

Title (en)  
METHOD FOR DETECTING A CHANGE IN A COMMUNICATIONS CHANNEL SYSTEM OF A VEHICLE, RF MODULE, RADIO SYSTEM AND VEHICLE WITH RADIO SYSTEM

Title (de)  
VERFAHREN ZUM ERKENNEN EINER VERÄNDERUNG EINES ÜBERTRAGUNGSKANALSYSTEMS EINES FAHRZEUGES, FUNKMODUL, FUNKSYSTEM SOWIE FAHRZEUG MIT FUNKSYSTEM

Title (fr)  
PROCÉDÉ DE DÉTECTION D'UN CHANGEMENT DANS UN CANAL DE SYSTÈME DE COMMUNICATION D'UN VÉHICULE, MODULE RF, SYSTÈME RADIO ET VÉHICULE AVEC SYSTÈME RADIO

Publication  
**EP 4381700 A1 20240612 (DE)**

Application  
**EP 21815434 A 20211117**

Priority  
• DE 102021120147 A 20210803  
• EP 2021081917 W 20211117

Abstract (en)  
[origin: WO2023011744A1] The invention relates to a method for detecting a change in a communications channel system of a vehicle (100), the method comprising the steps of: a) transmitting (200) a broadband transmitted signal, b) receiving (300) a received signal, c) determining (500) in-phase and quadrature-phase data of a channel impulse response of the communications channel system based on the received signal, – repeating steps a) to c) multiple times to determine (500) respective in-phase and quadrature-phase data of a plurality of channel impulse responses, – determining (600) a respective actual phase angle ( $\phi_{i,lst}$ ) of the plurality of channel impulse responses at a characteristic location (C1, C2), – determining (650) a respective phase rotation angle ( $\phi_{i,Drehen}$ ) of the plurality of channel impulse responses from the actual phase angle ( $\phi_{i,lst}$ ) and a fixed, definable target phase angle ( $\phi_{Soll}$ ), – rotating (700) the plurality of channel impulse responses in a limited field of observation (A2, A3) of a delay time direction ( $t_{delay}$ ) of the plurality of channel impulse responses about the respective determined phase rotation angle ( $\phi_{i,Drehen}$ ) by means of a rotating unit (70), – detecting (800) the change in the communications channel system on the basis of a change in the in-phase and/or the quadrature-phase data.

IPC 8 full level  
**H04L 25/02** (2006.01)

CPC (source: EP US)  
**H04L 25/0212** (2013.01 - EP US); **H04L 25/0222** (2013.01 - EP US)

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

Designated validation state (EPC)  
KH MA MD TN

DOCDB simple family (publication)  
**WO 2023011744 A1 20230209**; CN 117652126 A 20240305; EP 4381700 A1 20240612; US 2024179030 A1 20240530

DOCDB simple family (application)  
**EP 2021081917 W 20211117**; CN 202180100766 A 20211117; EP 21815434 A 20211117; US 202418432972 A 20240205