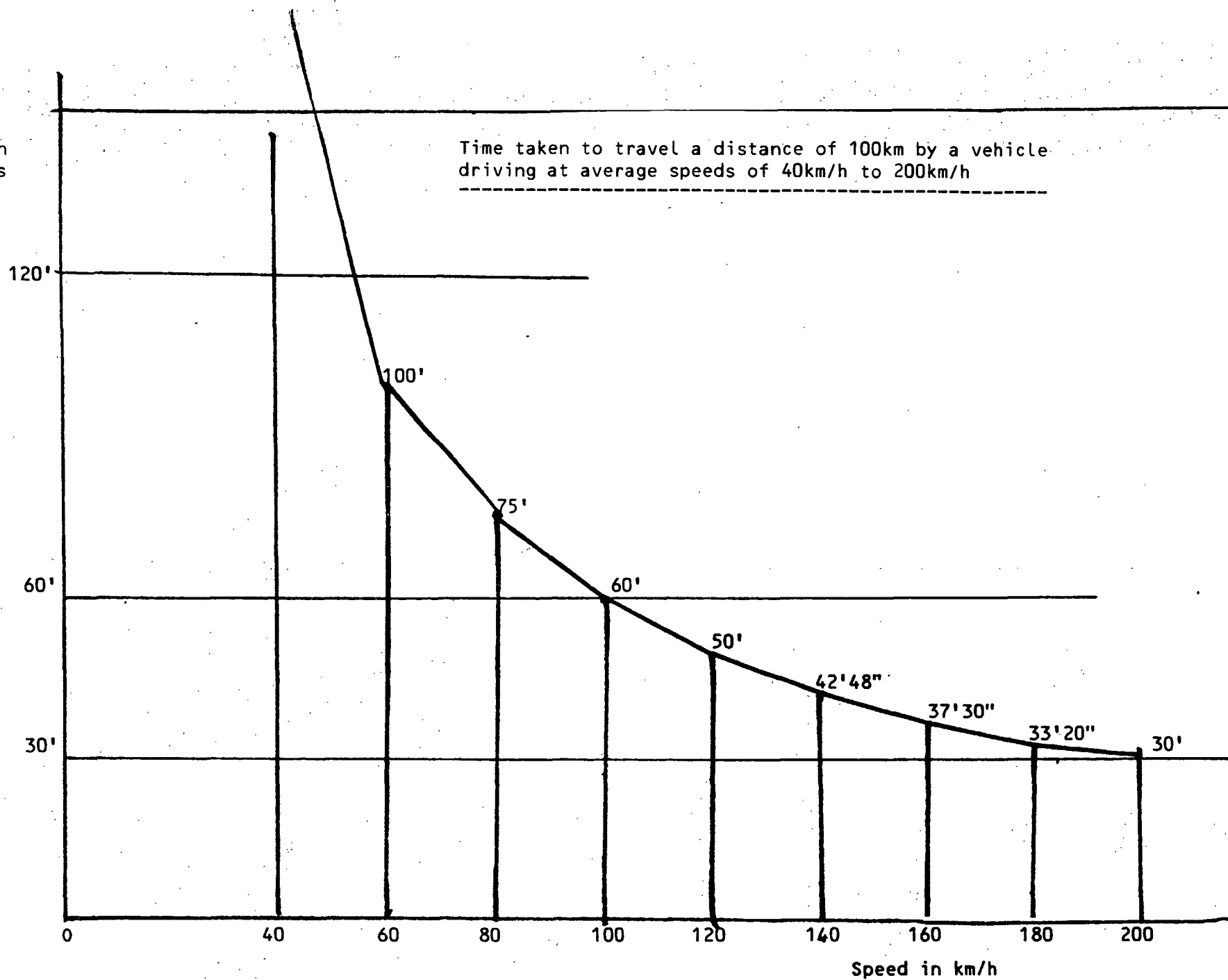
a) Adjusted to deaths within 30 days, Correction factors:

I	=	1.07
F	=	1.09
GR	=	1.09
E	=	1.3
P	=	1.3
J	=	1.3

) Provisional

Time taken
in minutes

Time taken to travel a distance of 100km by a vehicle
driving at average speeds of 40km/h to 200km/h



Braking distance of a 1 tonne vehicle on dry and wet roads as a function of speed

540 METRES

Braking distance

wet road

dry road

200

100

80

60

40

20

20

40

60

80

100

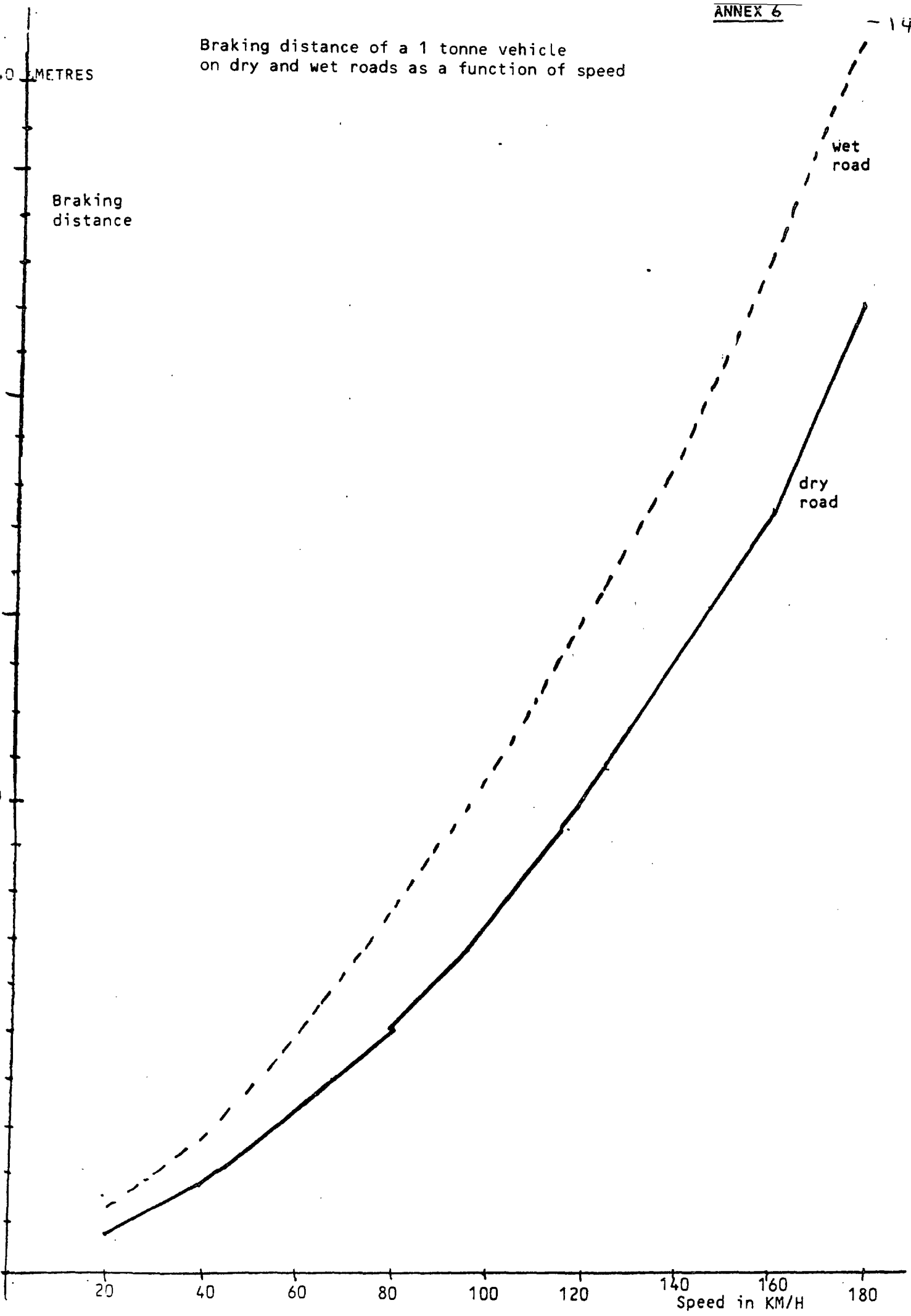
120

140

160

180

Speed in KM/H



LARGE-SCALE TEST RESULTS - FED. REPUBLIC OF GERMANY - NOV. 1985

Motorway speeds, emissions and fuel consumption

Speed limit	kmh	130 (*)	100		100 ⁽¹⁾	120
Average speed	km/h	115	105		(103)	(112)
Degree of Compliance with Limit by motorists	(%)		30		(40)	(65)
Emissions				Reduction in % resulting from lower speed limit		
				130 - 100	130 - 100 ⁽¹⁾	130 - 120
Carbon monoxide CO	000	1140	1004	11.9	(15)	(8)
Hydrocarbons HC	tonnes/year	98.2	96.6	1.7	(2)	(1)
Nitrogen oxides NOx		310	278	10.4	(13)	(7)
Sulphur dioxide SO ₂		6.3	5.9	6.2	(8)	(5)
Lead (tonnes) P ₆		770	714	7.3	(9)	(5)
Fuel Consumption	000 tonnes/year	5,878	5,466	7.0	(9)	(5)

(*) Recommendation

(1) Higher degree of enforcement and therefore compliance

Figures in brackets () estimated on the basis of individual test stretches and sensitivity considerations.

Source: Vd TÜV (Association of Technical Control Organisations) Essen.

1. OBLIGATIONS ADMINISTRATIVES DECOULANT DE L'APPLICATION DE LA LEGISLATION POUR LES ENTREPRISES :

NEANT

2. AVANTAGES POUR L'ENTREPRISE :

~~NON~~ NON

LESQUELS :

3. INCONVENIENTS POUR L'ENTREPRISE
(coût supplémentaire)

~~NON~~/NON

CONSEQUENCES

4. EFFETS SUR L'EMPLOI : NEANT

5. Y A-T-IL EU CONCERTATION PREALABLE AVEC LES PARTENAIRES SOCIAUX ?

~~NON~~/NON

AVIS DES PARTENAIRES SOCIAUX

6. Y A-T-IL UNE APPROCHE ALTERNATIVE MOINS CONTRAIGNANTE ?

NON.