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- (81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,

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(54) **Title:** MULTIPLE PROTOCOL TRANSACTION ENCRYPTION

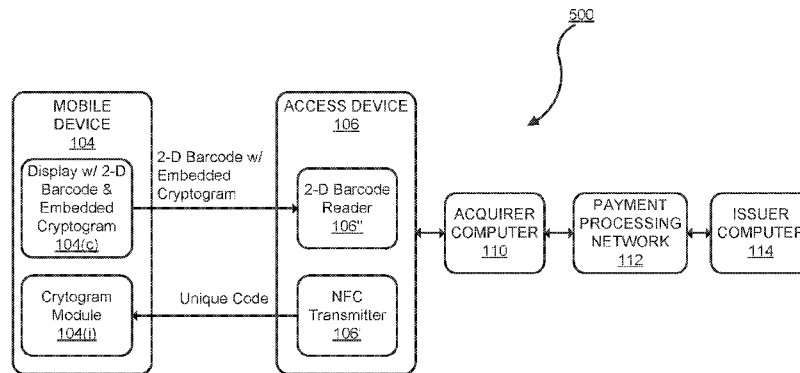
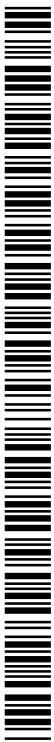


FIG. 5

(57) **Abstract:** Embodiments of the invention are directed to systems, apparatus, and methods for multiple protocol transaction encryption. In one embodiment, a mobile device can initiate a transaction in accordance with a first transaction protocol, the first transaction protocol being associated with contactless unidirectional communication. The mobile device can receive transaction data for the transaction in accordance with a second transaction protocol, the transaction data being received from an access device. The mobile device can perform further processing using the received transaction data. In some embodiments, the mobile device may generate a cryptogram from one or more data included in the transaction data. The cryptogram may be provided to the access device via the first transaction protocol.



**A. CLASSIFICATION OF SUBJECT MATTER****H04L 9/08(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**Minimum documentation searched (classification system followed by classification symbols)  
H04L 9/08; G06Q 20/40; G06F 21/35; G06Q 20/38; G06Q 20/32; H04W 12/08Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
Korean utility models and applications for utility models  
Japanese utility models and applications for utility modelsElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
eKOMPASS(KIPO internal) & Keywords: transaction protocol, unique code, near field communication protocol, cryptogram, decryption**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2014-0230039 A1 (GYAN PRAKASH et al.) 14 August 2014 See paragraphs [0017]-[0018], [0024]-[0027], [0044]-[0059], [0063]-[0065]; and figure 1.	8, 14-18
Y		1-7, 9-13, 19-20
Y	US 2014-0279556 A1 (SETH PRIEBATSCH et al.) 18 September 2014 See paragraphs [0006], [0025]-[0029], [0032]; and figure 3.	1-7, 9-13, 19-20
A	KR 10-2014-0007781 A (LEE, KWANG HOON) 20 January 2014 See paragraphs [0016]-[0027]; claim 1; and figures 5-7.	1-20
A	KR 10-2012-0020804 A (BCCARD CO., LTD.) 08 March 2012 See paragraphs [0009]-[0012], [0065]-[0077]; claim 1; and figure 3.	1-20
A	US 2014-0233545 A1 (DIGI INTERNATIONAL INC.) 21 August 2014 See paragraphs [0002], [0019]-[0033]; claim 1; and figures 2A-2B.	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

\* Special categories of cited documents:

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"&amp;" document member of the same patent family

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

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**PCT/US2016/015158**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2014-0230039 A1	14/08/2014	CN 104903904 A EP 2954451 A1 KR 10-2015-0093781 A US 9378352 B2 WO 2014-123663 A1	09/09/2015 16/12/2015 18/08/2015 28/06/2016 14/08/2014
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