



ECMA/TC38-TG3/2015/026 (Rev. 1 – 15 April 2015)

## Annex B2 - Product environmental attributes Notebooks and Tablets

The declaration may be published only when all rows and/or fields marked with \* are filled-in (n.a. for not applicable). Additional information regarding each item may be found under P15.

Brand *	Lenovo	Logo			
Company name *	Lenovo	I and the second second second			
Contact information *	Lenovo Global Environmental Affairs	Lenovo			
e-mail address	Alvin L Carter	LCI IOVO.			
	<u>alcarter@lenovo.com</u>				
Internet site *	http://www.lenovo.com/social_responsibility/us/en/environment	t.html			
Additional information	The latest version of this document can be found at:				
	http://www.lenovo.com/ecodeclaration				

The company declares (based on product specification or test results based obtained from sample testing), that the product conforms to the statements given in this declaration.						
Type of product *	Notebook					
Commercial name *	Legion 5 15 AMD					
Model number *	82JU					
Issue date *	2021-2-1					
Intended market *	☐ Global ☐ Europe ☐ Asia, Pacific & Japan ☐ Americas ☐ Other					
Additional information						

This is an uncontrolled copy when in printed form. Please refer to the contact information for the latest version.

#### About Annex B2

Annex B2 reflects Product environmental attributes relevant for Computers and Computer Monitors. The following items from the ECMA-370 Main body are not shown in the template:

P4.1 – P4.3 Consumable materials

P9.1 TEC and Print speed

P10.2 - P10.3 Chemical emissions from printing products

P11.1 - P11.3 Consumable materials for printing products

Model number *		82JU	Logo	Long	21/0		
Issue date *		2021-2-1		Lend	JVC	<i>)</i>	
Product	environ	mental attributes - Legal requirements		Require	ment	met	
Item		<u> </u>		Yes	No	n.a.	
P1	Hazardo	ous substances and preparations		•			
P1.1*	Products	do comply with current European RoHS Directive. (See legal reference and NOTE	B1)	$\boxtimes$			
P1.2*	Products	do not contain Asbestos (see legal reference).		$\boxtimes$			
		nt: Legal reference has no maximum concentration value.					
P1.3*		do not contain Ozone Depleting Substances: Chlorofluorocarbons (CFC),		$\square$			
	trichloro	emofluorocarbons (HBFC), hydrochlorofluorcarbons (HCFC), Halons, carbontetractethane, methyl bromide (see legal reference). Comment: Legal reference has no n					
		concentration values.					
P1.4*	Products do not contain more than; 0,005% polychlorinated biphenyl (PCB), 0,005% polychlorinated terphenyl (PCT) in preparations (see legal reference).						
P1.5*	Products	do not contain more than 0,1% short chain chloroparaffins (SCCP) with 10-13 car	on atoms in th	ne 🔀			
	chain co	ntaining at least 48% per mass of chlorine in the SCCP (see legal reference).					
P1.6*		h direct and prolonged skin contact do not release nickel in concentrations above (	),5 μg/cm²/wee	k 🔀			
	(see lega						
		nt: Max limit in legal reference when tested according to EN1811:2011-5.					
P1.7*		Article 33 information about substances in articles is available at (add URL or mail	contact):				
	https://v	vww.lenovo.com/us/en/Lenovo-REACH-SVHC-Disclosure					
P2	Batterie						
P2.1*		duct contains a battery or an accumulator, the battery/accumulator is labeled with	the disposal				
		Information on proper disposal is provided in user manual. (See legal reference)					
P2.2*	Batteries reference	or accumulators do not contain more than 0,0005% of mercury or 0,002% of cadn e)	nium. (See lega	al 🔀	Ш	Ш	
P2.3*	Batteries	and accumulators are readily removable. (See legal reference)		$\boxtimes$			
P3	Conforn	nity verification & Eco design (ErP)					
P3.1*		duct is CE-marked to show conformance with applicable legal requirements (see leg	gal reference).	$\square$		$\overline{}$	
			mail addres		ш		
	https://v	www.lenovo.com/us/en/compliance/eu-doc		,			
P3.2*	The prod	fluct complies with the Eco design requirements for energy-related products,		$\square$			
		al reference).					
	Required	d information is; given in item P15 or added to this document,					
	•	available at (add URL):					
	https://v	www.lenovo.com/us/en/compliance/eco-declaration					
P5		packaging		*			
P5.1*	Packagii	ng and packaging components do not contain more than 0,01% lead, mercur	y, cadmium ai	nd 🔀			
		ent chromium by weight of these together.			ш		
P5.2*		kaging materials are marked with abbreviations and numbers indicating the nature	of the material(	(s)			
		e legal reference).					
P5.3*		luct packaging material is free from ozone depleting substances as specified in the N	∕Iontreal Protoc	ol 🔀			
		al reference).					
D0		nt: Legal reference has no maximum concentration values.					
P6		nt information					
P6.1*	ıntormatı	on for recyclers/treatment facilities is available (see legal reference).		$\bowtie$		1 1 1	

NOTE B1 Restriction applies to the homogeneous material, unless other specified and expressed in weight %. Stating "Yes" means that the product is compliant with the mandatory requirements.

Model nu	ımber *	82JU	Logo	The same	4.44	
Issue da	te *	* 2021-2-1			ovo	_
Product	environ	mental attributes - Market requirements (See General NOTE GN I	below)			
		nmental conscious design	,	Require	ment i	net
Item	*=mandat	ory to fill in. Additional information regarding each item may be found under P14.		Yes	No	n.a.
P7		Disassembly, recycling				
P7.1*	Parts tha	t have to be treated separately are easily separable		$\boxtimes$		
P7.2*	Plastic m	aterials in covers/housing have no surface coating.			$\boxtimes$	
P7.3*	Plastic pa	arts > 100 g consist of one material or of easily separable materials.		$\boxtimes$		
P7.4*	Plastic pa	arts > 25 g have material codes according to ISO 11469 referring ISO 1043-4.		$\boxtimes$		
P7.5	Plastic pa	arts are free from metal inlays or have inlays that can be removed with commonly a	vailable tools.	$\boxtimes$		
P7.6*	Labels a	re easily separable. (This requirement does not apply to safety/regulatory labels).			$\overline{\sqcap}$	
	Product	lifetime		<u> </u>		
P7.7*	Upgradin	g can be done e.g. with processor, memory, cards or drives		$\boxtimes$		
P7.8*	Upgradin	g can be done using commonly available tools			$\overline{\Box}$	
P7.9	Spare pa	rts are available after end of production for: 3 years				$\overline{\Box}$
P7.10	Service is	s available after end of production for: 3 years				$\overline{\Box}$
	Material	and substance requirements		•		
P7.11*	Product of	cover/housing material type (e.g. plastics, metal, aluminum):				
		type: PC+ABS Material type:				
P7.12		n materials of external electrical cables are PVC free.				
P7.13		n materials of internal electrical cables are PVC free.			$\boxtimes$	
P7.14	weight (1 polyvinyl	plastic casing/cover parts > 25 g contain no more than 0,1% weight (1000 ppm) br 000 ppm) chlorine attributable to brominated flame retardants, chlorinated flame chloride or 0,3% weight (3000 ppm) bromine and 0,3% weight (3000 ppm) chlorine ir n 25% post-consumer recycled content.	e retardants, ai	nd		
P7.15	Printed c	ircuit boards, PCBs (without components) are low halogen: all PCBs > 25 g din IEC 61249-2-21. (See 1NOTE B2)	are low haloge	en 🗌		
P7.16		tarded plastic parts > 25 g in covers / housings are marked according ISO 1043-4:				
P7.17		hemical specifications of flame retardants in printed circuit boards > 25 g (without additive), TBBPA (reactive) (See NOTE B3), Other: , CAS #:	out components	s):		
		nemical specifications of flame retardants in printed circuit boards (without componed ISO 1043-4: $FR(16)$	ents) > 25 g			
P7.18	Comme 1. Chemi 2. Chemi	etarded plastic parts >25g contain the following flame retardant substances ations above 0.1%: ent: No legal limits exist, this is a market requirement. cal name: CAS #: cal name: CAS #: cal name: CAS #: cal name: CAS #:	s/preparations	in		
	Alt. 2	cal name: , CAS #: I specifications of flame retardants in plastic parts >25g according ISO 1043-4:				

GENERAL NOTE Standard references should direct to the latest version of a standard. If an older version of a standard is used, section P15 shall be used for explanation.

Of total plastic parts' weight > 25 g, the postconsumer recycled plastic material content (calculated as

In plastic parts > 25 g, flame retardant substances/preparations above 0,1% are used which have been

H411; H413

**European Council Directive** 

assigned the following Risk phrases; Confidential and Hazard statements:

Postconsumer recycled plastic material content is used in the product (See Note B6):

The source(s) for these classifications is/are found at (add URL(s)):

(See note B5)

If YES; at least one of the two alternatives below shall be answered;

a percentage of total plastic by weight) is 0%.

The weight of recycled material is 0 g.

NOTE B2 IEC 61249-2-21 defines maximum limits of 900 ppm for each of the substances chlorine and bromine and a maximum limit of 1500ppm of these substances combined. The standard does not address fluorine, iodine and astatine which are included in the group of halogens.

NOTE B3 and B4 A Guidance document on Chemical substances is available; see <a href="http://www.ecma-international.org/publications/standards/Ecma-370.htm">http://www.ecma-international.org/publications/standards/Ecma-370.htm</a>

NOTE B5 If a certain substance has been assigned a certain risk phrases / hazard statement in the referenced source, this does not necessarily mean the substance has been tested for all of the hazards referred to by a certain customer.

NOTE B6 Applies to a product containing plastic parts whose combined weight exceeds 100 g with the exception of printed circuit boards, cables, connectors and electronic components and bio-based plastic material.

P7.19

P7.20

67/548/EEC

a)

or b) 

Model number *	82JU	Logo	Lon	ovo	,
Issue date *	2021-2-1		Len	OV	<u> </u>
Product environr	mental attributes - Market requirements (continued)		Requi	remer	nt met
Item			Yes	No	n.a.

	Material and subs	stance requirements	(continued)							
P7.21*	Biobased plastic m	naterial content is used	in the product (See NO	OTE B7):						
	a) Of total plasti		s below shall be answe the biobased plastic m	ered; aterial content (calculat	ed as a percentage of					
	or b) The weight of	the biobased plastic r	naterial is g.							
P7.22*	Light sources are t	ree from mercury, i.e.	less than 0,1 mg/lamp.		ПП	$\boxtimes$				
		specify: Number of lan	nps: and maximi	um mercury content per	r lamp: mg					
P8	Batteries									
P8.1*	Battery chemical c	omposition: LI-ION Po	lymer battery and lith	ium-metal battery						
P9		consumption (See NOTE B8)								
P9.1		ne product the following power levels or energy consumptions are reported:								
Energy mod		Power level at 100 V AC	Power level at 115 V AC	Power level at 230 V AC	Reference/Standard for energy modes and test method *					
Peak (On-r	nax)	300 W	300 W	300W	Full load					
Category	<u>v 2</u>									
Short Idle : Enabled	State - WOL	18.63 W	18.70 W	18.79 W	Reference					
Long Idle S Enabled	State - WOL	6.58 W	6.63 W	6.75 W	Reference					
Sleep (S3)	- WOL Enabled	0.78 W	0.80 W	0.81 W	Reference					
Sleep (S3)	- WOL Disabled	0.78 W	0.80 W	0.81 W	Reference					
Off (S5) - V Disabled	VOL Enabled /	<b>0.42</b> W	0.44 W	0.45 W	Use for ErP					
EPS No-loa	ad	0.113 W	0.114 W	0.115W						
(External power si	upply / charger plugged in the connected from the product.)									
PTEC *	connected from the product.)	W	W	W		$\boxtimes$				
Typical Ene	ergy Consumption									
ETEC * Annual Ene	ergy Consumption	<b>58.04</b> kWh/year	<b>58.36</b> kWh/year	<b>58.76</b> kWh/year	E <sub>TEC</sub> = (8760/1000) x (P <sub>off</sub> x 0.25 + P <sub>sleep</sub> x 0.35 + P <sub>long_Idle</sub> x 0.10+ P <sub>short Idle</sub> x 0.30)					
		Poff: Off Mode(S5) - WC	OL Enabled; Psleep: Sleep	Mode(S3) - WOL Enabled	d; P <sub>idle</sub> : Idle State - WOL Enabled					
External Po	wer Supply Efficier	cy Level (International	Efficiency Marking Pro	tocol) * : VI						
Display res	olution * :2.07 meg	apixels								
Default time	e to enter enerav sa	ve mode: 10 minutes				$\forall$				
P9.2*			on is provided with the	nroduct		H				
P9.3		class (monitors only):	on to provided with the	product.						
P10	Emissions	Jass (monitors only).								
FIU		Declared according to	ISO 9296 (See NOTE	R0)						
P10.1		Mode description	130 9290 (See NOTE		A-weighted sound power level, $L_{WA,c}$	(B)				
. 10.1		Idle (Operating)		* 2.5	Holginou sound power level, EWA,c					
		* HDD:Operation		* NA(No HDD)		+				
				3.5						
	Other mode L	eclared A-weighted sound	d pressure level (dB) $L_{p  m Am}$	(operator position desktop – idle)						
	Other mode L	eclared A-weighted sound	d pressure level (dB) $L_{p{\sf Am}}$	(operator pos	sition desktop – operating)					
		ng to: 🔲 ISO 7779 🗌	_	ECMA 74)						

NOTE B7 The following is to be excluded from the calculation of percentage: printed circuit boards, labels, cables, connectors and electronic components and postconsumer recycled plastic

NOTE B8 A Guidance document on Energy Efficiency is available; see <a href="http://www.ecma-international.org/publications/standards/Ecma-370.htm">http://www.ecma-international.org/publications/standards/Ecma-370.htm</a>

NOTE B9 A Guidance document on Acoustic Noise is available; see <a href="http://www.ecma-international.org/publications/standards/Ecma-370.htm">http://www.ecma-international.org/publications/standards/Ecma-370.htm</a>

Model nur	nber *	82JU			L	ogo	Long		
Issue date	*	2021-2-1					Leno	VO.	
Product	environn	nental attributes	- Market requiremen	ts (continued)			Require	ment	met
Item			•	,			Yes	No	n.a.
	Electron	magnetic emission	S				*		
P10.4		er display meets the (s): MPR-II(3 pin A	requirement for low freq C adapter only)	uency electromagnetic	fields of the follow	ing voluntary			
P12		mics for computing					•		
P12.1*	The disp	lay meets the ergor	omic requirements of IS	O 9241-307 for visual o	display technologie	es.	$\boxtimes$		
P12.2*	The phys	sical input device m	eets the requirements of	ISO 9995 and ISO 924	11-410.		$\boxtimes$		
P13		ng and documenta							
P13.1*	Product Product Product	packaging material packaging material	type(s): Corrugated witype(s): paper(manual) type(s): PP weight (kg): type(s): PE weight (kg): type(s): EPE witype(s):	weight (kg): 0.	10				
P13.2*	Product	plastic primary pack	aging is free from PVC.	<u> </u>			$\boxtimes$		
P13.3*		duct primary corrug er recovered fiber co	ated fiberboard packagir ontent: <b>100</b> %	ng, specify the contain	ned percentage of	f minimum po	st-		
P13.4*	Specify r		product documentation (ti	ck box):					
P13.5	Ùser and		em if paper documentation on paper media is c						
	Element	hlorine-free al chlorine-free ed chlorine-free							
P14		ry programs							
P14.1	The prod	duct meets the requ	rements of the following	voluntary program(s):					
	Eco-labe	el:	Criteria version: Criteria version: Criteria version:	Date: Date: Date:	Product cat Product cat Product cat	egory:			
P15		nal information (Se							
P9			ecific configuration ma						
	informati knowled provided informati	ion contained in this ge available at the t I here is approximat ion.	epresentations, guarante document. All informatio ime of completion, and si e and provided for inform	n provided by supplier upplier shall have no ol ational purposes only.	in this document is bligation to update See a Lenovo Acc	s provided bas such informat	ed on supp ion. The inf	lier's ormati	on
P9			otebooks & Tablet Comp www.energystar.gov/pro						

NOTE B10 Additional lines may be inserted to declare further items, by positioning the cursor at the far right of the row and hitting the <Enter> key.

## Legal references Europe Annex B2

Reference	Declaration item
Directive 2011/65/EU (RoHS Directive) *  * Specific exemptions apply for certain products and applications.	P1.1
Regulation (EC) 1907/2006(REACH, Annex XVII	P1.2, P1.4, P1.6, P1.7
Regulation (EC) 2037/2000, 2038/2000, 2039/2000 (Marketing and use of Ozone layer depleting substances)	P1.3, P5.3
Norwegian regulation relating to restrictions on the use of certain dangerous chemicals 20.12.2002	P1.5
Directive 2013/56/EC (Battery and accumulators Directive) *  * These provisions shall not apply where, for safety, performance, medical or data integrity reasons, continuity of power supply is necessary and requires a permanent connection between the appliance and the battery or accumulator.	P2.1, P2.2, P2,3, P8.1
Directive 2006/95/EC (Low Voltage Directive)	P3.1
Directive 2004/108/EC (EMC Directive)	P3.1
Directive 1999/5/EC (R&TTE Directive)	P3.1
Regulation (EC) 801/2013 amending Regulation (EC) No 1275/2008 with regard to ecodesign requirements for standby, off mode electric power consumption of electrical and electronic household and office equipment, and amending Regulation (EC) No 642/2009 with regard to ecodesign requirements for televisions	P3.1, P3.2
Regulation (EC) No 1272/2008 (CLP Regulation)	P7.19
Directive 2004/12/EC ( Packaging Directive)	P5.1
Decision 97/129/EC (Secondary packaging legislation)	P5.2
Directive 2012/19/EU (WEEE directive)	P6.1

# Lenovo ErP Lot3 Information Sheet - PC / Notebook -

As required by COMMISSION REGULATION (EU) No 617/2013 of 26 June 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for computers and computer servers (ErP Lot3).

### **Products scope of this sheet:**

Desktop computer, integrated desktop computer, and notebook computer

This document is only valid in connection with the IT Eco Declaration of the specific Product.

Commercial name *	Legion 5 1 AMD	Logo
Model number *	82JU	Longyo
Issue date *	2021-2-1	Lenovo
Additional information		

d)	Year of manufacture:				2021
<del>=</del> )	Etec value (kWh) per ErP Lot 3 Catego disabled and if the system is tested with				cards (dGfx) are
)	Etec value (kWh) per ErP Lot 3 Categor enable	y and capability adjust	ments applied when <b>a</b>	all discrete graphics o	cards (dGfx) are
		Category A (according to ErP Lot 3)	Category B (according to ErP Lot 3)	Category C (according to ErP Lot 3)	Category D (according to ErP Lot 3)
	Memory over base [GB]	, , ,	,	32	,
nents	Additional internal storage	(Yes / No)	(Yes / No)	yes (Yes / No)	(Yes / No)
capability adjustments applied during testing	Discrete television tuner	(Yes / No)	(Yes / No)	No (Yes / No)	(Yes / No)
ability a	Discrete Audio Card	(Yes / No)	(Yes / No)	No (Yes / No)	(Yes / No)
cap	Discrete graphics Card(s) [number / #]	#: (Yes / No)	#: (Yes / No)	Yes #: 1 (Yes / No)	#: (Yes / No)
sults	Category of discrete graphics Card(s)			G7	
	Etec Value (kWh) - dGfx disabled all discrete graphics cards (dGfx) are disabled/ UMA is active for switchable graphics/ product has no graphics cards (dGfx)				
Test results	Etec Value (kWh) - dGfx enabled all discrete graphics cards (dGfx) are enabled			20.81	
1)	Idle state power demand (Watts);	ı	L	1	6.75
)	Sleep mode power demand (Watts);				0.81
ı	Sleep mode with WOL enabled power de	emand (Watts) (where	enabled);		0.81
ı	Off mode power demand (Watts);				0.45
)	Off mode with WOL enabled power dema	and (Watts) (where en	abled);		0.45
	Internal power supply efficiency at 10 %,	20 %, 50 % and 100 9	% of rated output pow	er (if applicable):	
	10% 20% 50%	100% Avera	ige		
1)	External power supply efficiency (if applied	cable)*:			
	Average active efficiency: 93.33% 92.9	7%			
)	*internal note: show values for all available external power supplies  Minimum number of loading cycles that the batteries can withstand (applies only to notebook computers):  300CYCLES				
-1)	Measurement methodology used to dete	rmine information men	tioned in points (I) – in	nternal PSU efficiency:	<u> </u>

(p-2)	Measurement methodology used to determine information mentioned in points (m) – external PSU efficiency:  ENERGY STAR® Program Requirements for Single Voltage External Ac-Dc and Ac-Ac Power Supplies  Eligibility Criteria (Version 2.0)						
(p-3)	Measurement metho	dology used to determine information mentioned in p <b>≥70% of Cmin</b>	points (o) – loading cycles batteries:				
(p-4)		Measurement methodology used to determine information mentioned in maximum, idle, sleep, off mode power as defined in Point P9.1 in the Product IT Eco Declaration:					
		IEC 62623					
(q)	Sequence of steps for	or achieving a stable condition with respect to power	demand::				
		Power on -> Wait 5 minutes -> Stable con	ndition				
(r)	Description of how sl	eep and/or off mode was selected or programmed:					
		Begin menu -> Power -> Select sleep or o	ff mode				
(s)	Sequence of events required to reach the mode where the equipment automatically changes to sleep and/or off mode: <b>NA</b>						
(t)		te condition before the computer automatically re- not exceed the applicable power demand requirement		30min			
(u)							
(v)		re the display sleep mode is set to activate after	,	10min			
(w)	Information on the er	nergy-saving potential of power management function	nality:Refer to User Guide				
(x)	User information on I	now to enable the power management functionality:	Refer to User Guide				
(z)		measurements: — test voltage in V and frequency in system, — information and documentation on the in- sting:					
		230V50HZ-2%-Edition 2.0, 2011-01, Section 4	I, IEC62301				
Additiona	al Notebook Batter	y Information:	*				
		Battery[ies] <u>not</u> user replaceable	Battery[ies] user replaceable	n/a			
		The battery[ies] in this product cannot be easily replaced by users themselves. 1)					
Internal/bu	uilt-in Battery						
External/d	letachable Battery						
Bios Back	up Battery						
Other:							
Additional	information						
)							

The battery[ies] in this product cannot be easily replaced by users themselves.

Акумулаторната[ите] батерия[и] в този продукт не може да се замени[ят] лесно от самите потребители.

Las baterías de este producto no pueden ser sustituidas fácilmente por los propios usuarios. Výměnu baterie/baterií v tomto výrobku by neměli provádět sami uživatelé. Brugeren kan ikke uden videre udskifte batteriet/batterierne i dette produkt.

Der Akku/die Akkus dieses Produkts kann/können nicht ohne weiteres vom Benutzer selbst ausgetauscht werden.

Kasutajad ei saa selle toote akut/akusid ise hõlpsasti asendada. Η μπαταρία[-ες] στο προϊόν αυτό δεν μπορούν να αντικατασταθούν εύκολα από τους ίδιους τους χρήστες La/les batterie(s présente(s) dans ce produit ne peuvent être facilement remplacée(s) par les utilisateurs eux-mêmes.

Korisnik ne može lako zamijeniti Bateriju sam u ovom proizvodu. La batteria/le batterie in questo prodotto non può/possono essere facilmente sostituita/e dall'utente.

Lietotāji paši nevar nomainīt šā ražojuma akumulatoru(-us).

Šio gaminio baterijos [baterijų] pats vartotojas negali lengvai pakeisti. A termék akkumulátorát/akkumulátorait a felhasználó nem tudja egyedül egyszerűen kicserélni.

II-batterija/batteriji f dan iI-prodott ma tistax/jistgħux tiġ/ijġu sostitwita/i mill-utenti stess. Batteriet [ene] i dette produktet kan ikke lett erstattes av brukerne selv. De batterij(en) in dit product is (zijn) door de gebruiker niet gemakkelijk vervangbaar.

Użytkownik nie może sam w łatwy sposób wymienić baterii w tym produkcie.

A ou as baterias deste produto não podem ser facilmente substituídas pelos próprios utilizadores. Bateria (bateriile) din acest produs nu poate (pot) fi usor înlocuită (înlocuite) de utilizatorii însiși.

Batériu(-ie) v tomto výrobku nemôže vymieňať používateľ.

Baterij/baterije v tem izdelku uporabniki sami ne morejo zlahka zamenjati. Tämän tuotteen akku [akut] ei[vät] ole helposti käyttäjän vaihdettavissa.

Det är inte enkelt för kunden att själv byta ut batteriet/batterierna. Bu üründeki batarya(lar) kullanıcılar tarafından kolaylıkla değiştirilemez.