



# RADIO TEST REPORT

**Equipment** : 11ax RTL8852CE Combo module  
**Brand Name** : REALTEK  
**Model Name** : RTL8852CE  
**Applicant** : Realtek Semiconductor Corp.  
No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu  
300, Taiwan  
**Manufacturer** : Realtek Semiconductor Corp.  
No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu  
300, Taiwan  
**Standard** : MIC Certification Rule, Article 2 Paragraph 1 Item 19-3

We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in [Test method temporarily determined by TELECOM] and shown compliance with the applicable MIC Ordinance Regulating Radio Equipment Article 49.20 technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.



Approved by: Sam Chen

**Sporton International Inc. Hsinchu Laboratory**  
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## History of this test report

TEL : 886-3-656-9065  
FAX : 886-3-656-9085  
Report Template No.: CB-D5\_6 Ver1.1

Page Number : 3 of 9  
Issued Date : Apr. 24, 2023  
Report Version : 01



## Summary of Test Result

**Disclaimer:**

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

**Reviewed by: Sam Chen**

**Report Producer: Sandy Chuang**



# 1 General Description

## 1.1 Information

### 1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5150-5250	a, n (HT20), ac (VHT20), ax (HEW20)	5180-5240	36-48 [4]
5250-5350		5260-5320	52-64 [4]
5470-5730		5500-5720	100-144 [12]
5150-5250	n (HT40), ac (VHT40), ax (HEW40)	5190-5230	38-46 [2]
5250-5350		5270-5310	54-62 [2]
5470-5730		5510-5710	102-142 [6]
5150-5250	ac (VHT80), ax (HEW80)	5210	42 [1]
5250-5350		5290	58 [1]
5470-5730		5530-5690	106-138 [3]
5150-5350	ac (VHT160), ax (HEW160)	5250	50 [1]
5470-5730		5570	114 [1]

Band	Mode	BWch (MHz)	Nant
5.15-5.25GHz	802.11a	20	1TX/2TX
5.15-5.25GHz	802.11n HT20	20	1TX/2TX
5.15-5.25GHz	802.11ac VHT20	20	1TX/2TX
5.15-5.25GHz	802.11ax HEW20	20	1TX/2TX
5.15-5.25GHz	802.11n HT40	40	1TX/2TX
5.15-5.25GHz	802.11ac VHT40	40	1TX/2TX
5.15-5.25GHz	802.11ax HEW40	40	1TX/2TX
5.15-5.25GHz	802.11ac VHT 80	80	1TX/2TX
5.15-5.25GHz	802.11ax HEW 80	80	1TX/2TX
5.25-5.35GHz	802.11a	20	1TX/2TX
5.25-5.35GHz	802.11n HT20	20	1TX/2TX
5.25-5.35GHz	802.11ac VHT20	20	1TX/2TX
5.25-5.35GHz	802.11ax HEW20	20	1TX/2TX
5.25-5.35GHz	802.11n HT40	40	1TX/2TX
5.25-5.35GHz	802.11ac VHT40	40	1TX/2TX
5.25-5.35GHz	802.11ax HEW40	40	1TX/2TX
5.25-5.35GHz	802.11ac VHT 80	80	1TX/2TX



<b>Band</b>	<b>Mode</b>	<b>BWch (MHz)</b>	<b>Nant</b>
5.25-5.35GHz	802.11ax HEW 80	80	1TX/2TX
5.15-5.35GHz	802.11ac VHT160	160	1TX/2TX
5.15-5.35GHz	802.11ax HEW 160	160	1TX/2TX
5.47-5.73GHz	802.11a	20	1TX/2TX
5.47-5.73GHz	802.11n HT20	20	1TX/2TX
5.47-5.73GHz	802.11ac VHT20	20	1TX/2TX
5.47-5.73GHz	802.11ax HEW20	20	1TX/2TX
5.47-5.73GHz	802.11n HT40	40	1TX/2TX
5.47-5.73GHz	802.11ac VHT40	40	1TX/2TX
5.47-5.73GHz	802.11ax HEW40	40	1TX/2TX
5.47-5.73GHz	802.11ac VHT 80	80	1TX/2TX
5.47-5.73GHz	802.11ax HEW 80	80	1TX/2TX
5.47-5.73GHz	802.11ac VHT160	160	1TX/2TX
5.47-5.73GHz	802.11ax HEW160	160	1TX/2TX

**Note:**

- ♦ 11a, HT20 and HT40 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
- ♦ VHT20, VHT40, VHT80 and VHT160 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.
- ♦ HEW20, HEW40, HEW80 and HEW160 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ BWch is the nominal channel bandwidth.

**1.1.2 Antenna Information**

Ant.	Port		Brand	Model Name	Antenna Type	Connector	Gain (dBi)
	WLAN 2.4GHz / 5GHz / 6GHz	Bluetooth					
1	1/2	1	ARISTOTLE	RFA-27-JP378-4B-200	Monopole	I-PEX	Note 1
2	1/2	1	ARISTOTLE	RFA-27-JP326-MHF4300	PIFA	I-PEX	
3	1/2	1	ARISTOTLE	RFA-27-C38H1-MHF4300	Dipole	I-PEX	

Note 1

Ant.	Port		Gain (dBi)			
	WLAN 2.4GHz / 5GHz / 6GHz	Bluetooth	WLAN 2.4GHz	WLAN 5GHz UNII~UNII2C	WLAN 6GHz UNII 5	Bluetooth
1	1/2	1	3.38	4.86	4.86	3.38
2	1/2	1	3.50	5.00	5.00	3.50
3	1/2	1	3.00	5.00	5.00	3.00

Note 2: The above information was declared by manufacturer.

Note 3: Only the highest gain antenna (antenna 2) was selected to test and record in this report.

Note 4: For more antenna information, refer to Appendix A. Antenna List.

**<For WLAN 2.4GHz function>****For IEEE 802.11b/g/n/VHT/ax (1TX/2RX):**

The EUT supports the antenna with TX diversity functions.

Both Port 1 and Port 2 support transmit and receive functions, but only one of them will be used at one time.

The Port 2 generated the worst case, so it was selected to test and record in the report.

Port 1 and Port 2 could receive simultaneously

**For IEEE 802.11b/g/n/VHT/ax (2TX/2RX):**

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

**<For WLAN 5GHz function>****For IEEE 802.11a/n/ac/ax (1TX/2RX):**

The EUT supports the antenna with TX diversity functions.

Both Port 1 and Port 2 support transmit and receive functions, but only one of them will be used at one time.

The Port 2 generated the worst case, so it was selected to test and record in the report.

Port 1 and Port 2 could receive simultaneously

**For IEEE 802.11a/n/ac/ax (2TX/2RX):**

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

**<For WLAN 6GHz function>****For IEEE 802.11ax (1TX/2RX):**

The EUT supports the antenna with TX diversity functions.

Both Port 1 and Port 2 support transmit and receive functions, but only one of them will be used at one time.

The Port 1 generated the worst case, so it was selected to test and record in the report.



Port 1 and Port 2 could receive simultaneously

**For IEEE 802.11a/n/ac/ax (2TX/2RX):**

Port 1 and Port 2 can be used as transmitting/receiving antenna.

Port 1 and Port 2 could transmit/receive simultaneously.

**<For Bluetooth function> (1TX/1RX):**

Only Port 1 can be used as transmitting/receiving antenna.

**1.1.3 EUT Information**

<b>EUT Power Type</b>	From host system		
<b>TPC Function</b>	<input checked="" type="checkbox"/>	With TPC	<input type="checkbox"/> Without TPC
<b>Operate Mode</b>	<input type="checkbox"/>	Master	
	<input type="checkbox"/>	Slave with radar detection	
	<input checked="" type="checkbox"/>	Slave without radar detection	



## 1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ MIC Ordinance Regulating Radio Equipment Article 49.20
- ♦ [Test method temporarily determined by TELEC]

## 1.3 Accessories

N/A

## 1.4 Table for Slight Change

This product is an extension of original one reported under Sporton project number: JR1N0223-20AE

Below is the illustration for the change of the product with respect to the original one.

Detail Report No.	Gist	Modifications
JR1N0223-25AE	The total antennas amounted to 184 sets.	<p>There is no hardware or electrical modification made to the applying modular transmitter itself.</p> <p>Adding 15 sets of PIFA antenna and 2 set of dipole antenna with lower gain than the original report and it is not necessary to verify for test.</p> <p>Please refer to Appendix A for detailed antenna information.</p>

**Table for Filed Antenna**

No.	Brand	Ant. Type	Con. Type	Peak Gain (dBi)			Model No.
				2.4GHz	5GHz	6GHz	
1	ARISTOTLE	Monopole	IPEX	3.38	4.86	4.86	RFA-27-JP378-4B-200
2	ARISTOTLE	PIFA	IPEX	3.50	5.00	5.00	RFA-27-JP326-MHF4300
3	ARISTOTLE	Dipole	IPEX	3.00	5.00	5.00	RFA-27-C38H1-MHF4300
4	HongBo	PIFA	IPEX	TX1: 3 TX2: 2.6	TX1: 4.98 TX2: 4	TX1: 4.71 TX2: 3.2	260-28185 260-28184
5	HongBo	PIFA	IPEX	TX1: 2.76 TX2: 2.58	TX1: 4.12 TX2: 3.02	TX1: 4.07 TX2: 3.07	260-28200 260-28201
6	HONG-BO	PIFA	IPEX	TX1: 1.19 TX2: -0.81	TX1: 2.45 TX2: 0.67	TX1: 2.87 TX2: 2.88	6036B0316501 6036B0316601
7	WNC	PIFA	IPEX	TX1: -0.62 TX2: -0.05	TX1: 0.1 TX2: -1.33	TX1: 0.17 TX2: -1.57	6036B316201 6036B0315801
8	High-Tek	PIFA	IPEX	TX1: 2.37 TX2: 1.03	TX1: 2.94 TX2: 2.95	TX1: 2.55 TX2: 2.62	219HCTN12198 219HCTN12197
9	WNC	PIFA	IPEX	TX1: 1.84 TX2: 0.47	TX1: 2.17 TX2: 2.84	TX1: 2.98 TX2: 2.75	48EABP01.SGCLOC 48EABP02.SGCLOC
10	High-Tek	PIFA	IPEX	TX1: 0.80 TX2: 1.84	TX1: 2.68 TX2: 2.86	TX1: 2.81 TX2: 2.90	219HCTN12198 219HCTN12197
11	WNC	PIFA	IPEX	TX1: -1.59 TX2: -0.54	TX1: 2.84 TX2: 1.11	TX1: 2.91 TX2: 2.1	48EABP01.SGCLOC 48EABP02.SGCLOC
12	AWAN	PIFA	IPEX	TX1: 2.45 TX2: 1.95	TX1: 2.34 TX2: 1.99	TX1: 2.53 TX2: 2.16	AYP6Y-200053 AYP6Y-200053
13	INPAQ	PIFA	IPEX	TX1: 2.31 TX2: 2.01	TX1: 2.21 TX2: 1.75	TX1: 2.75 TX2: 2.08	WA-P-LELE-04-024 WA-P-LELE-04-024
14	HONG-BO	PIFA	IPEX	TX1: 0.94 TX2: 1.79	TX1: 2.52 TX2: 1.04	TX1: 2.00 TX2: 1.08	6036B0316701 6036B0316701
15	WNC	PIFA	IPEX	TX1: 1.68 TX2: 1.74	TX1: 1.85 TX2: 1.16	TX1: 2.44 TX2: 1.11	6036B0315601 6036B0315601
16	HONG-BO	PIFA	IPEX	TX1: 0.47 TX2: -0.62	TX1: 2.39 TX2: -0.13	TX1: 1.47 TX2: 1.81	6036B0316701 6036B0316701
17	WNC	PIFA	IPEX	TX1: 2.16 TX2: 0.79	TX1: 2.19 TX2: 2.37	TX1: 2.4 TX2: 0.96	6036B0315601 6036B0315601
18	INPAQ	PIFA	IPEX	TX1: 1.73 TX2: 1.63	TX1: 2.37 TX2: 2.41	TX1: 2.42 TX2: 2.12	DQ6WAPLEL05 DQ6WAPLEL05
19	INPAQ	PIFA	IPEX	TX1: 1.73 TX2: 1.63	TX1: 2.37 TX2: 2.41	TX1: 2.42 TX2: 2.12	DQ6WAPLEL04 DQ6WAPLEL04
20	WNC	PIFA	IPEX	TX1: 2.31 TX2: 1.77	TX1: 1.28 TX2: 1.66	TX1: 1.34 TX2: 2.41	DQ6D15G7100 DQ6D15G7100
21	WNC	PIFA	IPEX	TX1: 2.31 TX2: 1.77	TX1: 1.28 TX2: 1.66	TX1: 1.34 TX2: 2.41	DQ6D15G9100 DQ6D15G9100
22	High-Tek	PIFA	IPEX	TX1: 2.96 TX2: 1.23	TX1: 1.23 TX2: 0.58	TX1: 1.96 TX2: 1.94	0ACQD022032N 0ACQD022032N
23	Pulse	PIFA	IPEX	TX1: 2.93 TX2: 2.37	TX1: 2.24 TX2: 0.32	TX1: 2.18 TX2: -0.20	TQ23700 TQ23700
24	High-Tek	PIFA	IPEX	TX1: 1.51 TX2: -0.32	TX1: 2.92 TX2: 2.90	TX1: 2.94 TX2: 2.98	DC33002O500 DC33002O510
25	High-Tek	PIFA	IPEX	TX1: 2.23 TX2: -0.02	TX1: 2.91 TX2: 2.98	TX1: 2.87 TX2: 2.86	DC33002O100 DC33002O100

26	High-Tek	PIFA	IPEX	TX1: -1.50 TX2: -0.62	TX1: -0.39 TX2: 0.24	TX1: 0.62 TX2: 2.89	DC33002O300 DC33002O310
27	High-Tek	PIFA	IPEX	TX1: -1.00 TX2: -1.09	TX1: 0.16 TX2: 0.63	TX1: 2.29 TX2: 1.32	DC33002O300 DC33002O310
28	LUXSHARE HongBo	PIFA	IPEX	TX1: 3 TX2: 2.33	TX1: 4.87 TX2: 3.88	TX1: 4.71 TX2: 2.99	260-28185 L01RF136-DT-H
29	Luxshae	PIFA	IPEX	TX1: 2.13 TX2: 2.33	TX1: 4.36 TX2: 3.88	TX1: 4.17 TX2: 2.99	L01RF137-DT-H L01RF136-DT-H
30	Luxshae-ICT(Main) HongBo(Aux)	PIFA	IPEX	TX1: 2.13 TX2: 2.6	TX1: 4.36 TX2: 4	TX1: 4.17 TX2: 3.2	L01RF137-DT-H 260-28184
31	Luxshae-ICT	PIFA	IPEX	TX1: 2.88 TX2: 2.36	TX1: 3.89 TX2: 4.77	TX1: 3.93 TX2: 4.69	L01RF141-DT-H L01RF142-DT-H
32	LUXSHARE-ICT	PIFA	IPEX	TX1: 2.78 TX2: 2.36	TX1: 3.55 TX2: 2.82	TX1: 3.93 TX2: 3.30	DC33001YL00 DC33001YL10
33	Speed Wireless Technical Co., LTD.	PIFA	IPEX	TX1: 2.97 TX2: 2.82	TX1: 4.87 TX2: 3.31	TX1: 4.24 TX2: 3.96	DC33001YJ00 DC33001YJ10
34	HONG-BO	PIFA	IPEX	TX1: 0.64 TX2: -1.25	TX1: 1.47 TX2: 1.48	TX1:2.31 TX2:-0.16	6036B0310101 6036B0310901
35	WNC	PIFA	IPEX	TX1: -1.36 TX2: -1.19	TX1:0.67 TX2:0.24	TX1:-1.23 TX2:-0.43	6036B0306501 6036B0306201
36	HONG-BO	PIFA	IPEX	TX1: 0.85 TX2: 0.95	TX1: 2.52 TX2: 2.2	TX1:1.97 TX2:2.06	6036B0308601 6036B0308701
37	WNC	PIFA	IPEX	TX1: -0.90 TX2:-1.81	TX1: 0.77 TX2: -0.94	TX1:-0.49 TX2:0.68	6036B0306701 6036B0307201
38	HONG-BO	PIFA	IPEX	TX1: 2.81 TX2:1.01	TX1:2.21 TX2:2.5	TX1:2.9 TX2:1.59	6036B0309101 6036B0309201
39	WNC	PIFA	IPEX	TX1: 0.35 TX2:-0.53	TX1: 1.39 TX2: -0.26	TX1:0.7 TX2:-1.7	6036B0307501 6036B0307801
40	VSO	PIFA	IPEX	TX1: 2.02 TX2:1.13	TX1:2.15 TX2: 2.47	TX1:2.45 TX2:1.70	821-101-012-11507 821-101-012-11508
41	VSO	PIFA	IPEX	TX1: 2.29 TX2: 2.86	TX1:2.45 TX2: 1.67	TX1:2.60 TX2:2.22	821-101-012-11505 821-101-012-11506
42	HONG-BO	PIFA	IPEX	TX1: 0.26 TX2:0.35	TX1: 1.04 TX2: 1.88	TX1:2.38 TX2:2.66	6036B0319701 6036B0319601
43	HONG-BO	PIFA	IPEX	TX1: -0.98 TX2:-1.05	TX1:2.15 TX2:1.28	TX1:1.97 TX2:2.49	6036B0319701 6036B0319601
44	WNC	PIFA	IPEX	TX1: -1.50 TX2:-1.41	TX1: 1.56 TX2: -0.49	TX1:0.35 TX2:0.18	6036B0319901 6036B0319801
45	WNC	PIFA	IPEX	TX1: -1.56 TX2:-1.42	TX1: 1.21 TX2: 0.24	TX1:1.12 TX2:0.37	6036B0319901 6036B0319801
46	HONG-BO	PIFA	IPEX	TX1: 0.02 TX2:-0.40	TX1: 2.51 TX2: 2.91	TX1:2.25 TX2:2.91	DQ602381200 DQ602381200
47	WNC	PIFA	IPEX	TX1: 1.81 TX2:-0.17	TX1: 2.49 TX2: 1.48	TX1:2.33 TX2:2.61	DQ6L15G4401 DQ6L15G4401
48	HONG-BO	PIFA	IPEX	TX1: 2.44 TX2:-0.94	TX1: 2.51 TX2: 2.94	TX1:2.25 TX2:2.94	DQ602349201 DQ602349201
49	HONG-BO	PIFA	IPEX	TX1: 2.42 TX2:-1.36	TX1: 2.00 TX2: 2.10	TX1:2.60 TX2:2.81	DQ602349101 DQ602349101
50	WNC	PIFA	IPEX	TX1: 1.85 TX2:-1.00	TX1: 2.38 TX2: 2.02	TX1:2.22 TX2:2.05	DQ6215G2800 DQ6215G2800

51	WNC	PIFA	IPEX	TX1:-0.31 TX2:-1.17	TX1:2.27 TX2: 2.48	TX1:2.26 TX2:1.61	DQ6215G2700 DQ6215G2700
52	HONG-BO	PIFA	IPEX	TX1: -0.47 TX2:-1.40	TX1:0.35 TX2: -0.25	TX1:2.98 TX2:2.55	DQ602381300 DQ602381300
53	WNC	PIFA	IPEX	TX1: -0.75 TX2:-0.71	TX1: 2.56 TX2: 2.32	TX1:2.43 TX2:2.97	DQ6L15G4500 DQ6L15G4500
54	HONG-BO	PIFA	IPEX	TX1:0.72 TX2:-0.74	TX1: 2.04 TX2: 1.78	TX1:2.80 TX2:1.25	DQ602348801 DQ602348801
55	HONG-BO	PIFA	IPEX	TX1: 2.43 TX2:-0.43	TX1: 2.09 TX2: 2.80	TX1:2.99 TX2:2.82	DQ602348901 DQ602348901
56	WNC	PIFA	IPEX	TX1: -1.43 TX2:-1.22	TX1:0.16 TX2: 0.27	TX1:2.43 TX2:1.46	DQ6215G2600 DQ6215G2600
57	WNC	PIFA	IPEX	TX1: 0.89 TX2:0.61	TX1: 1.85 TX2: 0.49	TX1:1.57 TX2:1.15	DQ6215G2500 DQ6215G2500
58	High-Tek	PIFA	IPEX	TX1: -1.10 TX2:-0.84	TX1:-1.11 TX2: 0.59	TX1:2.82 TX2:1.45	DC33002SS10 DC33002SS10
59	High-Tek	PIFA	IPEX	TX1:-0.81 TX2:-1.84	TX1:1.75 TX2: 1.61	TX1:2.53 TX2:2.80	DC33002SS00 DC33002SS00
60	High-Tek	PIFA	IPEX	TX1:2.81 TX2:2.63	TX1: 2.92 TX2: 2.88	TX1:3.93 TX2:3.80	DC33002ST10 DC33002ST10
61	High-Tek	PIFA	IPEX	TX1: 2.03 TX2:2.14	TX1: 2.91 TX2: 2.88	TX1:3.92 TX2:3.85	DC33002ST00 DC33002ST00
62	SOUTHSTAR	PIFA	IPEX	TX1: 1.56 TX2:0.58	TX1: 2.64 TX2: 1.25	TX1:1.96 TX2:1.95	DC33002SU10 DC33002SU10
63	SOUTHSTAR	PIFA	IPEX	TX1: 0.24 TX2:-0.24	TX1: 2.94 TX2: 2.06	TX1:3.09 TX2:3.27	DC33002SU00 DC33002SU00
64	SOUTHSTAR	PIFA	IPEX	TX1: 0.84 TX2: 2.05	TX1: 2.84 TX2: 2.10	TX1: 2.99 TX2: 2.76	DC33002SV10 DC33002SV10
65	SOUTHSTAR	PIFA	IPEX	TX1: 0.24 TX2: -0.90	TX1: 2.95 TX2: 2.98	TX1: 2.65 TX2: 2.81	DC33002SV00 DC33002SV00
66	SOUTHSTAR	PIFA	IPEX	TX1: 1.66 TX2: 1.61	TX1: 2.68 TX2: 2.47	TX1: 2.47 TX2: 2.53	DC33002O000 DC33002O000
67	SOUTHSTAR	PIFA	IPEX	TX1: 1.86 TX2:1.84	TX1: 2.98 TX2: 2.38	TX1: 2.86 TX2: 2.38	DC33002O400 DC33002O410
68	SOUTHSTAR	PIFA	IPEX	TX1: 1.66 TX2: 1.61	TX1: 2.68 TX2: 2.47	TX1: 2.47 TX2: 2.53	DC33002O000 DC33002O000
69	SOUTHSTAR	PIFA	IPEX	TX1: 1.03 TX2: 0.66	TX1: 2.56 TX2: 2.29	TX1: 2.42 TX2: 2.13	DC33002O200 DC33002O210
70	SOUTHSTAR	PIFA	IPEX	TX1:1.32 TX2:0.92	TX1: 2.80 TX2: 2.42	TX1: 2.79 TX2: 2.76	DC33002O200 DC33002O210
71	SOUTHSTAR	PIFA	IPEX	TX1: 1.03 TX2: 0.66	TX1: 2.56 TX2: 2.29	TX1: 2.42 TX2: 2.13	DC33002O200 DC33002O210
72	SOUTHSTAR	PIFA	IPEX	TX1: 1.32 TX2: 0.92	TX1: 2.80 TX2: 2.42	TX1: 2.79 TX2: 2.76	DC33002O200 DC33002O210
73	High-Tek	PIFA	IPEX	TX1: 2.23 TX2:-0.02	TX1: 2.91 TX2: 2.98	TX1: 2.87 TX2: 2.86	DC33002O100 DC33002O100
74	High-Tek	PIFA	IPEX	TX1: -1.50 TX2: -0.62	TX1: 0.61 TX2: 1.29	TX1: 0.62 TX2: 2.89	DC33002O300 DC33002O310
75	High-Tek	PIFA	IPEX	TX1: -1.00 TX2: -1.09	TX1: 1.84 TX2: 1.32	TX1: 2.29 TX2: 0.04	DC33002O300 DC33002O310

76	AWAN	PIFA	IPEX	TX1: 2.74 TX2: 1.51	TX1: 2.83 TX2: 2.95	TX1: 2.91 TX2: 2.23	025.9020M.0001 025.9020N.0001
77	High-Tek	PIFA	IPEX	TX1: 2.81 TX2: 2.73	TX1: 2.99 TX2: 2.98	TX1: 2.96 TX2: 2.73	025.9020M.0011 025.9020N.0011
78	WNC	PIFA	IPEX	TX1: 1.87 TX2: 2.24	TX1: 2.95 TX2: 2.96	TX1: 2.45 TX2: 0.77	025.9020M.0021 025.9020N.0021
79	AWAN	PIFA	IPEX	TX1: 1.72 TX2: 1.51	TX1: 2.98 TX2: 2.90	TX1: 2.89 TX2: 2.85	025.9020O.0001 025.9020P.0001
80	High-Tek	PIFA	IPEX	TX1: -0.66 TX2: 2.68	TX1: 2.99 TX2: 2.84	TX1: 2.02 TX2: 2.93	025.9020O.0011 025.9020P.0011
81	WNC	PIFA	IPEX	TX1: 1.25 TX2: 1.97	TX1: 2.93 TX2: 2.65	TX1: 1.09 TX2: 0.99	025.9020O.0021 025.9020P.0021
82	AWAN	PIFA	IPEX	TX1: 1.66 TX2: 0.83	TX1: 2.89 TX2: 1.92	TX1: 2.19 TX2: 1.20	025.90218.0001 025.90219.0001
83	High-Tek	PIFA	IPEX	TX1: 3.14 TX2: 1.19	TX1: 2.92 TX2: 0.21	TX1: 4.25 TX2: 1.8	025.901Y8.0001 025.901Y9.0001
84	WNC	PIFA	IPEX	TX1: 2.98 TX2: 2.64	TX1: 2.69 TX2: 3.01	TX1: 3.40 TX2: 4.58	025.901YU.0001 025.901YV.0001
85	AWAN	PIFA	IPEX	TX1: 2.63 TX2: 2.24	TX1: 1.44 TX2: 0.47	TX1: 1.65 TX2: 1.06	025.90216.0001 025.90217.0001
86	High-Tek	PIFA	IPEX	TX1: 2.04 TX2: 2.80	TX1: 3.68 TX2: 3.58	TX1: 4.29 TX2: 3.88	025.901Y6.0001 025.901Y7.0001
87	WNC	PIFA	IPEX	TX1: 2.98 TX2: 1.60	TX1: 2.32 TX2: 3.83	TX1: 1.81 TX2: 3.68	025.901YQ.0001 025.901YR.0001
88	AWAN	PIFA	IPEX	TX1: 2.53 TX2: 1.94	TX1: 2.89 TX2: 2.75	TX1: 2.84 TX2: 2.66	025.9021A.0001 025.9021B.0001
89	High-Tek	PIFA	IPEX	TX1: 2.3 TX2: 1.09	TX1: 3.21 TX2: 3.87	TX1: 3.88 TX2: 3.83	025.901Y4.0001 025.901Y4.0001
90	WNC	PIFA	IPEX	TX1: 2.73 TX2: 0.75	TX1: 1.98 TX2: 2.18	TX1: 2.87 TX2: 4.27	025.901YS.0001 025.901YT.0001
91	Pulse	PIFA	IPEX	TX1: -0.78 TX2: 2.38	TX1: 0.36 TX2: 0.72	TX1: -0.43 TX2: -0.14	TZ21591 TZ21591
92	INPAQ	PIFA	IPEX	TX1: 1.16 TX2: 2.48	TX1: 1.43 TX2: 2.38	TX1: 0.81 TX2: 1.33	WA-P-LELE-04-030 WA-P-LELE-04-030
93	NISSEI	PIFA	IPEX	TX1: 1.15 TX2: -0.21	TX1: 1.19 TX2: -0.08	TX1: 1.47 TX2: -0.51	CP833301 CP833301
94	High-Tek	PIFA	IPEX	TX1: 0.24 TX2: 0.95	TX1: -0.34 TX2: 0.15	TX1: -0.27 TX2: 1.82	0ACCN021020N 0ACCN021019N
95	WNC	PIFA	IPEX	TX1: 1.88 TX2: 1.69	TX1: 2.68 TX2: 2.25	TX1: 2.71 TX2: 2.97	81EABP15.G22 81EABP15.G21
96	INPAQ	PIFA	IPEX	TX1: 2.57 TX2: 2.81	TX1: 2.72 TX2: 2.95	TX1: 2.83 TX2: 2.81	WA-P-LE-02-143 WA-P-LE-02-142
97	WNC	PIFA	IPEX	TX1: 1.67 TX2: -0.48	TX1: -0.16 TX2: 1.26	TX1: 0.51 TX2: 1.62	DC33002SY10 DC33002SY00
98	INPAQ	PIFA	IPEX	TX1: 2.28 TX2: 2.5	TX1: 2.89 TX2: 1.93	TX1: 2.95 TX2: 2.19	WA-P-LE-02-145 WA-P-LE-02-144
99	WNC	PIFA	IPEX	TX1: 0.68 TX2: 2.02	TX1: -0.27 TX2: 0.73	TX1: 0.02 TX2: -0.18	DC33002SW10 DC33002SW00
100	High-tek	PIFA	IPEX	TX1: 0.99 TX2: 2.59	TX1: 2.59 TX2: 2.46	TX1: 2.98 TX2: 2.81	219HCTN12275 219HCTN12274
101	WNC	PIFA	IPEX	TX1: 0.21 TX2: -0.11	TX1: 2.14 TX2: 2.98	TX1: 2.70 TX2: 2.57	48EABP0S 48EABP0R

102	INPAQ	PIFA	IPEX	TX1: 2.51 TX2: 2.58	TX1: 2.19 TX2: 2.14	TX1: 2.47 TX2: 2.45	DC33002T100 DC33002T100
103	WNC	PIFA	IPEX	TX1:1.75 TX2:1.73	TX1: 2.10 TX2: 0.11	TX1: 1.37 TX2: 0.33	DC33002T200 DC33002T200
104	AWAN	PIFA	IPEX	TX1:2.45 TX2:1.95	TX1:2.34 TX2:1.99	TX1:2.53 TX2:2.16	AYP6Y-200053 AYP6Y-200053
105	INPAQ	PIFA	IPEX	TX1:2.31 TX2:2.01	TX1:2.21 TX2:1.75	TX1:2.75 TX2:2.08	WA-P-LELE-04-024 WA-P-LELE-04-024
106	AWAN	PIFA	IPEX	TX1:2.64 TX2:2.38	TX1:3.68 TX2:3.70	TX1:3.59 TX2:3.95	AYP6Y-200059 AYP6Y-200059
107	AWAN	PIFA	IPEX	TX1:2.98 TX2:2.77	TX1:2.26 TX2:2.83	TX1:2.68 TX2:2.44	AYP6Y-200060 AYP6Y-200060
108	AWAN	PIFA	IPEX	TX1:2.56 TX2:2.84	TX1:2.83 TX2:2.65	TX1:2.65 TX2:2.72	AYP6Y-2000065 AYP6Y-2000065
109	Speed	PIFA	IPEX	TX1:2.15 TX2:2.45	TX1:3.33 TX2:4.57	TX1:4.67 TX2:4.44	F-0G-FS-6152-003-00 F-0G-FS-6152-003-00
110	High-Tek	PIFA	IPEX	TX1:2.93 TX2:1.14	TX1:2.81 TX2:-0.04	TX1:4.75 TX2:2.27	0ACQD022066N 0ACQD022066N
111	Pulse	PIFA	IPEX	TX1:2.95 TX2:2.87	TX1:2.96 TX2:0.62	TX1:2.18 TX2:0.65	ANTA0ZQ13562WLAN3 ANTA0ZQ13562WLAN3
112	LUXSHARE-ICT	PIFA	IPEX	TX1:2.86 TX2:2.87	TX1:4.67 TX2:4.05	TX1:4.52 TX2:3.95	DC33001ZS00 DC33001ZS10
113	Speed	PIFA	IPEX	TX1:2.34 TX2:2.12	TX1:2.90 TX2:3.26	TX1:4.83 TX2:4.65	DC33001ZU00 DC33001ZU10
114	INPAQ	PIFA	IPEX	TX1:2.83 TX2:2.88	TX1:3.87 TX2:2.47	TX1:3.90 TX2:3.86	DC33001ZY00 DC33001ZY10
115	INNOWAVE	PIFA	IPEX	TX1:2.12 TX2:2.21	TX1:3.22 TX2:3.39	TX1:3.36 TX2:3.26	F00197313110001 F00197313110001
116	INPAQ	PIFA	IPEX	TX1:2.99 TX2:2.63	TX1:2.92 TX2:2.9	TX1:2.84 TX2:3.37	WA-P-LELE-04-038 WA-P-LELE-04-038
117	Amphenol	PIFA	IPEX	TX1:1.7 TX2:1.9	TX1:3.0 TX2:3.4	TX1:3.9 TX2:3.9	DC33001W000 DC33001W000
118	LUXSHARE-ICT	PIFA	IPEX	TX1:2.86 TX2:2.38	TX1:3.89 TX2:3.48	TX1:4.54 TX2:4.17	DC33001XZ00 DC33001XZ00
119	Speed	PIFA	IPEX	TX1:0.15 TX2:0.33	TX1:3.00 TX2:4.05	TX1:3.67 TX2:4.02	DC33001XY00 DC33001XY00
120	LUXSHARE-ICT	PIFA	IPEX	TX1:2.55 TX2:2.16	TX1:3.80 TX2:4.10	TX1:4.59 TX2:3.79	DC33001XU00 DC33001XU00
121	INPAQ	PIFA	IPEX	TX1:2.85 TX2:2.98	TX1:2.90 TX2:2.60	TX1:2.96 TX2:2.98	DC33001XS00 DC33001XS00
122	Speed	PIFA	IPEX	TX1:0.91 TX2:2.38	TX1:3.31 TX2:3.35	TX1:4.38 TX2:4.21	DC33001XT00 DC33001XT00
123	AWAN	PIFA	IPEX	TX1:2.15 TX2:1.98	TX1:2.31 TX2:2.61	TX1:2.56 TX2:2.30	AXF6Y-100055 AXF6Y-100056
124	Speed	PIFA	IPEX	TX1:2.59 TX2:2.91	TX1:3.7 TX2:4.29	TX1:4.49 TX2:4.35	DC33001Y000 DC33001Y010
125	Amphenol	PIFA	IPEX	TX1:1.06 TX2:2.48	TX1:2.26 TX2:3.92	TX1:4.32 TX2:4.46	DC330020500 DC330020500
126	LUXSHARE-ICT	PIFA	IPEX	TX1:2.11 TX2:2.84	TX1:2.63 TX2:3.11	TX1:4.01 TX2:3.17	DC330020600 DC330020600
127	Speed	PIFA	IPEX	TX1:-0.25 TX2:2.38	TX1:3.03 TX2:2.81	TX1:2.78 TX2:2.71	DC330020700 DC330020700
128	INPAQ	PIFA	IPEX	TX1:2.23 TX2:1.36	TX1:3.26 TX2:2.93	TX1:4.09 TX2:3.90	DC330020100 DC330020110
129	INPAQ	PIFA	IPEX	TX1:2.96 TX2:2.98	TX1:4.25 TX2:1.63	TX1:4.16 TX2:3.25	DC330021600 DC330021710



130	Speed	PIFA	IPEX	TX1:1.83 TX2:2.46	TX1:3.57 TX2:3.87	TX1:3.56 TX2:3.62	DC33001ZT00 DC33001ZT10
131	LUXSHARE-ICT	PIFA	IPEX	TX1:1.99 TX2:1.39	TX1:4.29 TX2:4.57	TX1:4.27 TX2:4.45	DC33001ZR00 DC33001ZR10
132	AWAN	PIFA	IPEX	TX1:1.62 TX2:1.33	TX1:1.80 TX2:1.73	TX1:1.87 TX2:1.92	DQ60AUP6Y13 DQ60AUP6Y13
133	WNC	PIFA	IPEX	TX1:0.97 TX2:1.64	TX1:2.20 TX2:2.19	TX1:2.28 TX2:1.54	DQ6B15GC300 DQ6B15GC300
134	HONG-BO	PIFA	IPEX	TX1:1.81 TX2:1.90	TX1:2.80 TX2:2.21	TX1:2.15 TX2:2.64	6036B0340901 6036B0341001
135	WNC	PIFA	IPEX	TX1:-0.50 TX2:-1.81	TX1:2.78 TX2:2.86	TX1:2.79 TX2:2.51	6036B0338801 6036B0338901
136	HONG-BO	PIFA	IPEX	TX1:-1.25 TX2:0.64	TX1:1.48 TX2:1.47	TX1:-0.16 TX2:2.31	6036B0310901 6036B0310101
137	WNC	PIFA	IPEX	TX1:1.68 TX2:1.08	TX1:2.45 TX2:2.48	TX1:1.73 TX2:1.36	6036B0306201 6036B0306501
138	HONG-BO	PIFA	IPEX	TX1:0.51 TX2:2.37	TX1:0.87 TX2:2.28	TX1:1.87 TX2:2.91	6036B0340701 6036B0340801
139	WNC	PIFA	IPEX	TX1:-1.37 TX2:-1.64	TX1:2.37 TX2:1.90	TX1:2.40 TX2:2.41	6036B0339101 6036B0339001
140	HONG-BO	PIFA	IPEX	TX1:0.95 TX2:0.85	TX1:2.20 TX2:2.52	TX1:2.06 TX2:1.97	6036B0308701 6036B0308601
141	WNC	PIFA	IPEX	TX2:1.41 TX1:2.40	TX2:2.43 TX1:2.20	TX2:2.42 TX1:2.24	6036B0307201 6036B0306701
142	HONG-BO	PIFA	IPEX	TX2:1.13 TX1:0.18	TX2:2.87 TX1:2.95	TX2:2.93 TX1:2.54	6036B0340501 6036B0340601
143	WNC	PIFA	IPEX	TX2:0.27 TX1:0.49	TX2:1.99 TX1:1.96	TX2:1.97 TX1:1.33	6036B0338601 6036B0338701
144	HONG-BO	PIFA	IPEX	TX1:1.01 TX2:2.81	TX1:2.50 TX2:2.21	TX1:1.59 TX2:2.90	6036B0309201 6036B0309101
145	WNC	PIFA	IPEX	TX1:0.66 TX2:0.97	TX1:0.78 TX2:1.77	TX1:-1.93 TX2:0.28	6036B0307801 6036B0307501
146	High-Tek	PIFA	IPEX	TX1:-1.88 TX2:-1.82	TX1:2.88 TX2:1.91	TX1:2.91 TX2:1.08	025.9027I.0001 025.9027H.0001
147	INPAQ	PIFA	IPEX	TX1:2.25 TX2:2.58	TX1:2.71 TX2:2.66	TX1:2.33 TX2:2.45	025.9027K.0001 025.9027J.0001
148	HONG-BO	PIFA	IPEX	TX1:0.35 TX2:0.26	TX1:1.88 TX2:1.04	TX1:2.66 TX2:2.38	6036B0319601 6036B0319701
149	HONG-BO	PIFA	IPEX	TX1:-1.05 TX2:-0.98	TX1:1.28 TX2:2.15	TX1:2.49 TX2:1.97	6036B0319601 6036B0319701
150	WNC	PIFA	IPEX	TX1:-1.41 TX2:-1.50	TX1:-0.49 TX2:1.56	TX1:0.18 TX2:0.35	6036B0319801 6036B0319901
151	WNC	PIFA	IPEX	TX1:-1.42 TX2:-1.56	TX1:0.24 TX2:1.21	TX1:0.37 TX2:1.12	6036B0319801 6036B0319901
152	High-Tek	PIFA	IPEX	TX1:-0.84 TX2:-1.25	TX1:2.78 TX2:2.77	TX1:2.76 TX2:2.84	DC33002SH00 DC33002SH10
153	WNC	PIFA	IPEX	TX1:0.79 TX2:0.16	TX1:1.06 TX2:0.78	TX1:0.77 TX2:1.29	81EABP15.G41 81EABP15.G42
154	Speed	PIFA	IPEX	TX1:2.78 TX2:2.92	TX1:3.10 TX2:3.48	TX1:3.77 TX2:3.15	F-0G-XZ-0300-000-K0 F-0G-XZ-0300-000-K0
155	ZhongTianXun	PIFA	IPEX	TX1:2.78 TX2:2.92	TX1:3.10 TX2:3.48	TX1:3.77 TX2:3.15	2.00005163 2.00005163
156	Speed	PIFA	IPEX	TX1:2.67 TX2:2.97	TX1:4.14 TX2:3.90	TX1:4.08 TX2:4.11	F-0G-XZ-0299-000-K0 F-0G-XZ-0299-000-K0
157	ZhongTianXun	PIFA	IPEX	TX1:2.67 TX2:2.97	TX1:4.14 TX2:3.90	TX1:4.08 TX2:4.11	2.00005169 2.00005169

158	High-Tek	PIFA	IPEX	TX1:1.91 TX2:0.23	TX1:2.06 TX2:-0.23	TX1:2.46 TX2:1.00	DC33002T900 DC33002T910
159	Pulse	PIFA	IPEX	TX1:2.82 TX2:2.70	TX1:2.88 TX2:2.95	TX1:3.88 TX2:3.70	DC33002TF00 DC33002TF10
160	High-Tek	PIFA	IPEX	TX1:0.75 TX2:1.44	TX1:2.85 TX2:2.81	TX1:2.88 TX2:2.89	DC33002TE00 DC33002TE00
161	Pulse	PIFA	IPEX	TX1:2.89 TX2:2.03	TX1:2.98 TX2:2.93	TX1:2.89 TX2:2.98	DC33002TI00 DC33002TI00
162	AWAN	PIFA	IPEX	TX1:1.98 TX2:1.77	TX1:2.26 TX2:2.43	TX1:2.68 TX2:2.44	AYL6Y-100020 AYL6Y-100021
163	Luxshare-ICT	PIFA	IPEX	TX1:-0.98 TX2:0.35	TX1:-0.97 TX2:1.98	TX1:-0.09 TX2:3.64	L01RF354-NB-H L01RF355-NB-H
164	Luxshare-ICT	PIFA	IPEX	TX1:2.91 TX2:2.88	TX1:3.26 TX2:3.15	TX1:4.52 TX2:4.10	DC330020Q00 DC330020Q10
165	Speed	PIFA	IPEX	TX1:1.74 TX2:2.59	TX1:3.67 TX2:3.07	TX1:3.11 TX2:3.81	DC330020P00 DC330020P10
166	High-Tek	PIFA	IPEX	TX1:1.80 TX2:2.33	TX1:2.82 TX2:2.68	TX1:3.92 TX2:3.87	DC33002TC00 DC33002TC10
167	Pulse	PIFA	IPEX	TX1:2.47 TX2:2.45	TX1:2.89 TX2:2.91	TX1:3.88 TX2:3.97	DC33002TD00 DC33002TD10
168	NISSEI	PIFA	IPEX	TX1: -0.21 TX2: 1.15	TX1: -0.08 TX2: 1.19	TX1: -0.51 TX2: 1.47	CP833301 CP833301
169	LUXSHARE	DIPOLE	SMA-RP	TX1: 0.30 TX2: -1.1	TX1: 0.20 TX2: -1.1	TX1: 1.20 TX2: 1.40	LA9RF059-CS-H LA9RF059-CS-H
170	INPAQ	DIPOLE	SMA-RP	TX1: 1.38 TX2: 1.44	TX1: 3.64 TX2: 3.53	TX1: 2.8 TX2: 3.08	DAM-I3-H1-M2-800-10-66 DAM-I3-H1-M2-800-10-66
171	AWAN	PIFA	IPEX	TX1: 0.95 TX2: 1.64	TX1: 0.97 TX2: 1.18	TX1: -0.71 TX2: 1.20	6036B0342001 6036B0341801
172	INPAQ	PIFA	IPEX	TX1: 2.12 TX2: 1.71	TX1: 3.07 TX2: 1.82	TX1: 2.82 TX2: 2.89	6036B0342101 6036B0341901
173	Amphenol	PIFA	IPEX	TX1: 2.84 TX2: 2.89	TX1: 4.26 TX2: 4.56	TX1: 4.81 TX2: 4.83	DC330020S00 DC330020S00
174	Speed	PIFA	IPEX	TX1: 2.87 TX2: 2.86	TX1: 4.43 TX2: 4.11	TX1: 4.61 TX2: 4.65	DC330020R00 DC330020R00
175	Amphenol	PIFA	IPEX	TX1: 2.28 TX2: 2.02	TX1: 4.16 TX2: 4.37	TX1: 4.52 TX2: 4.52	DC330020Y00 DC330020Y00
176	Speed	PIFA	IPEX	TX1: 2.78 TX2: 2.25	TX1: 3.59 TX2: 3.72	TX1: 3.62 TX2: 3.66	DC330020Z00 DC330020Z00
177	LUXSHARE-ICT	PIFA	IPEX	TX1: 2.80 TX2: 2.94	TX1: 4.08 TX2: 3.94	TX1: 3.87 TX2: 4.29	DC330020W00 DC330020W00
178	LUXSHARE-ICT	PIFA	IPEX	TX1: 2.93 TX2: 2.82	TX1: 4.11 TX2: 4.03	TX1: 4.31 TX2: 4.56	DC330021000 DC330021000
179	HongBo	PIFA	IPEX	TX1: 2.28 TX2: 2.81	TX1: 3.21 TX2: 3.27	TX1: 3.25 TX2: 3.24	DC330021100 DC330021100
180	Speed	PIFA	IPEX	TX1: 2.77 TX2: 2.51	TX1: 4.34 TX2: 3.89	TX1: 3.95 TX2: 3.96	DC330021200 DC330021200
181	INPAQ	PIFA	IPEX	TX1: 1.8 TX2: 1.5	TX1: 2.4 TX2: 2.5	TX1: 2.7 TX2: 2.6	DC330021500 DC330021500
182	Speed	PIFA	IPEX	TX1: 2.44 TX2: 1.16	TX1: 4.58 TX2: 4.59	TX1: 4.10 TX2: 4.35	DC330021300 DC330021300
183	INPAQ	PIFA	IPEX	TX1: 2.72 TX2: 2.72	TX1: 3.44 TX2: 3.39	TX1: 3.47 TX2: 3.42	WA-P-LELE-04-038 WA-P-LELE-04-038
184	AWAN	PIFA	IPEX	TX1: 2.73 TX2: 2.91	TX1: 3.52 TX2: 3.76	TX1: 3.87 TX2: 3.79	AYP6Y-200060 AYP6Y-200060

————THE END————