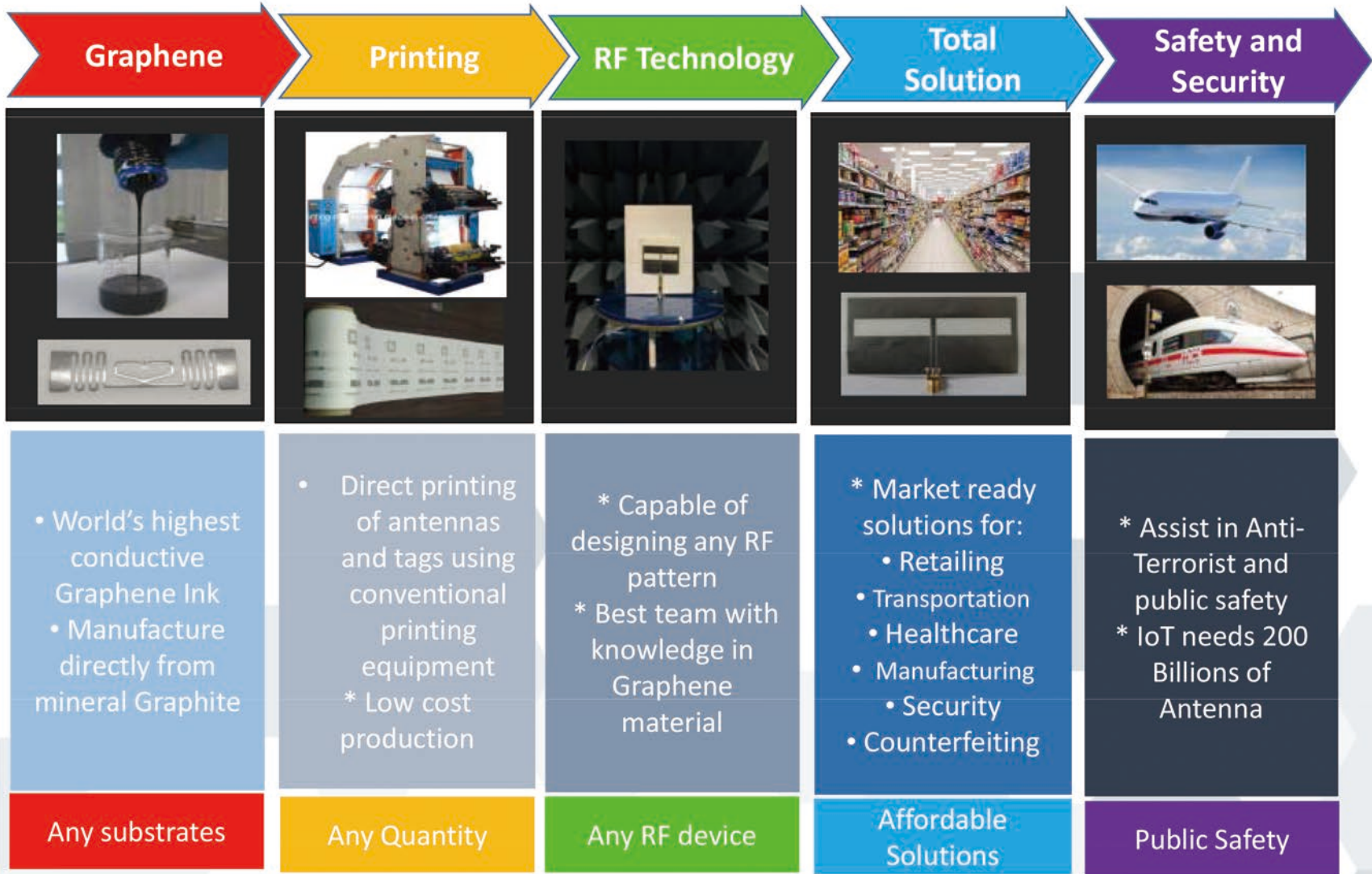


Advantages of Graphene as Antenna (RFID)

OUR EXPERTISE



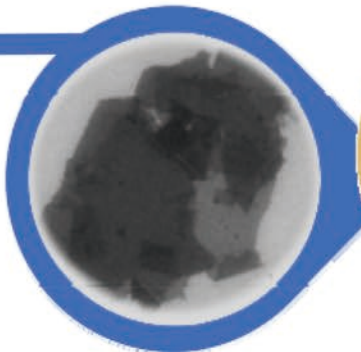
Core Competence





**GRAPHENE
Antenna**

1. GRAPHENE PRODUCTION



2. INK PRODUCTION



3. ANTENNA PRINT

Green
Low energy



4. ANTENNA BONDING



SUPERIOR ANTENNA MANUFACTURING PROCESS

Conventional:

1. Aluminium deposition
2. Print etching resist ink
3. Etching
4. Photoresist removal



5. Chip bonding
6. Protective layer



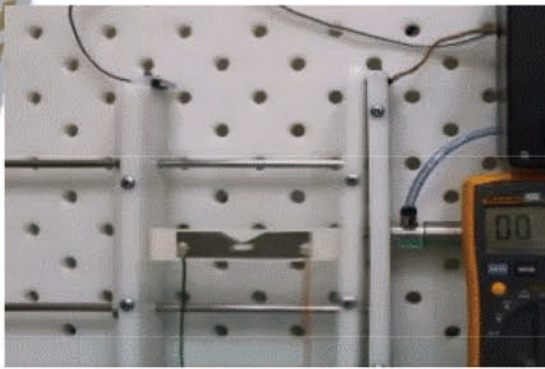
Graphene Security:

1. Printing on paper
2. Compression
3. Chip bonding
4. Protective layer

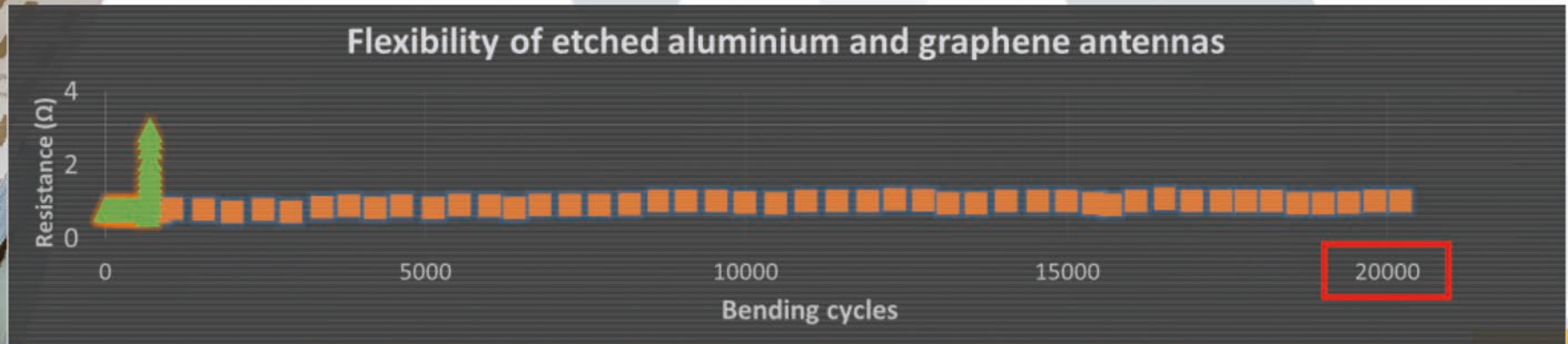
Graphene Security has Greener and Shorter manufacturing and low Capex



ANTENNA
reading
distance &
flexibility



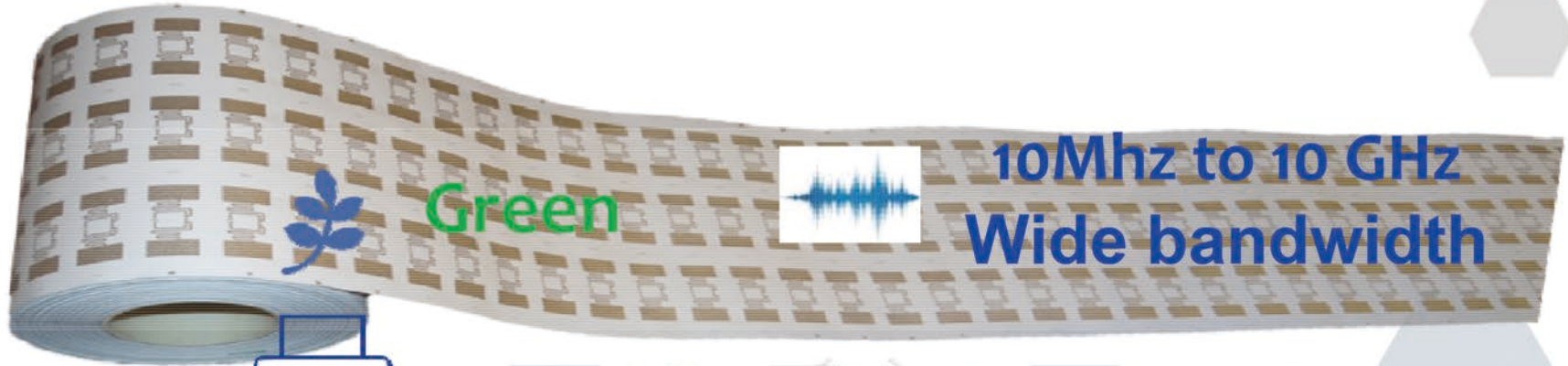
Samples	Reading distance (m)
Aluminum RFID Tag	5-6
Graphene RFID Tag	8



Can be flexed more than 18,000 times

Green and Low Cost Antenna unbeatable advantages

GRAPHENE ANTENNA



Green



10Mhz to 10 GHz
Wide bandwidth



Printable



Nature Inductance



Flexible



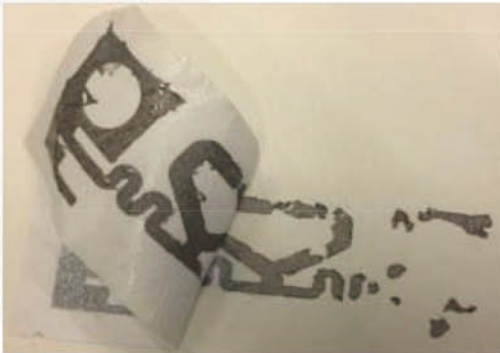
Long lifetime



Counterfeit

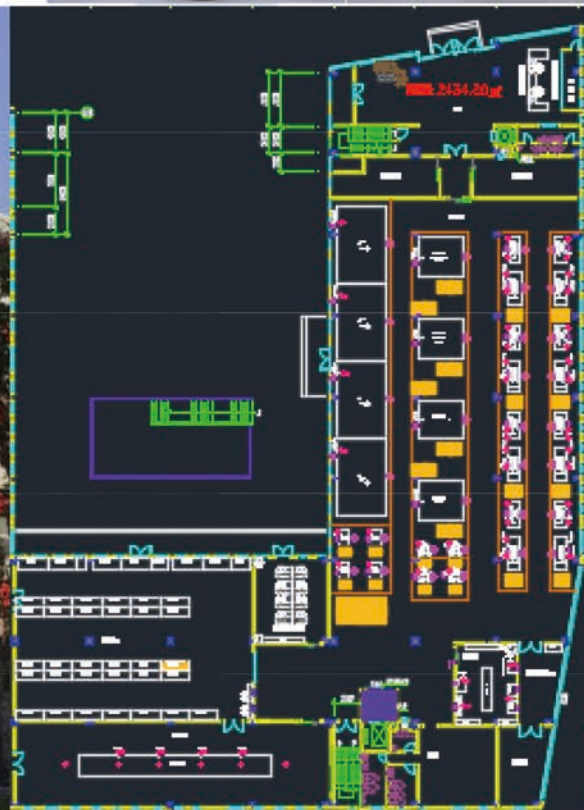


Breakable



Factory Update

- 12,500 m2 HQ including production and offices
- Moved in equipment in Nov and Pilot Production in Dec. 2017
- Phase I capacity of 120,000,000 tags per year
- Located in the heart of Nanjing Economics Development



Graphene Antenna Production in Full Operation

Graphene Printing



Press Rolling



Appearance Inspection



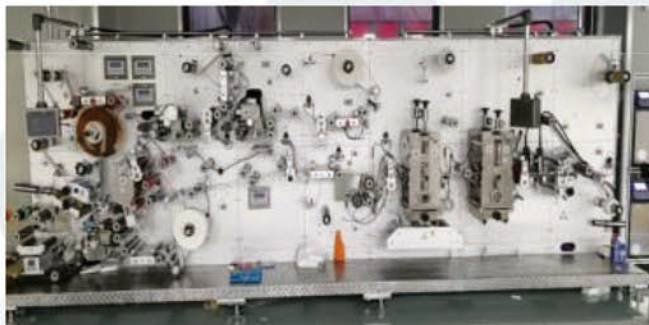
Rewinding



RFID Performance assurance



Converting



Roll Slitting



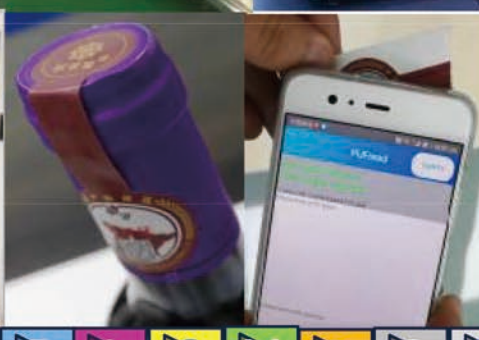
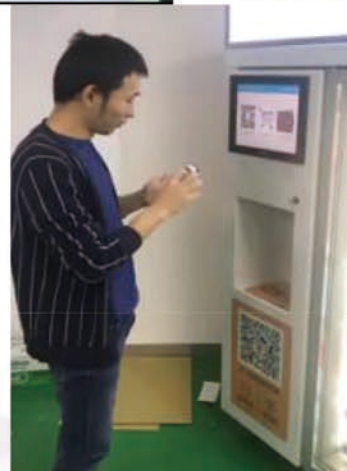
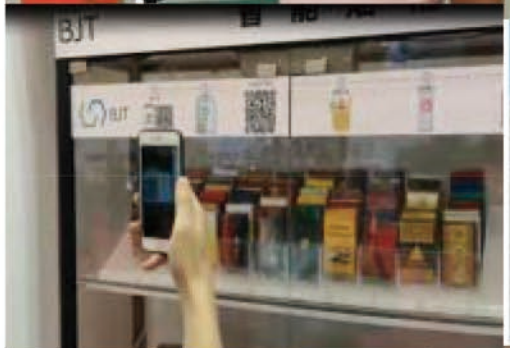
Bonding



Products



RFID tag for different applications


























Inlay list

Custom made Inlay design for Multi-application !!



RFID tag Printing

Paper based Graphene ink-printed RFID Inlays

Item	Product Name	Inlays replace No.	Chip	Dry Inlay Dimension	Wet Inlay Dimension	Antenna picture	Area (mm ²)	Read Range(By Volyantic)	Application
1	BJT-TU708230-01		CCODE 7	81.8*29.6mm	85.8*33.6mm		1377.6209	9m	Inventory
2	BJT-TU707927-01		CCODE 7	78.8*26.9mm	82.8*30.8mm		1206.2286	9m	Inventory
3	BJT-TU704727-01		CCODE 7	47*27mm	51*31mm		901.3995	6m	Wooden Pallet, Plastic box
4	BJT-TU702423-01		CCODE 7	23.7*22.9mm	27.7*26.9mm		282.8815	0.6m	Inventory
5	BJT-TR606030-01		R6	60*30mm	64*34mm		1188.7569	9m	Inventory
6	BJT-TR609508-02	E61	R6	95*8mm	99*12mm		412.4582	10m	Inventory
7	BJT-TR604015-02	A61	R6	40*15mm	44*19mm		302.3163	5m	Inventory
8	BJT-TR601818-02	J61	R6	φ 18mm	φ 22mm		183.1399	0.4m	Jewelry, Medical Uses
9	BJT-TR60950801	9640	R3	94.8*8.1mm	98.9*12.15mm		416.8823	6m	Inventory
10	BJT-TR607516-02	9662	R6	75*16mm	79*20mm		596.1103	8m	Inventory
11	BJT-TR609319-02	9654	R6	93*19mm	97*23mm		1595.1251	9m	Plastic Pallet, Glass Product
12	BJT-TR608419-01		R6	84*19mm	88*23mm		1383.5501	3m	Concrete Product
13	BJT-TU708218-01		CCODE 7	82*18	86*22mm		1246.2491	4m	Concrete Product
14	BJT-TR605029-02	H61	R6	50*29mm	54*33mm		716.516	9m	Clothes, Fabric product
15	BJT-TR605029-03	H61	R6	50*29mm	54*33mm		620.7643	5M	Wooden material, High density material
16	BJT-TU704424-01		CCODE 7	44*24mm	48*28mm		455.1143	5m	Wooden material, High density material
17	BJT-TU706820-02		CCODE 7	68*20mm	72*24mm		745.8453	1.5m	Liquid, Wood, Plastic Product
18	BJT-TR604210-01		R6	42*10mm	46*14mm		323.1244	5m	鞋类、皮具(内嵌式标签) Shoes, Leather Product
19	BJT-TR609612-01		R6	96*12mm	100*16mm		981.5827	8m	Inventory
20	BJT-TR607014-02	E62	R6	70*14mm	74*18mm		477.757	8m	Inventory
21	BJT-TR607503-01		R6	75*3mm	79*7mm		644.9865	3m	图书、档案管理
22	BJT-TR602730-01		R4	27*30mm	31*34mm		401.1127	0.3m (酒盒内读取)	Alcohol
23	BJT-T2134040-01 (IP)		NTAG213	40*40mm	44*44mm		482.46	2cm	Ticket, Books, paper product.

Patent Portfolios and Applications





Patent Portfolios Applied and Granted

Item	Patent Name	Grant/file number
1	HYBRID TAG AND METHOD OF MAKING ANTENNA THEREOF	US9,563,837 B1
2	IDENTIFIABLE TICKET AND MONITORING SYSTEM THEREFOR 感應票券及票券監視系統	US9,594,992 B1
3	IDENTIFIABLE TICKET AND MONITORING SYSTEM THEREFOR 感應票券及票券監視系統	TWI 564844
4	PRINTED RADIO FREQUENCY SENSOR STRUCTURE AND A METHOD OF PREPARING A RFID SENSOR TAG	US9,639,800 B2
5	Method of Making Highly Flexible and Conductive Printed Graphene-based Laminate for Wireless Wearable Communications	US9,888,578 B2
6	RFID ANTENNA(I)	US D800,098S
7	RFID ANTENNA(II)	EU 0003307701-0001
8	RFID ANTENNA(III)	China 3985102
9	RFID ANTENNA(IV)	TWD180300
10	RFID ANTENNA(V)	US D800,099S
11	RFID ANTENNA(VI)	EU 0003307701-0002
12	RFID ANTENNA(VII)	China 3984458
13	RFID ANTENNA(VIII)	TWD180301
14	RFID ANTENNA(IX)	US D800,704S
15	RFID ANTENNA(X)	EU 0003307701-0003
16	RFID ANTENNA(XI)	China 384433
17	RFID ANTENNA(XII)	TWD180303
18	RFID ANTENNA(XIII)	EU 0003307701-0004
19	RFID ANTENNA(XIV)	China 3985978
20	RFID ANTENNA(XV)	TWD180303
21	无线射频识别卷标天线(I) RFID tag outlook design (I)	China 4560726
22	无线射频识别卷标天线(II) RFID tag outlook design (II)	China 4558372
23	无线射频识别卷标天线(III) RFID tag outlook design (III)	China 4560723
24	无线射频识别卷标天线(IV) RFID tag outlook design (IV)	China 4560721
25	无线射频识别卷标天线(V) RFID tag outlook design (V)	China 4560713
26	无线射频识别卷标天线(I) RFID tag outlook design (I)	3985102
27	无线射频识别卷标天线(II) RFID tag outlook design (II)	3984458
28	无线射频识别卷标天线(III) RFID tag outlook design (III)	3984433
29	无线射频识别卷标天线(IV) RFID tag outlook design (IV)	3985978
30	无线射频识别卷标天线(I) RFID tag outlook design (I)	4560726
31	无线射频识别卷标天线(II) RFID tag outlook design (II)	4558372
32	无线射频识别卷标天线(III) RFID tag outlook design (III)	4560723
33	无线射频识别卷标天线(IV) RFID tag outlook design (IV)	4560721
34	无线射频识别卷标天线(V) RFID tag outlook design (V)	4560713
35	STRUCTURE AND METHOD OF BONDING CHIP WITH ELECTRONIC CIRCUIT /晶片和電子電路的黏接結構和黏接方法	US 9,978,714 B1
36	RFID防盜門的天線結構, Antenna structure of RFID security door	ZL 2017 2 121215.9

Item	Patent Name	Grant/file number
37	Wireless inductive diaper and monitoring device thereof / 无线感应式尿布及其监控设备	201710352156.X
38	Wireless inductive diaper and monitoring device thereof / 无线感应式尿布及其监控设备	201720554787.5
39	Wireless inductive diaper and monitoring device thereof / 无线感应式尿布及其监控设备	15/640,307
40	Wireless inductive diaper and monitoring device thereof / 无线感应式尿布及其监控设备	1711678.1
41	Wireless inductive diaper and monitoring device thereof / 无线感应式尿布及其监控设备	51701489608
42	Wireless inductive diaper and monitoring device thereof / 无线感应式尿布及其监控设备	EP17182701.7
43	Security Litho整合RFID讀取天線的面光源照明裝置	15/678,275
44	RFID SECURITY DOCUMENT 無線射頻識別防偽文件	201710794712
45	RFID SECURITY DOCUMENT 無線射頻識別防偽文件	15/702,128
46	RFID SECURITY DOCUMENT 無線射頻識別防偽文件	201721122257.X
47	PRINTED RFID SENSOR TAG	15/827,751
48	CIGARETTE PACK 菸盒	US 16006762
49	CIGARETTE PACK 菸盒	European 8177417.5
50	CIGARETTE PACK 菸盒	2,01821E+11
51	定向圓極化天線 Directional Circularly Polarized Antenna	201820160922.X
52	无线射频识别卷标天线(1) RFID tag outlook design (1)	201830079239.1
53	无线射频识别卷标天线(2) RFID tag outlook design (2)	201830079234.9
54	无线射频识别卷标天线(3) RFID tag outlook design (3)	201830079236.8
55	无线射频识别卷标天线(4) RFID tag outlook design (4)	201830079237.2
56	无线射频识别卷标天线(5) RFID tag outlook design (5)	201830079214.1
57	无线射频识别卷标天线(6) RFID tag outlook design (6)	201830079213.7
58	无线射频识别卷标天线(7) RFID tag outlook design (7)	201830079226.4
59	无线射频识别卷标天线(8) RFID tag outlook design (8)	201830081205.6
60	无线射频识别卷标天线(10) RFID tag outlook design (10)	201830081177.8
61	无线射频识别卷标天线(11) RFID tag outlook design (11)	201830081247.X
62	多頻帶天線 Multi-band antenna	201830081179.7
63	无线射频识别卷标天线(14) RFID tag outlook design (14)	201830081248.4
64	无线射频识别卷标天线(15) RFID tag outlook design (15)	201830081246.5
65	无线射频识别卷标天线(16) RFID tag outlook design (16)	201830081178.2
66	无线射频识别卷标天线(17) RFID tag outlook design (17)	201830084240.3
67	无线射频识别卷标天线(18) RFID tag outlook design (18)	201830083494.3
68	无线射频识别卷标天线(19) RFID tag outlook design (19)	201830084238.6
69	无线射频识别卷标天线(20) RFID tag outlook design (20)	201830083495.8
70	无线射频识别卷标天线(21) RFID tag outlook design (21)	201830083511.3
71	无线射频识别卷标天线(22) RFID tag outlook design (22)	201830083493.9
72	无线射频识别卷标天线(23) RFID tag outlook design (23)	201830083512.8
73	基于RFID的电器遙控裝置 RFID-based electrical remote control device	20810256657
74	基于RFID的电器遙控裝置 RFID-based electrical remote control device	201820416815.1
75	Radio Frequency Identification Remote Control System for Appliance	GB1806222.4
76	智能櫃 Smart cabinet	China
77	智能櫃 Smart cabinet	Japan

Patent Portfolios and Applications Coverage



BLOCKCHAIN

EVERYTHING
IoT

