

Title (en)  
RADAR SYSTEM WITH MONITORING OF THE FREQUENCY MODULATION OF A SEQUENCE OF IDENTICAL TRANSMISSION SIGNALS

Title (de)  
RADARSYSTEM MIT ÜBERWACHUNG DER FREQUENZMODULATION EINER FOLGE VON GLEICHARTIGEN SENDESIGNALEN

Title (fr)  
SYSTÈME RADAR À SURVEILLANCE DE LA MODULATION DE FRÉQUENCE D'UNE SÉRIE DE SIGNAUX D'ÉMISSION DE MÊME TYPE

Publication  
**EP 3619548 A1 20200311 (DE)**

Application  
**EP 18721273 A 20180409**

Priority  
• DE 102017207604 A 20170505  
• DE 2018200036 W 20180409

Abstract (en)  
[origin: WO2018202256A1] Method for a radar system for capturing the environment of a motor vehicle and for implementing a driver assistance function and/or a function for autonomous driving manoeuvres, having the steps of - producing frequency modulation by means of a controllable or regulatable oscillator, - generating a sequence of  $K_0$  ( $K_0 > 1$ ) transmission signals, the transmission frequency of which is modulated and which each have the same desired frequency profile, possibly apart from a variation in the frequency location, that is to say in particular a variation in the initial frequency and therefore synonymously the centre frequency, - emitting transmission signals using transmission means, - receiving transmission signals reflected at objects using reception means, - analysing the frequency profile of the transmission signals, and - evaluating the received signals, in particular for the purpose of detecting objects, using signal processing means, characterized in that - an actual profile of the transmission frequency within the transmission signals or a deviation of the actual profile from the desired frequency profile is determined in absolute or relative terms, that is to say apart from an uncertain constant part, - the  $K_0$  transmission signals are averaged in this case in order to accurately determine, in particular, identical profiles or deviations, wherein - a time-discrete signal which in each case contains information relating to the frequency profile of the transmission signal and is preferably generated in each case by sampling an analogue signal or by reading a free-running counter at predefined times is used for the averaging for each transmission signal, - these time-discrete signals are unnormalized with respect to the position of the phase and/or the initial value thereof using the  $K_0$  transmission signals, and - a normalization is explicitly carried out or an influence of the position of the phase and/or the initial value thereof is implicitly eliminated during evaluation of these time-discrete signals, and - the control of the oscillator is corrected and/or the evaluation of the received signals is corrected and/or the driver assistance function and/or the function for autonomous driving manoeuvres is adapted culminating in the deactivation thereof on the basis of the actual profile determined in this manner and/or a deviation of the actual profile from the desired profile determined in this manner and/or a quality level of the frequency modulation derived therefrom.

IPC 8 full level  
**G01S 7/40** (2006.01); **G01S 7/35** (2006.01); **G01S 13/34** (2006.01); **G01S 13/931** (2020.01)

CPC (source: EP US)  
**G01S 7/35** (2013.01 - EP); **G01S 7/354** (2013.01 - US); **G01S 7/40** (2013.01 - US); **G01S 7/4008** (2013.01 - EP US); **G01S 13/343** (2013.01 - EP); **G01S 13/931** (2013.01 - EP US); **G01S 7/356** (2021.05 - EP); **G01S 13/42** (2013.01 - EP)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)  
BA ME

DOCDB simple family (publication)  
**WO 2018202256 A1 20181108**; CN 110651198 A 20200103; CN 110651198 B 20240209; DE 102017207604 A1 20181108; DE 102017207604 B4 20191128; EP 3619548 A1 20200311; JP 2020518790 A 20200625; JP 7116072 B2 20220809; US 11822006 B2 20231121; US 2022244349 A1 20220804

DOCDB simple family (application)  
**DE 2018200036 W 20180409**; CN 201880033521 A 20180409; DE 102017207604 A 20170505; EP 18721273 A 20180409; JP 2019545950 A 20180409; US 201916674650 A 20191105