





# **FCC C2PC Test Report**

FCC ID : P27-XIONESCM2

Equipment : XiOne-SC (B)

Model No. : SCXIxxBEIxCO; SCXIxxBEI

(Refer to item 1.1.1 for more details.)

Brand Name : Comcast Xfinity; Cox; Shaw

(Refer to item 1.1.1 for more details.)

Applicant : Sercomm Corporation

Address : 8F, No. 3-1, YuanQu St., NanKang, Taipei 115,

Taiwan. R.O.C.

Standard : 47 CFR FCC Part 15.247

Received Date : May 06, 2022

Tested Date : May 18 ~ May 20, 2022

We, International Certification Corporation, would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by: Approved by:

Along Chen/ Assistant Manager Gary Cha

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Appendix A. Unwanted Emissions into Restricted Frequency Bands Appendix B. AC Power Line Conducted Emissions



# **Release Record**

Report No.	Version	Description	Issued Date
FR161001-05	Rev. 01	Initial issue	Jun. 08, 2022

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# **Summary of Test Results**

FCC Rules	Test Items	Measured	Result
15.207	AC Power Line Conducted Emission	[dBuV]: 5.505MHz 50.99 (Margin -9.01dB) - QP	Pass
15.247(d) 15.209	Unwanted Emissions	[dBuV/m at 3m]: 422.31MHz 40.45 (Margin -5.55dB) - PK	Pass

#### **Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

#### **Comments and Explanations:**

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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# 1 General Description

#### 1.1 Information

This is a Class II Permissive Change report (C2PC).

This report is issued as a supplementary report to original report no. FR161001-04. The modifications are listed as follows:

Adding 2<sup>nd</sup> source (non-RF components) listed in part list document.

#### 1.1.1 Product Details

The following models are provided to this EUT.

Brand Name	Model Name	Product Name	Description
Comcast Xfinity; Cox; Shaw	SCXIxxBEIxCO; SCXIxxBEI	XiOne-SC (B)	Where "x" may be any alphanumeric for External Body Color.

<sup>★</sup> All models are electrically identical, different model names are for marketing purpose.

### 1.1.2 Specification of the Equipment under Test (EUT)

RF General Information						
Frequency Range (MHz) Ch. Frequency Channel Number Data Rate						
2425~2475	RF4CE	2425~2475	15-25 [3]	250kbps		
Note 1: RF4CE uses 16-OQPSK modulation.						

#### 1.1.3 Antenna Details

Ant. No.	Туре	Type Connector Gain (dBi)		Remarks
1	Printing	No	0.02	

### 1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type 5.0Vdc from AC adapter
------------------------------------------

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<sup>★</sup> The above models, model SCXI11BEI was selected as a representative one for the final test and only its data was recorded in this report.



### 1.1.5 Accessories

	Accessories					
No.	Equipment	Description				
1	AC adapter	Brand: LEADER Model: ML08-7050150-A1 I/P: 100-120V~ 50/60Hz, 0.25A O/P: 5.0Vdc, 1.5A Power Line: 1.8m non-shielded without core				
2 AC adapter		Brand: NetBit Model: NBC08A050150HU I/P: 100-120V~ 50/60Hz, 0.2A O/P: 5.0Vdc, 1.5A Power Line: 1.81m non-shielded without core				
3	AC adapter	Brand: AcBel Model: WAK010 I/P: 100-120V~ 60Hz, 0.25A O/P: 5.0Vdc, 1.5A Power Line: 1.78m non-shielded without core				

# 1.1.6 Channel List

Channel No.	Frequency (MHz)
15	2425
20	2450
25	2475

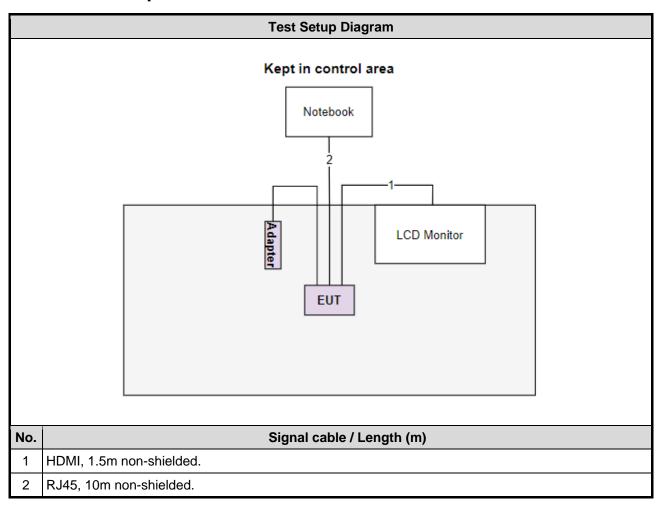
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# 1.2 Local Support Equipment List

	Support Equipment List							
No.	Equipment	Brand	Model	FCC ID	Remarks			
1	Notebook	DELL	Latitude E5470	DoC				
2	LCD Monitor	ASUS	MX27UCS					

# 1.3 Test Setup Chart



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# 1.4 The Equipment List

Test Item	Conducted Emission							
Test Site Conduction room 1 / (CO01-WS)								
Tested Date	May 20, 2022	May 20, 2022						
Instrument	Brand	Model No.	Serial No.	Calibration Date	Calibration Until			
Receiver	R&S	ESR3	101658	Feb. 16, 2022	Feb. 15, 2023			
LISN	R&S	ENV216	101579	Apr. 21, 2022	Apr. 20, 2023			
LISN (Support Unit)	SCHWARZBECK	NSLK 8127	8127667	Jan .07, 2022	Jan .06, 2023			
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 19, 2021	Oct. 18, 2022			
50 ohm terminal (Support Unit)	NA	50	04	May 25, 2021	May 24, 2022			
Measurement Software AUDIX e3 6.120210k NA								

Test Item	Radiated Emission	Radiated Emission						
Test Site	966 chamber1 / (03Cl	966 chamber1 / (03CH01-WS)						
Tested Date	May 18, 2022	May 18, 2022						
Instrument	Brand	Brand Model No. Serial No. Calibration Date Calibration Until						
Receiver	R&S	ESR3	101657	Mar. 15, 2022	Mar. 14, 2023			
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 08, 2021	Nov. 07, 2022			
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jun. 30, 2021	Jun. 29, 2022			
Preamplifier	EMC	EMC02325	980225	Jun. 29, 2021	Jun. 28, 2022			
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 05, 2021	Oct. 04, 2022			
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 05, 2021	Oct. 04, 2022			
LF cable 11M	EMC	EMCCFD400-NW-N W-11000	200801	Oct. 05, 2021	Oct. 04, 2022			
LF cable 1M	EMC	EMCCFD400-NM-N M-1000	160502	Oct. 05, 2021	Oct. 04, 2022			
Measurement Software	AUDIX	e3	6.120210g	NA	NA			
Note: Calibration Inter	Note: Calibration Interval of instruments listed above is one year.							

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### 1.5 Test Standards

47 CFR FCC Part 15.247 ANSI C63.10-2013

#### 1.6 Reference Guidance

FCC KDB 558074 D01 15.247 Meas Guidance v05r02 FCC KDB 662911 D01 Multiple Transmitter Output v02r01

### 1.7 Deviation from Test Standard and Measurement Procedure

None

## 1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Uncertainty			
Parameters	Uncertainty		
AC conducted emission	±2.92 dB		
Unwanted Emission ≤ 1GHz	±3.41 dB		

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# 2 Test Configuration

# 2.1 Testing Facility

Test Laboratory	International Certification Corporation
Test Site	CO01-WS, 03CH01-WS
Address of Test Site	No.3-1, Lane 6, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 33381, Taiwan (R.O.C.)

FCC Designation No.: TW2732FCC site registration No.: 181692

➤ ISED#: 10807A

➤ CAB identifier: TW2732

### 2.2 The Worst Test Modes and Channel Details

Test item	Modulation Mode	Test Frequency (MHz)	Data Rate	Test Configuration
AC Power Line Conducted Emission	16-OQPSK	2425	250kbps	
Unwanted Emissions ≤ 1GHz	16-OQPSK	2425	250kbps	

#### NOTE:

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Three adapters (LEADER, NetBit & AcBel) had been covered during the pretest and found that LEADER adapter
was the worst case and was selected for final testing.



### 3 Transmitter Test Results

### 3.1 Unwanted Emissions into Restricted Frequency Bands

### 3.1.1 Limit of Unwanted Emissions into Restricted Frequency Bands

Restricted Band Emissions Limit						
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)			
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300			
0.490~1.705	24000/F(kHz)	33.8 - 23	30			
1.705~30.0	30	29	30			
30~88	100	40	3			
88~216	150	43.5	3			
216~960	200	46	3			
Above 960	500	54	3			

#### Note 1:

Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit **Note 2**:

Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

### 3.1.2 Test Procedures

- Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
- 2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
- 3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

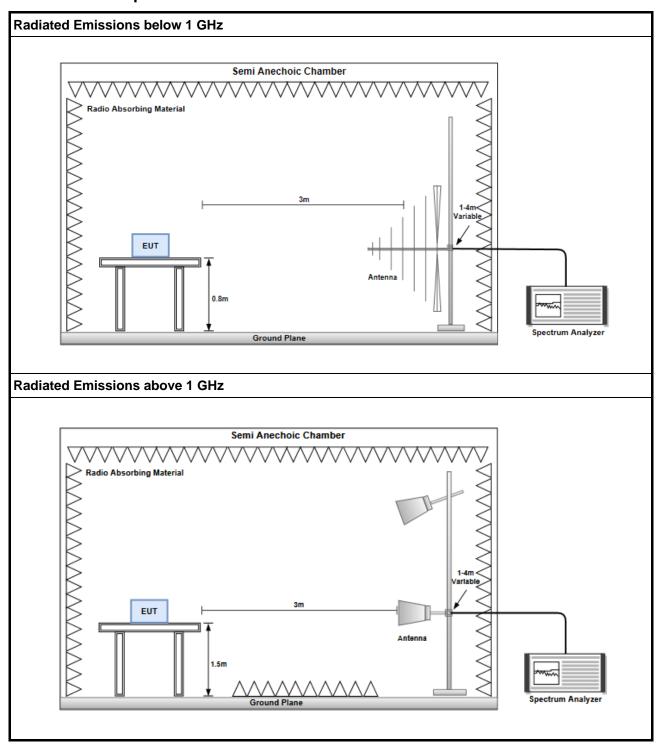
#### Note:

- 1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
- 2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
- 3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

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### 3.1.3 Test Setup



### 3.1.4 Test Results

Refer to Appendix A.

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#### 3.2 AC Power Line Conducted Emissions

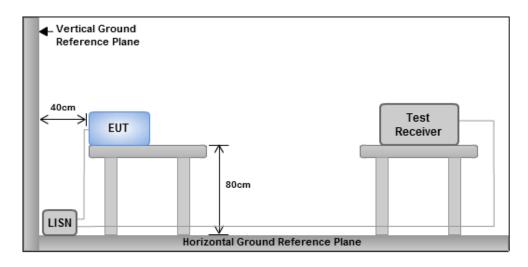
#### 3.2.1 Limit of AC Power Line Conducted Emissions

Conducted Emissions Limit					
Frequency Emission (MHz) Quasi-Peak Average					
0.15-0.5	66 - 56 *	56 - 46 *			
0.5-5 56 46					
5-30	60	50			
Note 1: * Decreases with the logarithm of the frequency.					

#### 3.2.2 Test Procedures

- 1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
- 2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50  $\Omega$  LISN port.
- 3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
- 4. This measurement was performed with AC 120V / 60Hz.

#### 3.2.3 Test Setup



Note: 1. Support units were connected to second LISN.

Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

#### 3.2.4 Test Results

Refer to Appendix B.

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# 4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corporation (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <a href="http://www.icertifi.com.tw">http://www.icertifi.com.tw</a>.

#### Linkou

Tel: 886-2-2601-1640 No.30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan (R.O.C.)

#### Kwei Shan

Tel: 886-3-271-8666
No.3-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)
No.2-1, Lane 6, Wen San 3rd
St., Kwei Shan Dist., Tao Yuan
City 33381, Taiwan (R.O.C.)

#### Kwei Shan Site II

Tel: 886-3-271-8640 No.14-1, Lane 19, Wen San 3rd St., Kwei Shan Dist., Tao Yuan City 333, Taiwan (R.O.C.)

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666 Fax: 886-3-318-0345

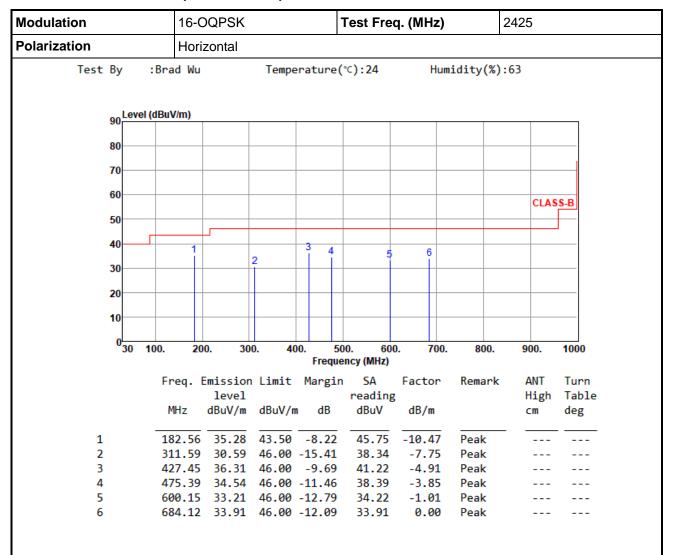
Email: ICC Service@icertifi.com.tw

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### **Unwanted Emissions (Below 1GHz)**



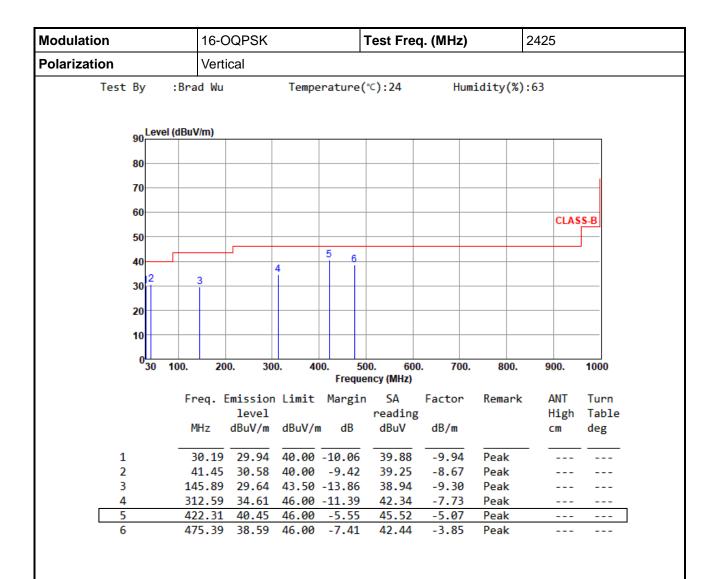
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

\*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.





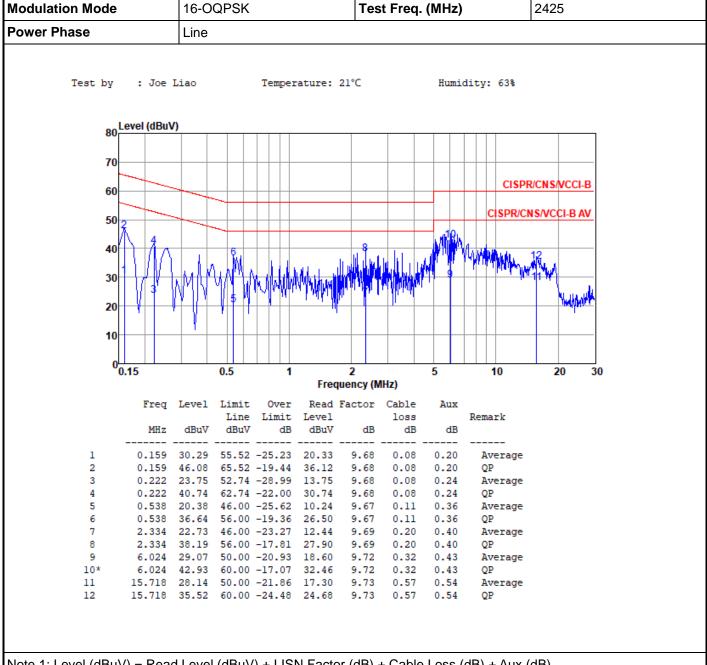
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV) + Factor\* (dB/m)

\*Factor includes antenna factor, cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) - Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

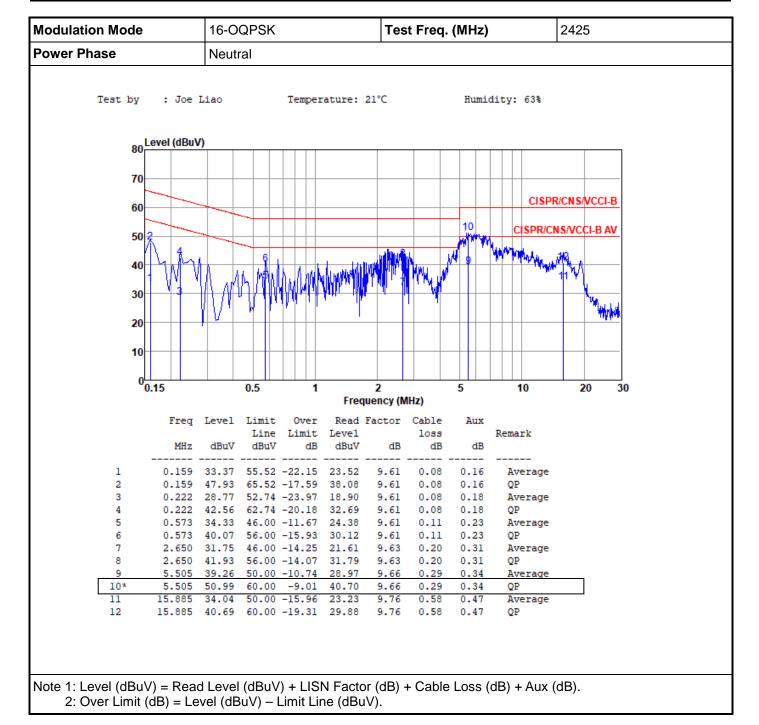




Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB) + Aux (dB).

2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).





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# Part List

MODEL:BRAVO/BRAVO-SC						
Item BOM.Ref Des		function	main source			Sercomm suggested substitute
iteiii	DOWNREI DES	Tunction	Manufacturer	MPN	Manufacturer	MPN
1	FB5000,FB5015	BEAD	Murata	FERRITE BEAD BLM15PX601SN1D	INPAQ	MHC1005P601ZBPA90E4
2	FB5018	BEAD	Murata	FERRITE BEAD BLM15AX102SN1D	CHILISIN	PBY100505T-102Y-N
3	D4600,D4601,D4602,D8401	TVS	BENCENT	DIODE TVS ARRAY BV-FK05U4CA	MCC	ESD PROTECTOR ESDSLC0524F-TP
1 4	D4603, D4604, D8403, D8404	TVS	BENCENT	DIODE TVS BV-FA05UCA	мсс	CSPULC5V0LB(CSP1006-2)
5	L8002	RF LL	CHILISIN	INDUCTOR CLH1005T-6N8J-S	SUNLORD	SDCL1005C6N8JTDF
6	L8000	RF LL	Murata	INDUCTOR LQG15HN6N2S02D	SUNLORD	INDUCTOR SDCL1005C6N2STDF
7	L8001	RF LL	Murata	INDUCTOR LQG15HN5N6S02D	SUNLORD	INDUCTOR SDCL1005C5N6STDF
8	L8007	RF LL	Murata	INDUCTOR LQP03TN3N9B02D	SUNLORD	SDCL0603Q3N9BT02B03
9	L6013	RF LL	Murata	INDUCTOR LQP03TN1N1B02D	SUNLORD	SDCL0603Q1N1BT02B03
10	L6048	RF LL	Murata	INDUCTOR LQP03TN1N3B02D	SUNLORD	SDCL0603Q1N3BT02B03
11	L6010,L6012	RF LL	Murata	INDUCTOR LQP03TN3N2B02D	SUNLORD	SDCL0603Q3N2BT02B03
12	L8006	RF LL	TDK	INDUCTOR MLG0603P1N5BTZ10	SUNLORD	INDUCTOR SDCL0603Q1N5BT02B03
13	L7000,L7001	RF LL	Murata	INDUCTOR LQP03TN3N0B02D	SUNLORD	SDCL0603Q3N0BT02B03

# Part List

14							
10	14	L6001	RF LL	Murata	INDUCTOR LQP03TN8N2H02D	SUNLORD	SDCL0603Q8N2HT02B03
17   F7000	15	L7008,L8005	RF LL	CHILISIN	INDUCTOR CLH1005T-22NJ-S	SUNLORD	SDCL1005C22NJTDF
18	16	L7002	RF LL	Murata	INDUCTOR LQP03TN2N7B02D	SUNLORD	INDUCTOR SDCL0603Q2N7BT02B03
18	17	F7000	RF Filter	TDK	RF FILTER(LP) DEA162690LT-5014A5	Walsin	RFLPF1606A13T
19	18	L4600,L4601,L4602,L4603		Murata	COMMON CHOKE NFG0QHB542HS2D	TDK	TCM0605T-080-2P-T201
20         J8400         CONN         LIYANG         CONN RJ45 LYWK045131         SHENZHEN UNIT ELECTRONICS         845-63060-000           21         FB5003, FB5004, FB5005, FB5005, FB5006         BEAD         Murata         FERRITE BEAD BLM03AX121SN1D         SUNLORD         FERRITE BEAD PZ0603D121-R45TF           22         FB402         BEAD         CHILISIN         FERRITE BEAD 1.5A 0402         TAI-TECH         FERRITE BEAD HCB1005KF-121T15           23         FB5001, FB5002, FB5016, FB5017, FB5017	19	J1	CONN	LIYANG	JACK DC PWR LYDC000147		805-02200-000
FERRITE BEAD   Murata   FERRITE BEAD BLMUSANITISNID   SUNUORD   FERRITE BEAD PROBUSILIZE-HASTF	20	J8400	CONN	LIYANG	CONN RJ45 LYWK045131	SHENZHEN UNIT	845-63060-000
FBS001, FBS002, FBS016, FBS016, FBS017   FERRITE BEAD   Murata   FERRITE BEAD   BLM15PD121SN1D   TAI-TECH   FERRITE BEAD   HCB1005KF-121T15	21		BEAD	Murata	FERRITE BEAD BLM03AX121SN1D	SUNLORD	FERRITE BEAD PZ0603D121-R45TF
FB5017   BEAD   MURTAT   FERRITE BEAD BLM15PD121SN1D   TAFFECH   FERRITE BEAD HCBJ005RF-121115     24	22	FB402	BEAD	CHILISIN	FERRITE BEAD 1.5A 0402	TAI-TECH	FERRITE BEAD HCB1005KF-121T15
25         C8004,C8011         RF CAP         Murata         CAP CHIP GJM0335C1E100JB01D         WALSIN         RF03N100J500CT           26         J6001         RF CONN         Murata         CONN RF MM8030-2610RJ3         ECT         CONN RF 818011998           27         SK6000         RF CONN         Foxconn         CONN RF KK23011-32-7H         ECT         CONN RF 818000368           28         U6000,U6002         RF SWITCH         RICHWAVE         RF CHIP RTC6603SP         KCT         KCT2821L           29         C8413         CAP         Walsin         CAP CHIP 1808B102K202CT         YAGEO         CC1808KKX7RDBB102	23		BEAD	Murata	FERRITE BEAD BLM15PD121SN1D	TAI-TECH	FERRITE BEAD HCB1005KF-121T15
26       J6001       RF CONN       Murata       CONN RF MM8030-2610RJ3       ECT       CONN RF 818011998         27       SK6000       RF CONN       Foxconn       CONN RF KK23011-32-7H       ECT       CONN RF 818000368         28       U6000,U6002       RF SWITCH       RICHWAVE       RF CHIP RTC6603SP       KCT       KCT2821L         29       C8413       CAP       Walsin       CAP CHIP 1808B102K202CT       YAGEO       CC1808KKX7RDBB102	24	L8003	RF LL	CHILISIN	INDUCTOR BSCH001005053N6SCS	SUNLORD	INDUCTOR SDCL1005C3N6STDF
27         SK6000         RF CONN         Foxconn         CONN RF KK23011-32-7H         ECT         CONN RF 818000368           28         U6000,U6002         RF SWITCH         RICHWAVE         RF CHIP RTC6603SP         KCT         KCT2821L           29         C8413         CAP         Walsin         CAP CHIP 1808B102K202CT         YAGEO         CC1808KKX7RDBB102	25	C8004,C8011	RF CAP	Murata	CAP CHIP GJM0335C1E100JB01D	WALSIN	RF03N100J500CT
28         U6000,U6002         RF SWITCH         RICHWAVE         RF CHIP RTC6603SP         KCT         KCT2821L           29         C8413         CAP         Walsin         CAP CHIP 1808B102K202CT         YAGEO         CC1808KKX7RDBB102	26	J6001	RF CONN	Murata	CONN RF MM8030-2610RJ3	ECT	CONN RF 818011998
29 C8413 CAP Walsin CAP CHIP 1808B102K202CT YAGEO CC1808KKX7RDBB102	27	SK6000	RF CONN	Foxconn	CONN RF KK23011-32-7H	ECT	CONN RF 818000368
	28	U6000,U6002	RF SWITCH	RICHWAVE	RF CHIP RTC6603SP	КСТ	KCT2821L
30 U7000 RF SWITCH RICHWAVE RF CHIP RTC6617SP MAXSCEND MXD8730	29	C8413	САР	Walsin	CAP CHIP 1808B102K202CT	YAGEO	CC1808KKX7RDBB102
	30	U7000	RF SWITCH	RICHWAVE	RF CHIP RTC6617SP	MAXSCEND	MXD8730