



US 20240235579A9

(19) **United States**  
(12) **Patent Application Publication**  
**TONG et al.**

(10) **Pub. No.: US 2024/0235579 A9**  
(48) **Pub. Date: Jul. 11, 2024**  
**CORRECTED PUBLICATION**

(54) **ENCODING AND DECODING METHOD AND APPARATUS**

(30) **Foreign Application Priority Data**

Jul. 2, 2021 (CN) ..... 202110748075.8

(71) Applicant: **HUAWEI TECHNOLOGIES CO., LTD.**, Shenzhen (CN)

**Publication Classification**

(72) Inventors: **Jiajie TONG**, Hangzhou (CN);  
**Xianbin WANG**, Hangzhou (CN);  
**Huazi ZHANG**, Hangzhou (CN); **Rong LI**,  
Boulogne Billancourt (FR); **Jun WANG**,  
Hangzhou (CN)

(51) **Int. Cl.**  
**H03M 13/13** (2006.01)  
**H04L 1/00** (2006.01)  
(52) **U.S. Cl.**  
CPC ..... **H03M 13/13** (2013.01); **H04L 1/0057**  
(2013.01); **H04L 1/0067** (2013.01); **H04L**  
**1/0071** (2013.01)

(21) Appl. No.: **18/399,874**

(57) **ABSTRACT**

(22) Filed: **Dec. 29, 2023**

An encoding method, a decoding method, and an apparatus. A symbol quantity  $S$  is determined based on an encoding bit quantity  $L$  and an energy level quantity  $B$ , where  $S$  is  $S1$  or  $S2$ ,  $S1=L/B$ , and  $S2=L/2B$ .  $K$  information sub-channels are determined from an encoding sequence based on the symbol quantity  $S$ , the energy level quantity  $B$ , and a reliability sequence.  $K$  information bits are encoded and a bit sequence is output based on the  $K$  information sub-channels, where the  $K$  information sub-channels are selected from candidate sub-channels based on an order of reliability of the candidate sub-channels. The candidate sub-channels are  $S1$  sub-channels or  $2 \times S2$  sub-channels in a sub-sequence whose energy level is  $i$  in the encoding sequence.

**Prior Publication Data**

(15) Correction of US 2024/0137047 A1 Apr. 25, 2024  
See (30) Foreign Application Priority Data.

(65) US 2024/0137047 A1 Apr. 25, 2024

**Related U.S. Application Data**

(63) Continuation of application No. PCT/CN2022/097461, filed on Jun. 7, 2022.

