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(81) 指定国(除另有指明，要求每一种可提供的国家保护): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI,

(54) **Title:** COMMUNICATION METHOD, APPARATUS AND SYSTEM

(54) 发明名称: 通信方法、装置及系统

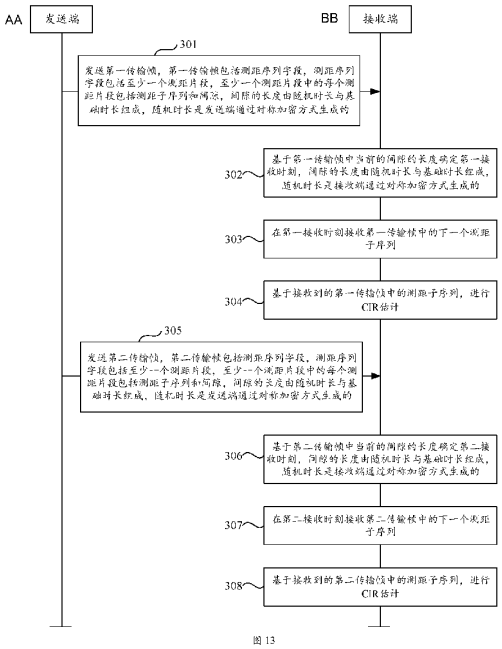


图 13

301 Send a first transmission frame, the first transmission frame comprising a ranging sequence field, the ranging sequence field comprising at least one ranging segment, each ranging segment in the at least one ranging segment comprising a ranging sub-sequence and a gap, the length of the gap consisting of a random duration and a basic duration, and the random duration being generated by a sending end in a symmetric encryption manner
302 Determine a first receiving moment on the basis of the length of a current gap in the first transmission frame, the length of the gap consisting of a random duration and a basic duration, and the random duration being generated by a receiving end in a symmetric encryption manner
303 Receive a next ranging sub-sequence in the first transmission frame at the first receiving moment
304 Perform CIR estimation on the basis of the received ranging sub-sequence in the first transmission frame
305 Send a second transmission frame, the second transmission frame comprising a ranging sequence field, the ranging sequence field comprising at least one ranging segment, each ranging segment in the at least one ranging segment comprising a ranging sub-sequence and a gap, the length of the gap consisting of a random duration and a basic duration, and the random duration being generated by the sending end in a symmetric encryption manner
306 Determine a second receiving moment on the basis of the length of a current gap in the second transmission frame, the length of the gap consisting of a random duration and a basic duration, and the random duration being generated by the receiving end in a symmetric encryption manner
307 Receive a next ranging sub-sequence in the second transmission frame at the second receiving moment
308 Perform CIR estimation on the basis of the received ranging sub-sequence in the second transmission frame
AA Sending end
BB Receiving end

(57) **Abstract:** The present application relates to the technical field of communications, and provides a communication method, apparatus and system. The communication method comprises: sending a first transmission frame, the first transmission frame comprising a ranging sequence field, the ranging sequence field comprising at least one ranging segment, each ranging segment in the at least one ranging segment comprising a ranging sub-sequence and a gap, the length of the gap consisting of a random duration and a basic duration, and the random duration being generated in a symmetric encryption manner, wherein the ranging sequence field is used for CIR

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GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UY, UZ, VC, VN, WS, ZA, ZM, ZW。

(84) 指定国(除另有指明，要求每一种可提供的地区保护): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), 欧亚 (AM, AZ, BY, KG, KZ, RU, TJ, TM), 欧洲 (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG)。

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— 包括国际检索报告(条约第21条(3))。

estimation. The present application can achieve high-precision positioning, and provides security protection for ranging information. The present application is used for data communication and positioning.

(57) 摘要: 本申请提供一种通信方法、装置及系统，属于通信技术领域，该通信方法包括：发送第一传输帧，第一传输帧包括测距序列字段，测距序列字段包括至少一个测距片段，至少一个测距片段中的每个测距片段包括测距子序列和间隙，间隙的长度由随机时长与基础时长组成，随机时长是通过对称加密方式生成的；其中，测距序列字段用于进行CIR估计。本申请能够实现高精度定位，同时提供了对测距信息的安全防护。本申请用于进行数据通信和定位。