



Council of the  
European Union

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**COVER NOTE**

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From:	European Commission
date of receipt:	9 January 2015
To:	General Secretariat of the Council
Subject:	Annex to Commission Directive ../.../EU of XXX establishing common noise assessment methods according to Directive 2002/49/EC

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Delegations will find attached document D034332/03 - Part 20.

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Encl.: D034332/03 - Part 20

**EN**

**Helicopter Noise and Performance Data Set 1**

This includes data for five helicopters classes, based on helicopter MTOM:

**Table I-18: Helicopter Data Set 1 Description Table**

ACFT ID	Description	Engine Type	Number of Engines	Weight Class	Owner Category	MGTOW (lb)	MGLW (lb)	Max Landing Dist (ft)	Max Sea Level Static Thrust (lb)	Noise Chapter	NPD_ID	Power Parameter	Approach Spectral Class ID	Departure Spectral Class ID	Lateral Directivity Identifier
H1.0	Helicopters with MTOM <= 1 t	Propeller	0	0	Helicopter	0	0	0	100	0	H1.0	SHP (% of Max Static Thrust)	215	109	Prop
H1.1	Helicopters with MTOM 1-3 t	Propeller	0	0	Helicopter	0	0	0	100	0	H1.1	SHP (% of Max Static Thrust)	215	109	Prop
H1.2	Helicopters with MTOM 3-5 t	Propeller	0	0	Helicopter	0	0	0	100	0	H1.2	SHP (% of Max Static Thrust)	215	109	Prop
H2.1	Helicopters with MTOM 5-10 t	Propeller	0	0	Helicopter	0	0	0	100	0	H2.1	SHP (% of Max Static Thrust)	215	109	Prop
H2.2	Helicopters with MTOM > 10 t	Propeller	0	0	Helicopter	0	0	0	100	0	H2.2	SHP (% of Max Static Thrust)	215	109	Prop

**Table I-19: Helicopter Data Set 1 Departure Profiles**

ACFT_ID	OP_TYPE	PROF_ID1	PROF_ID2	PT_NUM	DISTANCE (ft)	ALTITUDE (ft)	SPEED (kt)	THR_SET (%)	OP_MODE
H1.0	D	H1.0_S	1	1	0.0	0.0	3.9	100.00	D
H1.0	D	H1.0_S	1	2	9.8	6.6	5.8	100.00	D
H1.0	D	H1.0_S	1	3	32.8	16.4	9.7	100.00	D
H1.0	D	H1.0_S	1	4	295.3	49.2	40.8	100.00	D
H1.0	D	H1.0_S	1	5	5687.5	1000.0	60.3	100.00	D
H1.0	D	H1.0_S	1	6	8968.3	1000.0	64.1	100.00	D
H1.0	D	H1.0_S	1	7	200000.0	1000.0	64.1	100.00	D
H1.1	D	H1.1_S	1	1	0.0	0.0	3.9	100.00	D
H1.1	D	H1.1_S	1	2	9.8	6.6	5.8	100.00	D
H1.1	D	H1.1_S	1	3	32.8	16.4	9.7	100.00	D
H1.1	D	H1.1_S	1	4	295.3	49.2	40.8	100.00	D
H1.1	D	H1.1_S	1	5	6298.3	1000.0	64.1	100.00	D
H1.1	D	H1.1_S	1	6	9579.2	1000.0	70.0	100.00	D
H1.1	D	H1.1_S	1	7	200000.0	1000.0	70.0	100.00	D
H1.2	D	H1.2_S	1	1	0.0	0.0	3.9	100.00	D
H1.2	D	H1.2_S	1	2	9.8	6.6	5.8	100.00	D
H1.2	D	H1.2_S	1	3	32.8	16.4	9.7	100.00	D
H1.2	D	H1.2_S	1	4	295.3	49.2	40.8	100.00	D

H1.2	D	H1.2_S	1	5	6298.3	1000.0	70.0	100.0	D
H1.2	D	H1.2_S	1	6	9579.2	1000.0	75.8	100.0	D
H1.2	D	H1.2_S	1	7	200000.0	1000.0	75.8	100.0	D
H2.1	D	H2.1_S	1	1	0.0	0.0	3.9	100.0	D
H2.1	D	H2.1_S	1	2	9.8	6.6	5.8	100.0	D
H2.1	D	H2.1_S	1	3	32.8	16.4	9.7	100.0	D
H2.1	D	H2.1_S	1	4	295.3	49.2	40.8	100.0	D
H2.1	D	H2.1_S	1	5	6298.3	1000.0	70.0	100.0	D
H2.1	D	H2.1_S	1	6	9579.2	1000.0	75.8	100.0	D
H2.1	D	H2.1_S	1	7	200000.0	1000.0	75.8	100.0	D
H2.2	D	H2.2_S	1	1	0.0	0.0	3.9	100.0	D
H2.2	D	H2.2_S	1	2	9.8	0.0	5.8	100.0	D
H2.2	D	H2.2_S	1	3	32.8	16.4	9.7	100.0	D
H2.2	D	H2.2_S	1	4	295.3	49.2	40.8	100.0	D
H2.2	D	H2.2_S	1	5	6298.3	1000.0	70.0	100.0	D
H2.2	D	H2.2_S	1	6	9579.2	1000.0	75.8	100.0	D
H2.2	D	H2.2_S	1	7	200000.0	1000.0	75.8	100.0	D

**Table I-20: Helicopter Data Set 1 Arrival Profiles**

ACFT_ID	OP_TYPE	PROF_ID1	PROF_ID2	PT_NUM	DISTANCE	ALTITUDE	SPEED	THR_SET	OP_MODE
H1.0	A	H1.0_L	1	1	-200000.0	1000.0	64.1	100.0	A
H1.0	A	H1.0_L	1	2	-10836.6	1000.0	64.1	100.0	A
H1.0	A	H1.0_L	1	3	-7555.8	1000.0	60.3	100.0	A
H1.0	A	H1.0_L	1	4	-295.3	44.1	40.8	100.0	A
H1.0	A	H1.0_L	1	5	-32.8	9.6	9.7	100.0	A
H1.0	A	H1.0_L	1	6	-9.8	6.6	5.8	100.0	A
H1.0	A	H1.0_L	1	7	0.0	0.0	3.9	100.0	A
H1.1	A	H1.1_L	1	1	-200000.0	1000.0	70.0	100.0	A
H1.1	A	H1.1_L	1	2	-8401.5	1000.0	70.0	100.0	A
H1.1	A	H1.1_L	1	3	-5120.6	1000.0	64.1	100.0	A
H1.1	A	H1.1_L	1	4	-295.3	62.0	40.8	100.0	A
H1.1	A	H1.1_L	1	5	-32.8	11.0	9.7	100.0	A
H1.1	A	H1.1_L	1	6	-9.8	6.6	5.8	100.0	A
H1.1	A	H1.1_L	1	7	0.0	0.0	3.9	100.0	A
H1.2	A	H1.2_L	1	1	-200000.0	1000.0	75.8	100.0	A
H1.2	A	H1.2_L	1	2	-9563.0	1000.0	75.8	100.0	A
H1.2	A	H1.2_L	1	3	-6282.2	1000.0	70.0	100.0	A
H1.2	A	H1.2_L	1	4	-295.3	51.8	40.8	100.0	A
H1.2	A	H1.2_L	1	5	-32.8	10.2	9.7	100.0	A
H1.2	A	H1.2_L	1	6	-9.8	6.6	5.8	100.0	A
H1.2	A	H1.2_L	1	7	0.0	0.0	3.9	100.0	A
H2.1	A	H2.1_L	1	1	-200000.0	1000.0	75.8	100.0	A
H2.1	A	H2.1_L	1	2	-9563.0	1000.0	75.8	100.0	A
H2.1	A	H2.1_L	1	3	-6282.2	1000.0	70.0	100.0	A
H2.1	A	H2.1_L	1	4	-295.3	51.8	40.8	100.0	A
H2.1	A	H2.1_L	1	5	-32.8	10.2	9.7	100.0	A
H2.1	A	H2.1_L	1	6	-9.8	6.6	5.8	100.0	A

H2.1	A	H2.1_L	1	7	0.0	0.0	3.9	100.00	A
H2.2	A	H2.2_L	1	1	-200000.0	1000.0	75.8	100.00	A
H2.2	A	H2.2_L	1	2	-9604.4	1000.0	75.8	100.00	A
H2.2	A	H2.2_L	1	3	-6323.6	1000.0	70.0	100.00	A
H2.2	A	H2.2_L	1	4	-295.3	45.2	40.8	100.00	A
H2.2	A	H2.2_L	1	5	-32.8	3.6	9.7	100.00	A
H2.2	A	H2.2_L	1	6	-9.8	0.0	5.8	100.00	A
H2.2	A	H2.2_L	1	7	0.0	0.0	3.9	100.00	A

**Table I-21: Noise Characteristic data for Helicopter Data Set 1**

NOISE_ID	THRSET_TYP	MODEL_TYPE	SPECT_APP	SPECT_DEP	SPECT_AFB
H1.0	Propeller	I	215	109	0
H1.1	Propeller	I	215	109	0
H1.2	Propeller	I	215	109	0
H2.1	Propeller	I	215	109	0
H2.2	Propeller	I	215	109	0

**Table I-22: Noise Power Distance (NPD) data for Helicopter Data Set 1**

NOISE_ID	NOISE_TYPE	OP_MODE	THR_SET	L_200	L_400	L_630	L_1000	L_2000	L_4000	L_6300	L_10000	L_16000	L_25000
H1.0	M	A	80.00	81.3	75.0	70.7	66.3	59.2	51.4	45.6	39.1	31.5	23.1
H1.0	M	A	100.00	84.3	78.0	73.7	69.3	62.2	54.4	48.6	42.1	34.5	26.1
H1.0	M	D	80.00	81.3	75.0	70.7	66.3	59.2	51.4	45.6	39.1	31.5	23.1
H1.0	M	D	100.00	84.3	78.0	73.7	69.3	62.2	54.4	48.6	42.1	34.5	26.1
H1.0	S	A	80.00	82.0	78.6	76.2	73.6	69.2	64.1	60.1	55.3	49.4	42.8
H1.0	S	A	100.00	85.0	81.6	79.2	76.6	72.2	67.1	63.1	58.3	52.4	45.8
H1.0	S	D	80.00	82.0	78.6	76.2	73.6	69.2	64.1	60.1	55.3	49.4	42.8
H1.0	S	D	100.00	85.0	81.6	79.2	76.6	72.2	67.1	63.1	58.3	52.4	45.8
H1.1	M	A	80.00	86.5	80.2	75.9	71.5	64.4	56.6	50.8	44.3	36.7	28.3
H1.1	M	A	100.00	89.5	83.2	78.9	74.5	67.4	59.6	53.8	47.3	39.7	31.3
H1.1	M	D	80.00	86.5	80.2	75.9	71.5	64.4	56.6	50.8	44.3	36.7	28.3
H1.1	M	D	100.00	89.5	83.2	78.9	74.5	67.4	59.6	53.8	47.3	39.7	31.3
H1.1	S	A	80.00	87.2	83.8	81.4	78.8	74.4	69.3	65.3	60.5	54.6	48.0
H1.1	S	A	100.00	90.2	86.8	84.4	81.8	77.4	72.3	68.3	63.5	57.6	51.0
H1.1	S	D	80.00	87.2	83.8	81.4	78.8	74.4	69.3	65.3	60.5	54.6	48.0
H1.1	S	D	100.00	90.2	86.8	84.4	81.8	77.4	72.3	68.3	63.5	57.6	51.0
H1.2	M	A	80.00	89.1	82.8	78.5	74.1	67.0	59.2	53.4	46.9	39.3	30.9
H1.2	M	A	100.00	92.1	85.8	81.5	77.1	70.0	62.2	56.4	49.9	42.3	33.9
H1.2	M	D	80.00	89.1	82.8	78.5	74.1	67.0	59.2	53.4	46.9	39.3	30.9
H1.2	M	D	100.00	92.1	85.8	81.5	77.1	70.0	62.2	56.4	49.9	42.3	33.9
H1.2	S	A	80.00	89.8	86.4	84.0	81.4	77.0	71.9	67.9	63.1	57.2	50.6
H1.2	S	A	100.00	92.8	89.4	87.0	84.4	80.0	74.9	70.9	66.1	60.2	53.6
H1.2	S	D	80.00	89.8	86.4	84.0	81.4	77.0	71.9	67.9	63.1	57.2	50.6
H1.2	S	D	100.00	92.8	89.4	87.0	84.4	80.0	74.9	70.9	66.1	60.2	53.6
H2.1	M	A	80.00	91.3	85.0	80.7	76.3	69.2	61.4	55.6	49.1	41.5	33.1

H2.1	M	A	100.00	94.3	88.0	83.7	79.3	72.2	64.4	58.6	52.1	44.5	36.1
H2.1	M	D	80.00	91.3	85.0	80.7	76.3	69.2	61.4	55.6	49.1	41.5	33.1
H2.1	M	D	100.00	94.3	88.0	83.7	79.3	72.2	64.4	58.6	52.1	44.5	36.1
H2.1	S	A	80.00	92.0	88.6	86.2	83.6	79.2	74.1	70.1	65.3	59.4	52.8
H2.1	S	A	100.00	95.0	91.6	89.2	86.6	82.2	77.1	73.1	68.3	62.4	55.8
H2.1	S	D	80.00	92.0	88.6	86.2	83.6	79.2	74.1	70.1	65.3	59.4	52.8
H2.1	S	D	100.00	95.0	91.6	89.2	86.6	82.2	77.1	73.1	68.3	62.4	55.8
H2.2	M	A	80.00	94.3	88.0	83.7	79.3	72.2	64.4	58.6	52.1	44.5	36.1
H2.2	M	A	100.00	97.3	91.0	86.7	82.3	75.2	67.4	61.6	55.1	47.5	39.1
H2.2	M	D	80.00	94.3	88.0	83.7	79.3	72.2	64.4	58.6	52.1	44.5	36.1
H2.2	M	D	100.00	97.3	91.0	86.7	82.3	75.2	67.4	61.6	55.1	47.5	39.1
H2.2	S	A	80.00	95.0	91.6	89.2	86.6	82.2	77.1	73.1	68.3	62.4	55.8
H2.2	S	A	100.00	98.0	94.6	92.2	89.6	85.2	80.1	76.1	71.3	65.4	58.8
H2.2	S	D	80.00	95.0	91.6	89.2	86.6	82.2	77.1	73.1	68.3	62.4	55.8
H2.2	S	D	100.00	98.0	94.6	92.2	89.6	85.2	80.1	76.1	71.3	65.4	58.8

### Helicopter Noise and Performance Data Set 2

Data is provided for three helicopter classes, based on maximum take-off mass:

1. Light helicopter (LHEL) MTOM<3,000kg
2. Medium helicopter (MHEL) 3,000kg<MTOM<6,000kg
3. Heavy helicopter (THEL) MTOM>6,000kg

Default arrival and departure flight profiles are provided as fixed point profiles. Default departure flight profiles assume climb to a level flight altitude of 1,000ft (305m) for each helicopter class. Where the level flight portion on departure or arrival differs locally from these values, it is recommended that the default profiles are adapted to reflect local circumstances.

**Table I-23: Helicopter Data Set 2 Description Table**

ACFT ID	Description	Engine Type	Number of Engines	Weight Class	Owner Category	MGTOW (lb)	MGLW (lb)	Max Landing Dist (ft)	Max Sea Level Static Thrust (lb)	Noise Chapter	NPD_ID	Power Parameter	Approach Spectral Class ID	Departure Spectral Class ID	Lateral Directivity Identifier
LHEL	Helicopters with MTOM <= 1 t	Turboprop	0	0	Helicopter	0	0	0	100	0	LHEL	SHP (% of Max Static Thrust)	215	112	Prop
MHEL	Helicopters with MTOM 1-3 t	Turboprop	0	0	Helicopter	0	0	0	100	0	MHEL	SHP (% of Max Static Thrust)	215	112	Prop
THEL	Helicopters with MTOM 3-5 t	Turboprop	0	0	Helicopter	0	0	0	100	0	THEL	SHP (% of Max Static Thrust)	215	112	Prop

**Table I-24: Helicopter Data Set 2 Departure Profiles**

ACFT_ID	Op Type	Profile ID	Stage Length	Point Number	Distance (ft)	Altitude (ft)	TAS (kt)	Corrected Net Thrust	OP_MODE
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								(%)	
LHEL	D	DEFAULT	1	1	0	0	1	50X	
LHEL	D	DEFAULT	1	2	10	0	3	50X	
LHEL	D	DEFAULT	1	3	20	16	5	50X	
LHEL	D	DEFAULT	1	4	102	16	5	60D	
LHEL	D	DEFAULT	1	5	561	30	50	60D	
LHEL	D	DEFAULT	1	6	2297	515	70	60D	
LHEL	D	DEFAULT	1	7	4032	1001	90	70D	
LHEL	D	DEFAULT	1	8	7014	1001	100	70D	
LHEL	D	DEFAULT	1	9	10000	1001	110	70D	
MHEL	D	DEFAULT	1	1	0	0	1	50D	
MHEL	D	DEFAULT	1	2	10	0	2	50D	
MHEL	D	DEFAULT	1	3	20	16	3	50D	
MHEL	D	DEFAULT	1	4	102	16	30	50D	
MHEL	D	DEFAULT	1	5	561	30	60	50D	
MHEL	D	DEFAULT	1	6	4032	1001	65	75D	
MHEL	D	DEFAULT	1	7	6785	1001	100	75D	
MHEL	D	DEFAULT	1	8	10000	1001	126	75D	
THEL	D	DEFAULT	1	1	0	0	1	100X	
THEL	D	DEFAULT	1	2	10	0	2	100X	
THEL	D	DEFAULT	1	3	20	16	3	50D	
THEL	D	DEFAULT	1	4	102	16	30	50D	
THEL	D	DEFAULT	1	5	1001	151	60	50D	
THEL	D	DEFAULT	1	5	4679	1000	65	75D	
THEL	D	DEFAULT	1	5	6681	1000	83	75D	
THEL	D	DEFAULT	1	5	8679	1000	100	75D	
THEL	D	DEFAULT	1	5	13679	1000	113	75D	
THEL	D	DEFAULT	1	5	18679	1000	126	75D	

**Table I-25: Helicopter Data Set 2 Arrival Profiles**

ACFT_ID	Op Type	Profile ID	Stage Length	Point Number	Distance (ft)	Altitude (ft)	TAS (kt)	Corrected Net Thrust (%)	OP_MODE
LHEL	D	DEFAULT	1	3	-50003	1000	115	70X	
LHEL	D	DEFAULT	1	4	-9332	1000	113	70X	
LHEL	D	DEFAULT	1	5	-6340	686	110	80A	
LHEL	D	DEFAULT	1	6	-4029	443	95	80A	
LHEL	D	DEFAULT	1	7	-1686	197	80	80A	
LHEL	D	DEFAULT	1	8	-843	108	60	80A	
LHEL	D	DEFAULT	1	9	0	20	5	80A	
LHEL	D	DEFAULT	1	9	102	0	3	80A	
LHEL	D	DEFAULT	1	9	121	0	1	80A	
MHEL	D	DEFAULT	1	2	-40229	1000	135	75X	
MHEL	D	DEFAULT	1	3	-36322	1000	123	75X	
MHEL	D	DEFAULT	1	4	-32411	1000	112	75X	
MHEL	D	DEFAULT	1	5	-28504	1000	100	75X	
MHEL	D	DEFAULT	1	6	-22145	1000	90	75X	
MHEL	D	DEFAULT	1	7	-15784	1000	80	75X	

MHEL	D	DEFAULT	1	8	-9426	1000	70	75X
MHEL	D	DEFAULT	1	8	-5153	551	60	60A
MHEL	D	DEFAULT	1	8	-750	89	50	60A
MHEL	D	DEFAULT	1	8	-62	16	20	60A
MHEL	D	DEFAULT	1	8	0	10	5	60A
MHEL	D	DEFAULT	1	8	102	0	2	60A
MHEL	D	DEFAULT	1	8	121	0	1	60A
MHEL	D	DEFAULT	1	8	-40229	1000	135	75X
MHEL	D	DEFAULT	1	8	-36322	1000	123	75X
MHEL	D	DEFAULT	1	8	-32411	1000	112	75X
MHEL	D	DEFAULT	1	8	-28504	1000	100	75X
MHEL	D	DEFAULT	1	8	-22145	1000	90	75X
MHEL	D	DEFAULT	1	8	-15784	1000	80	75X
MHEL	D	DEFAULT	1	8	-9426	1000	70	75X
MHEL	D	DEFAULT	1	8	-5153	551	60	60A
MHEL	D	DEFAULT	1	8	-750	89	50	60A
MHEL	D	DEFAULT	1	8	-62	16	20	60A
MHEL	D	DEFAULT	1	8	0	10	5	60A
MHEL	D	DEFAULT	1	8	102	0	2	60A
MHEL	D	DEFAULT	1	8	121	0	1	60A

**Table I-26: Noise Characteristic data for Helicopter Data Set 2**

NOISE_ID	THRSET_TYP	MODEL_TYPE	SPECT_APP	SPECT_DEP	SPECT_AFB
LHEL	P	I	215	109	0
MHEL	P	I	215	109	0
THEL	P	I	215	109	0

**Table I-27: Noise Power Distance (NPD) data for three helicopter classes**

NPD Identifier	Noise Descriptor	Power Setting	Op Mode	L_200ft	L_400ft	L_630ft	L_1000ft	L_2000ft	L_4000ft	L_6300ft	L_10000ft	L_16000ft	L_25000ft
LHEL	MAX	80A		84.6	79.1	75.7	71.6	65.8	60.1	56	48.8	41.6	34.4
LHEL	MAX	70X		88.4	82.9	79.5	75.6	70.3	65	61.6	55.4	49.2	43
LHEL	MAX	60D		83.6	78.2	75.1	70.3	66.5	61.7	58.9	53.3	47.7	42.1
LHEL	MAX	50S		91.7	85.3	81.5	76.5	69.4	61.5	56.5	49.6	42.7	35.8
LHEL	SEL	80A		90.5	87.1	84.9	82.1	77.6	72.1	67.9	62.4	56.9	51.4
LHEL	SEL	70X		90.4	87	84.7	81.9	77.5	72	68.1	62.9	57.7	52.5
LHEL	SEL	60D		85.9	82.5	80.4	77.7	73.4	68.4	64.6	59.6	54.6	49.6
LHEL	SEL	50S		85.9	82.5	80.4	77.7	73.4	68.4	64.6	59.6	54.6	49.6
MHEL	MAX	50D		91.8	85.2	80.6	75.7	67.5	58.1	51.2	42.6	34	25.4
MHEL	MAX	60A		90.2	83.9	80	75.3	68.4	60.9	55.8	49.5	43.2	36.9
MHEL	MAX	75X		92.4	86	82	77.2	70	62.3	57.1	50.8	44.5	38.2

NPD Identifier	Noise Descriptor	Power Setting	Op Mode	L_ 200ft	L_ 400ft	L_ 630ft	L_ 1000ft	L_ 2000ft	L_ 4000ft	L_ 6300ft	L_ 10000ft	L_ 16000ft	L_ 25000ft
MHEL	SEL	50D		91.2	87.2	84.8	80.8	75	68.1	63.7	57.6	51.5	45.4
MHEL	SEL	60A		94.2	90.1	88.1	84.7	80	74.7	71.3	66	60.7	55.4
MHEL	SEL	75X		89.3	85.3	82.8	78.9	73.1	66.6	62.6	57	51.4	45.8
THEL	MAX	50D		91.2	85.2	81.7	76.3	68.8	60.4	54.9	46	37.1	28.2
THEL	MAX	60A		90	84.1	80.7	75.5	68.5	60.6	55.3	48	40.7	33.4
THEL	MAX	75X		92.4	86.4	82.9	77.5	70.1	61.6	55.7	48.1	40.5	32.9
THEL	MAX	100S		100.2	93.8	90.3	84.9	77.5	69.3	64.3	56.5	48.7	40.9
THEL	SEL	50D		92.8	89.3	87.4	84	79.2	73.5	69.6	63.7	57.8	51.9
THEL	SEL	60A		91.6	88.2	86.4	83.2	78.8	73.7	70	64.7	59.4	54.1
THEL	SEL	75X		94	90.5	88.6	85.2	80.5	74.7	70.4	64.8	59.2	53.6
THEL	SEL	100S		92.8	89.3	87.4	84	79.2	73.5	69.6	63.7	57.8	51.9