Shanghai Amphenol Airwave

Amphenol

REPARED DATE : **May 20th, 2018**

PROJECT NAME : **Volantis/E406**

PRODUCT NUMBER : **CI8228-15-000-R**

CISCO PARRT NUMBER : **07-100418-01**

(DECT: 1740MHz~1940MHz)

SAA function:	Name:	Sign:	Date
RD manager	Bruce Tang	Bruce Tang	5/20/2018
RF manager	Alex Lu	Alex Lu	5/20/2018
ME manager	Albert Mao	Albert Mao	5/20/2018
Project manager	Amanda Chen	Amanda Chen	5/20/2018

Customer:	Name/Title:	Sign:	Date
Cisco	Java Jiang	Java Jiang	5/20/2018

Date:	Revision:	Updates and changes:	Issued by:
5/20/2018	FA	First Release	

CONTENTS

1 Antenna description

DECT antenna: Dipole

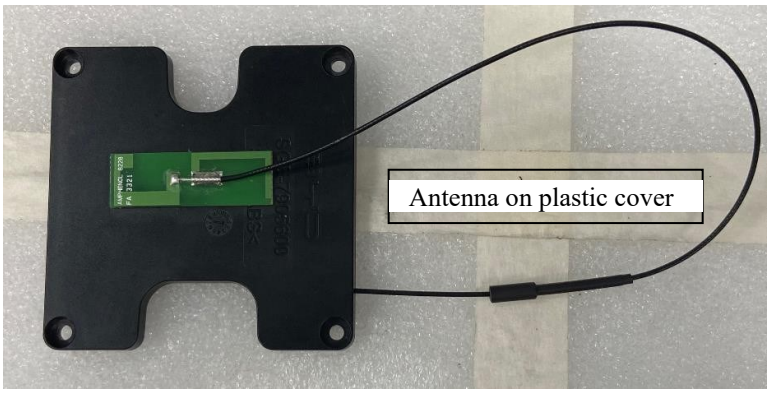
Frequency: 1740MHz ~1940 MHz,

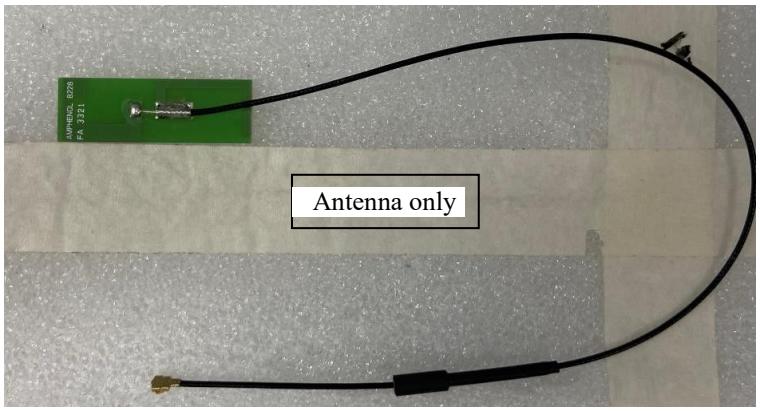
1.1 Part number

Part number of DECT antenna ： CI8228-15-000-R

1.2 Antenna pictures

Picture of DECT antenna:





DECT antenna

2 Electrical Performance

2.1 Specification

2.1.1 Return loss

DECT antenna:

Frequency(MHz)	1740	1940
Return loss	≤-6	≤-11

2.2 Measurement Set-up

2.2.1 VSWR and return loss

VSWR measurements (S_{11}) were performed using an Agilent ENA series Network Analyser and the previously described test fixture. Coaxial chokes were used to mitigate surface currents on the outside of the cabling. The testing was performed in free space.

2.2.2 Efficiency, Gain

The gain of the antenna was measured in Amphenol's 3D anechoic chamber in Shanghai, China. The chamber is standard Satimo with 64 probes system capable of doing tests from 380MHz to 6GHz. Coaxial chokes on the feed cable were used to mitigate surface currents during passive tests. The measurement results are calibrated using dipole standards.

2.3 Reference measurement data

2.3.1 Return loss

DECT antenna:

Frequency(MHz)	1740	1940
Return loss	≤-7.2	≤-12

2.3.2 Efficiency

DECT antenna:

Antenna on plastic cover

Frequency MHz	Efficiency		Peak Gain
	%	dB	dB
1740	43%	-3.7	1.5
1760	54%	-2.7	2.8
1780	60%	-2.2	3.4
1800	60%	-2.2	3.5
1820	62%	-2.1	3.8
1840	65%	-1.8	4.1
1860	70%	-1.5	4.4
1880	70%	-1.5	4.6
1900	68%	-1.7	4.5
1920	67%	-1.8	4.6
1940	64%	-2	4.7

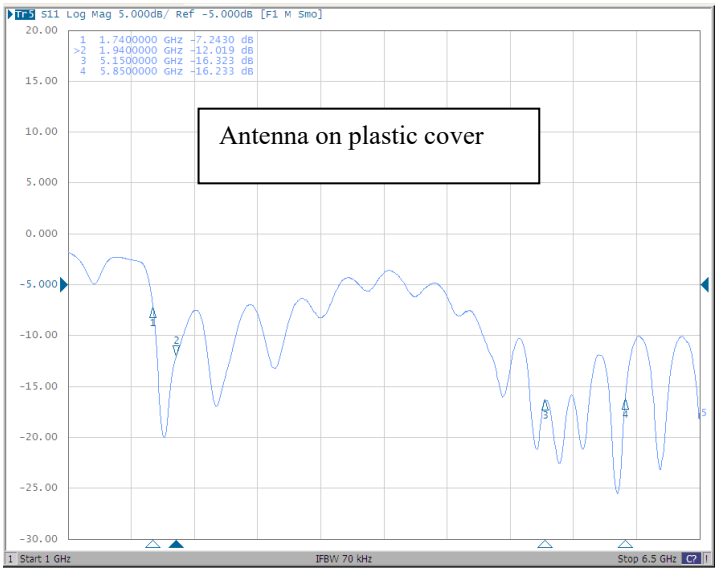
Antenna only

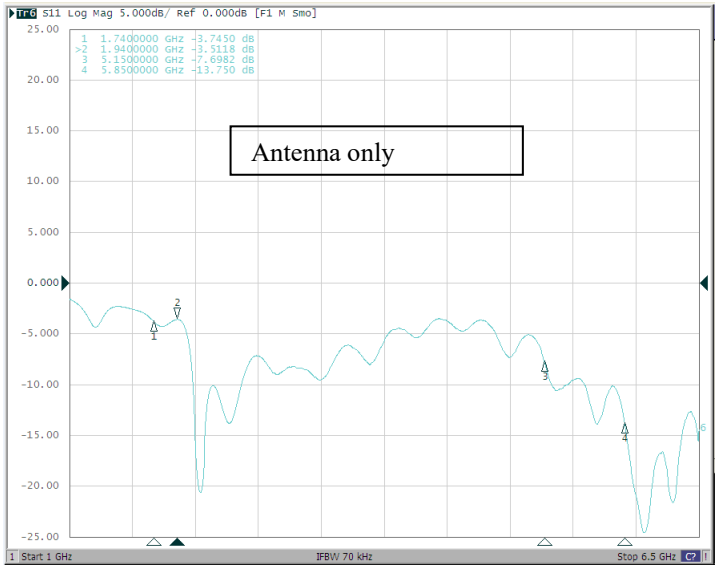
Frequency MHz	Efficiency		Peak Gain
	%	dB	dB
1740	21%	-6.7	-0.1
1760	27%	-5.6	1.0
1780	28%	-5.6	0.5
1800	29%	-5.4	0.5
1820	29%	-5.4	1.3
1840	28%	-5.5	1.6
1860	29%	-5.4	1.6
1880	24%	-6.1	0.2
1900	22%	-6.5	-0.4
1920	20%	-6.9	-0.4
1940	21%	-6.8	-0.7

3 Plots

3.1 Return loss

DECT antenna:

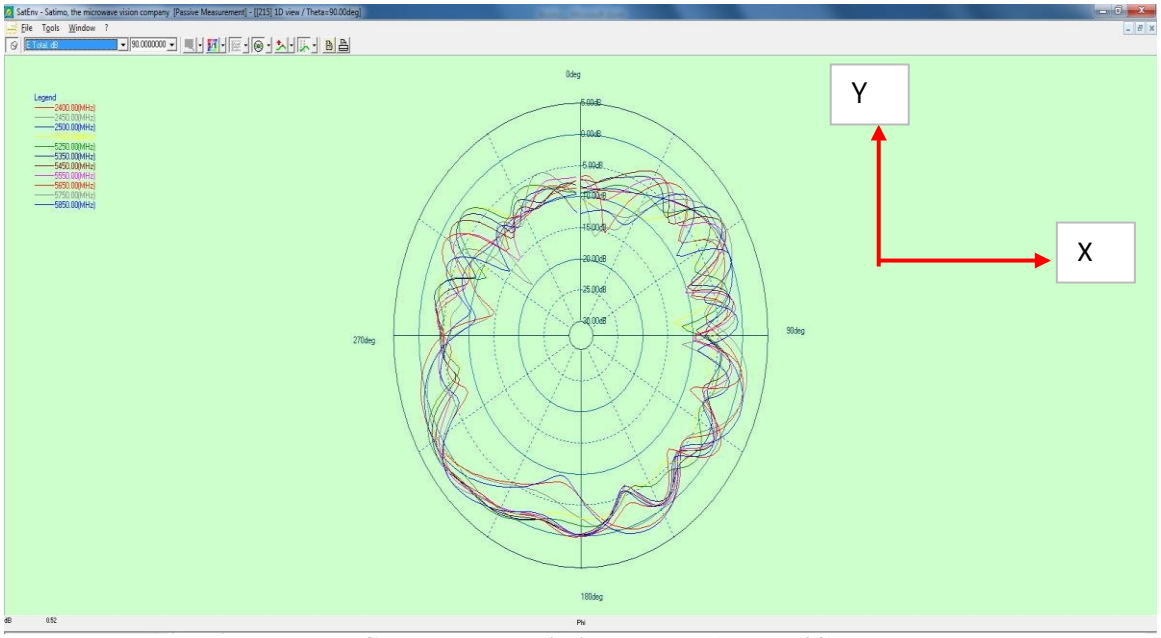




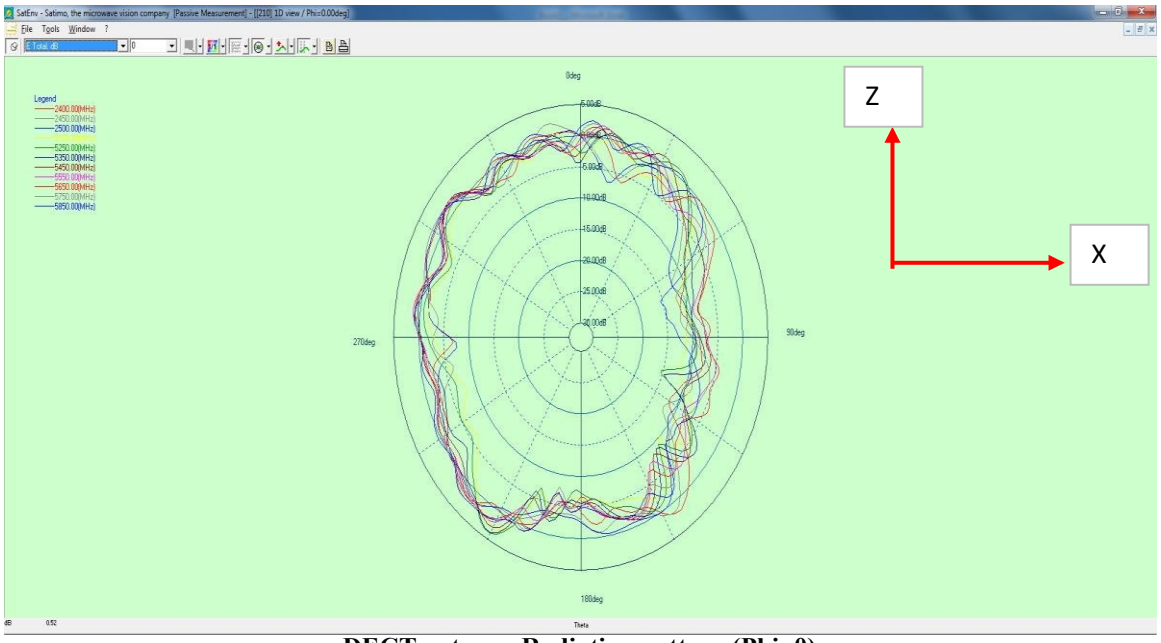
DECT antenna Return loss

3.2 Radiation pattern

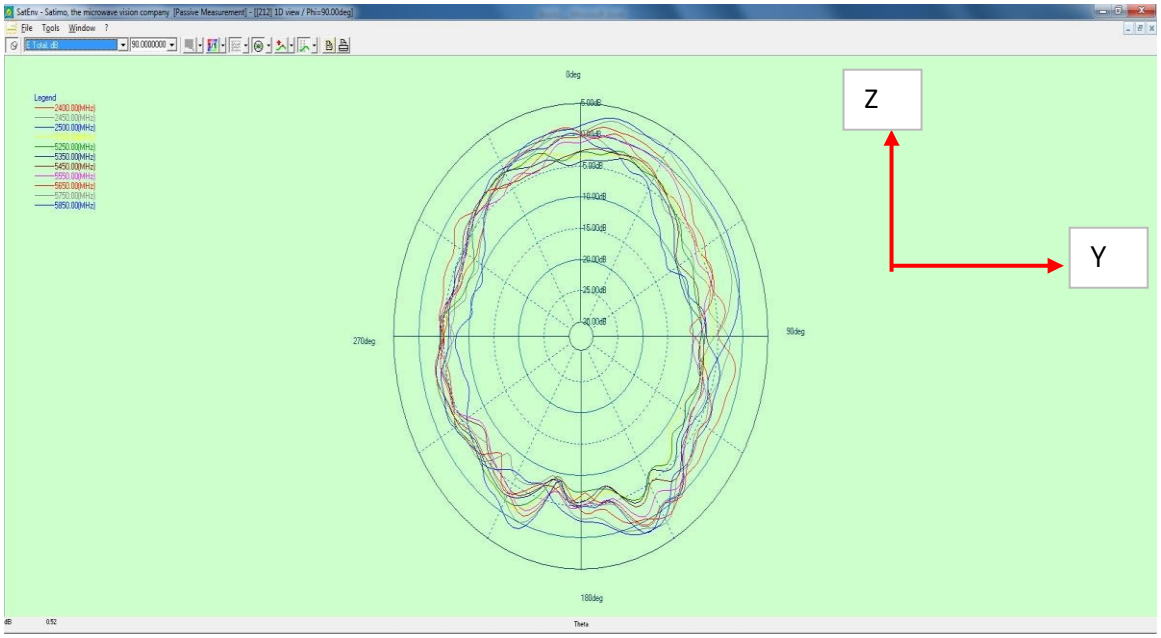
DECT antenna:



DECT antenna Radiation pattern (Theta=90)



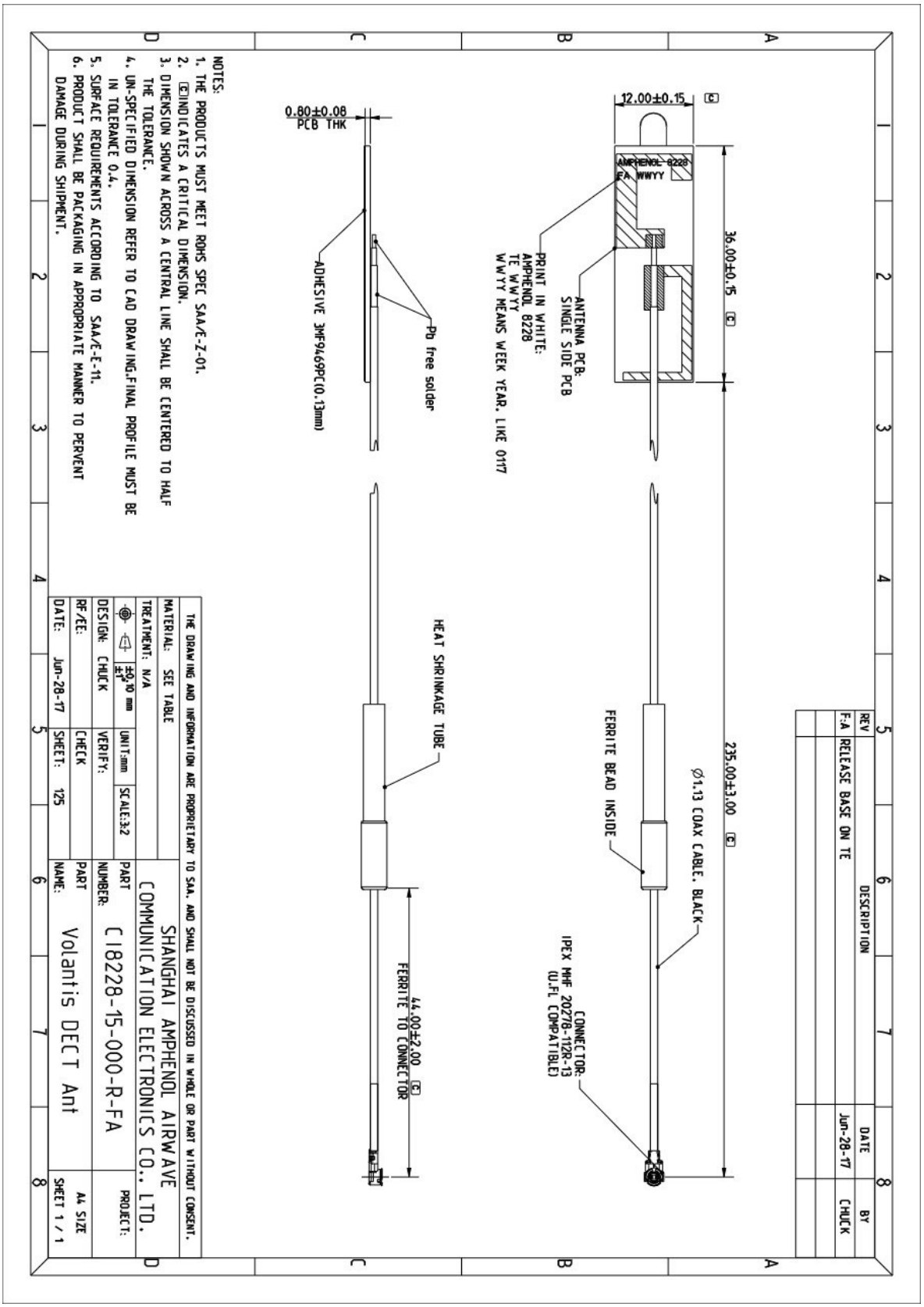
DECT antenna Radiation pattern (Phi=0)



DECT antenna Radiation pattern (Phi=90)

4. Mechanical Appearance Drawing

The mechanical drawing covers the physical appearance of the antenna.



5. FAI report

Project: E406	Author:	File Name: **CI8228-15-000-R**
Date:		
Revision:	FA	

Amphenol — **Shanghai Amphenol Airwave Communication Electronics Co., Ltd**

Inspection Report : First Article/ Vendor Sample Evaluation

Part Name:	PCB	Part No.:	R-8228-15-000-74-FA	Mold No.:	N/A	Material Type:	N/A	Rev No.:	FA
☐ Customer	☑ Supplier	Project Name:	E406	Color:	N/A	Sub. No.	1	Page	1 of

Dimensional Inspetion

No.	Specification: Print Zone	Sign	Nominal	+	-	Shot No.	To be filled by Amphenol: Shot.1	/	/	/	/	/	/	/	EQPT	Disposition: Acc	Con. Ac	Rej	Remark
1			10.45	0.20	0.20		10.400								OMM	√			
2			4.25	0.20	0.20		4.192								OMM	√			
3			1.50	0.20	0.20		1.518								OMM	√			
4			3.00	0.20	0.20		2.968								OMM	√			
5			0.30	0.20	0.20		0.257								OMM	√			
6			1.20	0.20	0.20		1.168								OMM	√			
7			17.50	0.20	0.20		17.469								OMM	√			
8			6.80	0.30	0.30		6.742								OMM	√			
9			1.70	0.20	0.20		1.694								OMM	√			
10			2.68	0.20	0.20		2.613								OMM	√			
11			2.85	0.30	0.30		2.806								OMM	√			
12			14.30	0.20	0.20		14.214								OMM	√			
13			4.00	0.20	0.20		4.092								OMM	√			
14			1.20	0.20	0.20		1.268								OMM	√			
15			0.25	0.20	0.20		0.337								OMM	√			
16			0.25	0.20	0.20		0.172								OMM	√			
17			3.10	0.20	0.20		3.117								OMM	√			
18			4.20	0.20	0.20		4.259								OMM	√			
19			8.40	0.20	0.20		8.463								OMM	√			
20			11.50	0.20	0.20		11.454								OMM	√			
21			0.80	0.08	0.08		0.807								OMM	√			
															OMM				
															OMM				

Equipment ID:

DC-"Digital Caliper" **PLG** - "Plug Gauge" **RG**-"Radii Gauge"

DI-"Dial Indicator" **LG** - "Loop Gauge" **PP**-"Profile Projector"

PLG - "Plug Gauge" **PG**-"Pin Gauge" OMM-"Objective Measuring Machine"

Disposition:

Acc - "Accept"

Rej - "Reject"

Con. Acc - "Conditional Accept (faulty, but accept)"

	Inspector	Date	QA Approval	Date
ME Engineer: **Kevin.CUI**	wanghui	2018/5/14	Lois chen	2018/5/14

SAA/Q-11-01(Rev.D)

Project: E406	Author:	File Name: **CI8228-15-000-R**
Date:		
Revision:	FA	

6. Restricted Substances Concentration Evaluation Report

Amphenol

限用物质含量符合性评估报告

Restricted Substances Concentration Evaluation Report

客户名称Cutomer name：CI　　　　**项目/产品名称Project/part name：Volantis WIFI**

客户料号Customer P/N:　　　　**SAA 料号SAA P/N：CI8226-15-000-R**

项目经理PM：

RD工程师RF/ME：Chuck Cheng

采购员**Sourcing：Allen He　Kevin Hao**

评估结果 Evaluate result　**OK**　(请填写OK或NG)

注意事项(Notice)：

1. 下表须填写部件/材料的最小组成部分,即无法继续用物理方法进行再分解的最小组成.The composition of a substance should write to the minimum unit, which can be decomposed physically.
2. 项目要求Project requirement：ROHS (Y) 、HF(Y) 、 Be( )、PFOS/PFOA( )、Others( )；填Y代表有要求，N代表无要求;input Y means Yes，input N means No.
3. .对于不适用的测试项目，请填写“n/a”,Not applicable items should be input "n/a".

产品料号Part No. / 材料料号Material No.	产品品名Part Name / 材料名称Material Name	产品厂商名称Part Vendor Na / 材料制造商名称Material Maker Name	测试结果Test Result (ppm) 镉Cd	铅Pb	汞Hg	六价铬 Cr6+	多溴联苯 PBBs	多溴联苯醚PBDEs	氯Cl	溴 Br	铍Be	PFOS	PFOA	测试报告编号 Test Report No.	测试报告发行日期Test Report Issue Date	检测机构 Test organization	备注 Remarks
CI8228-15-000-R	Volantis WIFI	SAA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R-8228-15-000-74	PCB	鑫科	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	FR4 无卤素环氧玻纤板	国纪	<2	<10	<2	<2	<5	<5	274	<50	n/a	<10	<10	SHAEC1628430710	2017/1/7	SGS	1.1
	铜箔	铜冠	<2	<2	<2	0.1μ g/cm²	<5	<5	<10	<10	<1	<5	<5	SCL01J007166001C	2017/2/23	CTI	1.2
	PSM-800 GREEN INK	UNIRES	<2	<2	<2	<2	<5	<5	331	<50	n/a	n/a	n/a	CE/2016/B2195	2016/11/23	SGS	1.3
														CE/2016/B2217	2016/11/21	SGS	
	镀锡	至诚	<1	96	<1	N/E	<5	<5	n/a	n/a	n/a	n/a	n/a	BDCG2SOO30925704	2016/8/24	PONY	1.4
	白色热固字符油墨	新东方	<2	<2	<2	<8	<5	<5	377	<50	n/a	n/a	n/a	SHAEC1711535101	2017/6/7	SGS	1.5
R-8228-15-000-96	Connector cable assembly	SAA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
C-0925-12-000-95-RA	Connector	I-PEX	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
20278-112R-13	HOUSING DURANEX 310NF BLAC	DAI-ICHI	<2	<2	<2	<2	<5	<5	<50	<50	n/a	<10	<10	CE/2016/C3736	2016/12/28	SGS	2.1
	C5210R	DAI-ICHI	<2	18.5	<2	0.1μ g/cm²	n/a	n/a	n/a	n/a	n/a	n/a	n/a	CE/2016/C6659	2017/1/6	SGS	2.2
	C5191R	DAI-ICHI	<2	23.3	<2	0.1μ g/cm²	n/a	n/a	n/a	n/a	n/a	n/a	n/a	CE/2017/22832	2017/2/18	SGS	2.3
	PLATING Au Ni	DAI-ICHI	<2	<2	<2	0.1μ g/cm²	n/a	n/a	n/a	n/a	n/a	<1	n/a	CE/2017/22856	2017/2/18	SGS	2.4
C02-101-001	Cable	GBE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Copper metal	HENGFENG	<2	<2	<2	0.1μ g/cm2	<5	<5	n/a	n/a	<5	n/a	n/a	SHAEC1703852401	2017/3/16	SGS	3.1
	Silvery metal		<10	<10	<10	0.1μ g/cm2	<5	<5	n/a	n/a	n/a	<10	n/a	SHAEC1703852401	2017/3/16	SGS	
	TEFLON	DACHEN	<2	<2	<2	<2	<5	<5	<10	<10	<10	<5	<5	SCL01J019631001E	2017/4/7	CTI	3.2
	Tinned Copper wire	HOPERISE	<2	<2	<2	0.1μ g/cm2	<5	<5	n/a	n/a	<5	n/a	n/a	CANEC1618792302	2016/9/26	SGS	3.3
	Jacket Black(FEP)	DACHEN	<2	<2	<2	<2	<5	<5	<10	<10	<10	<5	<5	SCL01J019631002E	2017/4/7	CTI	3.4
R-4671-15-000-80-FA	Adhesive	久泰	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3M9469	3M	<2	<2	<2	<2	<5	<5	198	<50	n/a	n/a	n/a	CANEC1704097801	2017/3/21	SGS	4
														CANEC1704097802	2017/3/21	SGS	
R-0391-11-000-83-RA	TRANSPARENT TUBE	沃尔	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Transparent Tube	WOER	<2	<2	<2	<2	<5	<5	<50	<50	n/a	n/a	n/a	CANEC1703712705	2017/3/17	SGS	5.1
R-1699-02-000-40-RA	Ferrite bead	天通	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	NiZn Ferrite Core	TOG HOLDING	<2	<2	<2	<2	<5	<5	<10	<10	n/a	n/a	n/a	ECL03I004915004	2016/10/11	CTI	6
R-1693-15-000-95-RA	Small heat shrinkage tube	沃尔	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
R-1693-15-001-95-RA	Big heat shrinkage tube	沃尔	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Black Tube	WOER	<2	<2	<2	<2	<5	<5	<10	<10	n/a	n/a	n/a	SCL01I110572005ER1	2016/12/16	CTI	5.2
R-1693-15-000-86-RA	RoHS label	乾朗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3M57817	3M	<2	<2	<2	<2	<5	<5	107	<50	n/a	n/a	n/a	CANEC1617544901	2016/9/8	SGS	7.1
														CANEC1617544902	2016/9/8	SGS	
	UV混合油墨	杭华	<2	<2	<2	<2	<5	<5	n/a	n/a	n/a	<10	<10	SHAEC1703155502	2017/3/6	SGS	7.2
SO-WI-03	Solder Wire	嘉浩	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	锡丝	嘉浩	<2	284	<2	0.1μ g/cm²	<5	<5	<50	175	<5	n/a	n/a	SHAEC1703813604	2017/3/10	SGS	8

Prepared by:Ting.Jiao　　　Reviewed by:Sara.Dong

SAA/QE-02-02B

End of Document