Directive 2008/48/EC Of the European Parliament and of the Council of 23 April 2008 on credit agreements for consumers and repealing Council Directive 87/102/EEC

ANNEX I

I.The basic equation expressing the equivalence of drawdowns on the one hand and repayments and charges on the other.

The basic equation, which establishes the annual percentage rate of charge (APR), equates, on an annual basis, the total present value of drawdowns on the one hand and the total present value of repayments and payments of charges on the other hand, i.e.:

$$\sum_{k=1}^{m} C_k(1+X)^{-t_k} = \sum_{l=1}^{m'} D_l(1+X)^{-s_l}$$

where:

—	X	is the APR,
—	m	is the number of the last drawdown,
—	k	is the number of a drawdown, thus $1 \leq k \leq m$,
—	C_k	is the amount of drawdown k,
—	t_k	is the interval, expressed in years and fractions of a year, between the date of the first drawdown and the date of each subsequent drawdown, thus $t_{1=0}$,
—	m’	is the number of the last repayment or payment of charges,
—	l	is the number of a repayment or payment of charges,
—	D_l	is the amount of a repayment or payment of charges,
—	s_l	is the interval, expressed in years and fractions of a year, between the date of the first drawdown and the date of each repayment or payment of charges.

Remarks:

(a) The amounts paid by both parties at different times shall not necessarily be equal and shall not necessarily be paid at equal intervals.

(b) The starting date shall be that of the first drawdown.

(c) Intervals between dates used in the calculations shall be expressed in years or in fractions of a year. A year is presumed to have 365 days (or 366 days for leap years), 52 weeks or 12 equal months. An equal month is presumed to have 30,41666 days (i.e. 365/12) regardless of whether or not it is a leap year.

(d) The result of the calculation shall be expressed with an accuracy of at least one decimal place. If the figure at the following decimal place is greater than or equal to 5, the figure at that particular decimal place shall be increased by one.

(e) The equation can be rewritten using a single sum and the concept of flows (A_k), which will be positive or negative, in other words either paid or received during periods 1 to k, expressed in years, i.e.:

$$S = \sum_{k=1}^{n} A_k (1 + X)^{-t_k}$$

,

S being the present balance of flows. If the aim is to maintain the equivalence of flows, the value will be zero.