

Specification For Approval

Date: 2018 / 05 / 18

File No.: 180518006

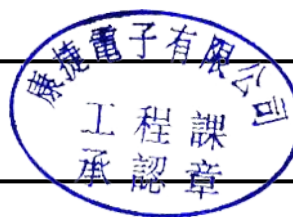
Version: 1.0


Customer : 華成資通有限公司

Customer P/N : /

INVAX P/N : AN2400-3901BRS

Description : Antenna



Cortec Checked By:	
Customer Approved By:	



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Product Number: AN2400-3901BRS

Product Name: Antenna



1. Revision History


Revision	Date	Change Notification	Description
1.0	2018.05.18	初版	

Product Number: AN2400-3901BRS

Product Name: Antenna



2. Specification

Sample Photo	
	
A. Electrical Characteristics	
Frequency	2400 ~ 2500 MHz
V.S.W.R.	≤ 2.0
Peak Gain	2.0 dBi
Radiation Pattern	Omni-Directional
Max Input Power	≥ 2 W
Polarization	Linear
Impedance	50 Ohm
B. Material & Mechanical Characteristics	
Material of Radiator	Cu
Material of Plastic	ABS / POM
Cable Type	RG-178
Connector Type	SMA Male Reverse
C. Environmental	
Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C
Antenna Color Storage life	< 2 year

3. Characteristics and Reliability Test

Test Items 測試項目		Test Condition and Procedure 測試方法	Requirements 要求	Result 結果
C1	V.S.W.R. 電壓駐波比	Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試	Directive DUT specification 符合待測物規範	PASS
C2	Insertion Loss 插入損失	Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試	Directive DUT specification 符合待測物規範	N/A
C3	Antenna Gain 天線增益	Set DUT on Antenna Chamber; make individual calibration to test 設置天線暗室參數進行測試	Directive DUT specification 符合待測物規範	PASS
C4	Voltage Breakdown 耐電壓	Test voltage should be applied between insulated portions, or between ground as specified. 在絕緣部分測試電壓,或指定接地面之間	Max Voltage \geq 500 V or directive material specification 最大電壓 \geq 500V 或符合材料規範	N/A
C5	Insulation Resistance 絕緣阻抗	Set Voltage: 500 \pm 50V; between the insulated portions, or between ground as specified. 設置電壓 500 \pm 50V,在絕緣部份測試或指定接地面之間	Resistance \geq 500 M ohm or directive material specification 阻抗 \geq 500M ohm 或符合材料規範	N/A
C6	Contact Resistance 接觸阻抗	Air Temp: 26°C; measured with test equipment 室溫 26°C, 指定量測設備	Directive material specification 符合材料規範	N/A
M1	Vibration 震動	GB / T2423.48-2008 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz 3 directions; 2 hours for each direction 振幅 1.5mm ; 頻率 20~80~20Hz ; 3 個方向各 2H	1. No Visual Damage 2. Frequency Tol. \leq 5% 無明顯外觀不良; 頻率偏移 \leq 5%	PASS
M2	Random Drop 跌落	GB / T2423.8-1995 Single : Height: 1.0 Meter; 3 directions; 1 time for each direction 單支天線, 高 1m ; 3 個方向各 1 次	1. No parts separated 、 fracture 2. Frequency Tol. \leq 5% 產品無脫落、斷裂; 頻率偏移 \leq 5%	PASS
		Packing : Height: 0.76 Meter; 1 corner, 3 edges, 6 surface 包裝 : 高 0.76m , 一角、三棱、六面各一次		PASS
		Antenna+Machine: Height: 0.76 Meter; 1 corner, 3 edges, 6 surface. 整機 : 高 0.76m , 一角、三棱、六面各一次	N/A	
M3	Solderability	GB / T2423.28-2005	Tin evenly on full	N/A

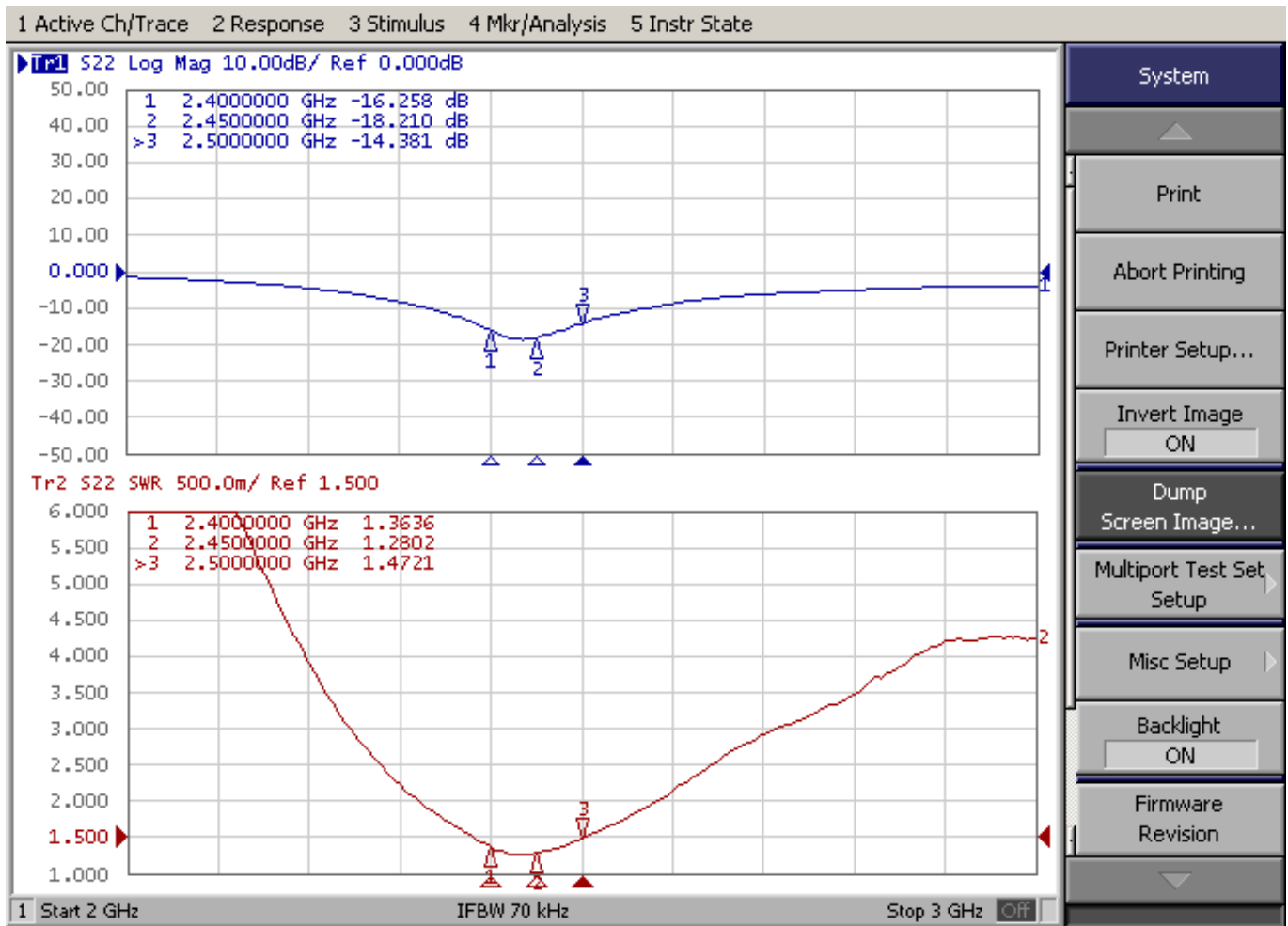
	可焊性	Temp: 260±5° C;Duration: 5 seconds 溫度 260±5° C;持續 5 秒	上錫均勻飽滿	
M4	Pull Test 拉力	Holding with individual specification; force applied to axis of terminal .單獨定義產品端子拉力	1. Directive DUT specification 2. Frequency Tol.≤5% 符合待測物規範;頻率偏移≤5%	PASS
M5	Torque Test 扭力	Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal 單獨定義產品端子之順時針及逆時針扭力	1. Directive DUT specification 2. Frequency Tol.≤ 5% 符合待測物規範;頻率偏移≤5%	PASS
M6	Dimension 尺寸	Inspection of dimension, color, material, package, surface process.檢查尺寸,顏色,材料,包裝,表面處理	Directive DUT specification 符合待測物規範	PASS
E1	Waterproof 防水	With Reference to IEC 60529 // IP Code Definition 參考 IEC60529 IP 定義	Directive DUT specification 符合待測物規範	N/A
E2	Salt Spray 鹽霧	GB / T 2423.17-2008 Temp: 35°C; RH: ≥ 95%; NaCl solution: ≥ 5%;Time: 24H 溫度 35°C ; 濕度≥95%;鹽水濃度≥5% ; 測試 24H	1. No Visual Damage 2. Frequency Tol.≤5% 無明顯外觀不良;頻率偏移≤5%	PASS
E3	Temperature and Humidity Chamber 恒溫恒濕	GB / T 2423.3-2006 Temp: 80°C / 12 H; -40°C / 12H RH: ≥ 90%; Time: 24H 溫度 80°C 測試 12H 轉-40°C 測試 12H; 濕度≥ 90% ; 時間 24H	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.≤5% 恢復 2H 后, 無明顯外觀不良;頻率偏移≤5%	PASS
E4	Thermal Shock 冷熱衝擊	GB / T 2423.22 - 2008 - 40°C (30 minutes) to + 80°C (30 minutes) ; Cycles: 24 - 40°C 測試 30 分轉 80°C 測試 30 分爲一個週期; 共 24 週期	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.≤5% 恢復 2H 后, 無明顯外觀不良;頻率偏移≤5%	PASS
E5	Aging test 老化	GB / T 2423.2 - 2008 Temp: 80°C; Time: 24 hours 溫度 80°C , 測試 24H	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.≤5% 無明顯外觀不良;頻率偏移≤5%	PASS
E6	High Temp. 高溫	Temp. 270±10°C ; Times : 120 seconds 溫度 270±10°C , 測試時間 120 秒	No Visual Damage 無明顯外觀不良	N/A
R1	RoHS	With Reference to IEC 62321:2008 with flow chart 參考 IEC 62321 測試流程	Directive RoHS 2011/65/EU 符合 RoHS 2011/65/EU 標準	PASS
R2	PFOS	With Reference to USA EPA 3550C:1996 by LC/MS 參考 USA EPA 3550C 測試流程	Directive RoHS 2006/122/EC 符合 RoHS 2011/65/EU 標準	PASS

Product Number: AN2400-3901BRS

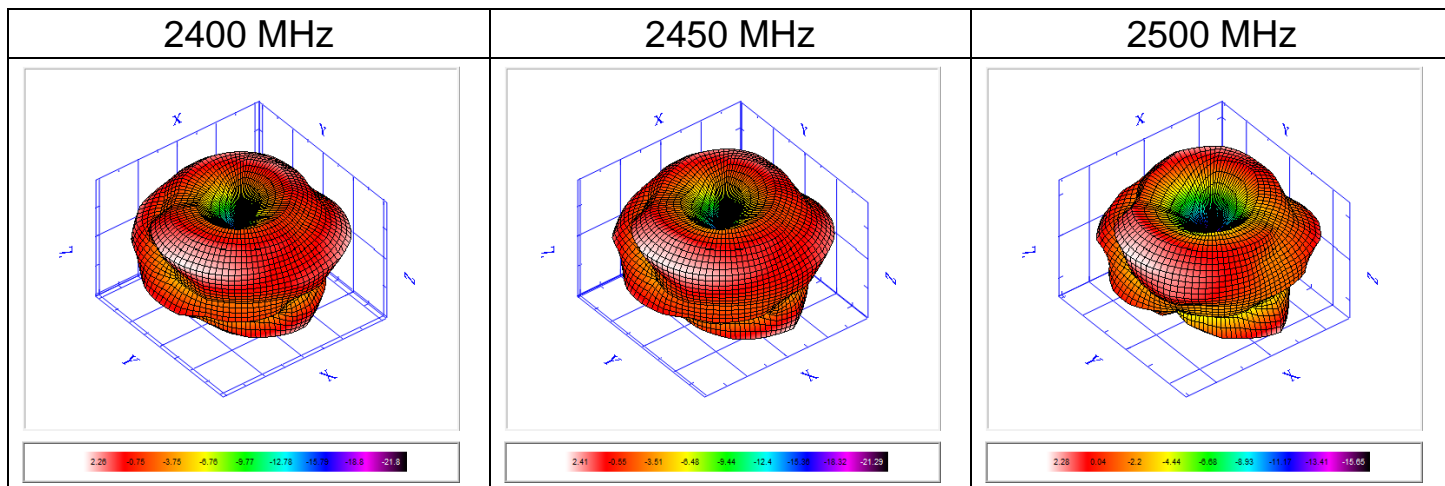
Product Name: Antenna



4. Antenna - S Parameter Test Data



5. Antenna - Radiation Pattern Test Data



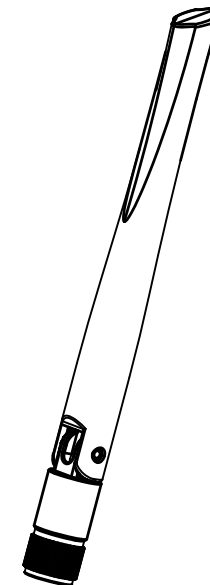
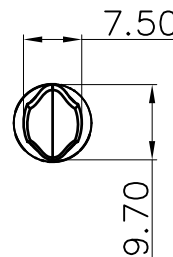
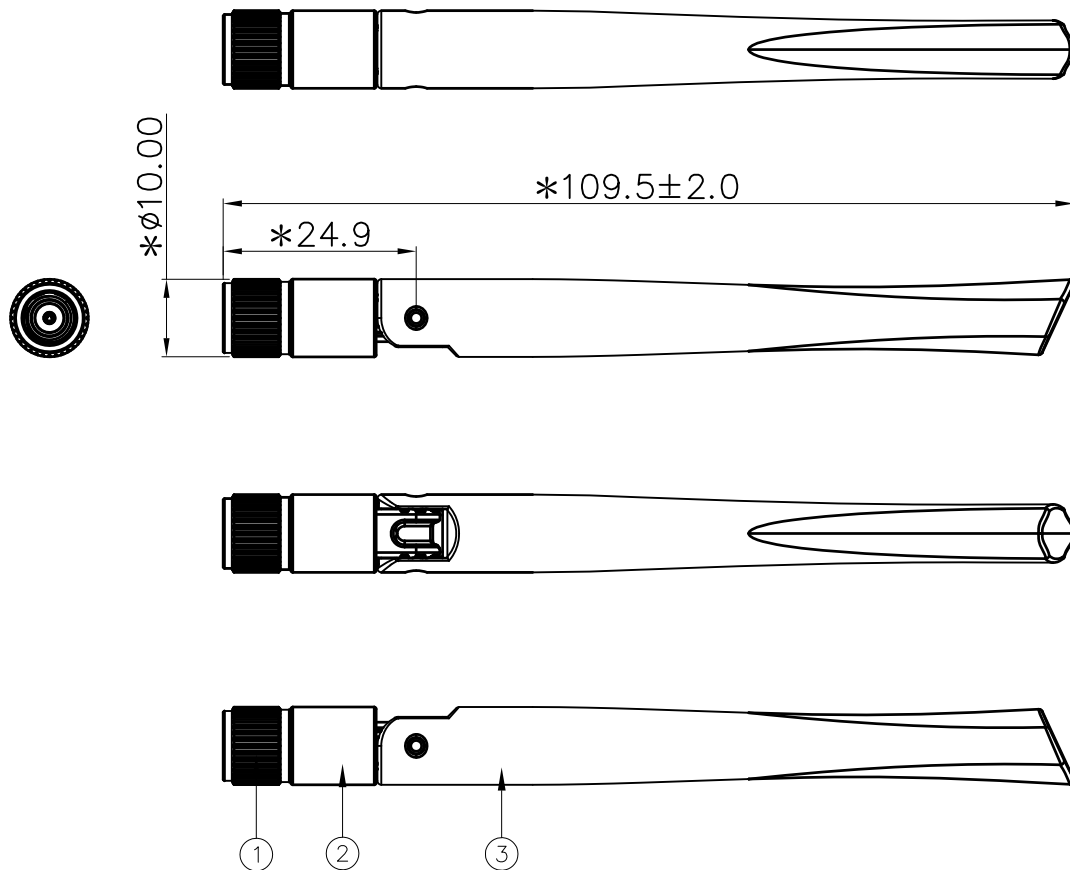
Frequency	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
TRP (dBm)	-1.59	-1.49	-1.45	-1.42	-1.62	-1.45	-1.62	-1.74	-1.88	-1.84	-1.64
Peak EIRP (dBm)	2.26	2.38	2.6	2.57	2.32	2.41	2.37	2.25	2.03	2.08	2.28
NHPRP +/- 45 (degree)	-2.39	-2.26	-2.21	-2.17	-2.37	-2.2	-2.36	-2.48	-2.61	-2.56	-2.32
NHPRP +/- 30 (degree)	-3.96	-3.85	-3.82	-3.8	4	-3.83	-4.01	-4.12	-4.28	-4.21	-3.93
E-Theta Peak Gain (dBi)	-6.15	-5.91	-6.3	-6.67	-6.83	-6.66	-6.71	-6.86	-6.87	-7.87	-7.65
E-Phi Peak Gain (dBi)	2.26	2.37	2.59	2.56	2.31	2.31	2.36	2.23	1.96	1.99	2.23
E-Total Peak Gain (dBi)	2.26	2.38	2.6	2.57	2.32	2.41	2.37	2.25	2.03	2.08	2.28
Directivity (dBi)	3.85	3.87	4.04	3.99	3.94	3.86	3.99	3.99	3.91	3.92	3.93
Efficiency (%)	69.39	70.97	71.67	72.17	68.86	71.65	68.91	66.95	64.91	65.39	68.47

RoHS

Compatible



SIGN	DATE	DESCRIPTION	APPROVER
△			
△			
△			



Note:

1. Mark * is important dimension; "Cpk" Identify for process control ($CpK \geq 1.33$).
2. Tolerance: Unmarked tolerance refer to the standard tolerance please.

3	BODY-AN39-01B-P	Body	POM	Black	1
2	BODY1-AN39-01B	Body1	ABS	Black	1
1	SMA809-ZPR5A56	SMA Male Reverse	Cu	Black	1
No.	Part Number	Name	Material	Finish	Q'ty

Invax System Group.

Cortec

Cortec Technology Inc.

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Tel: 886-2-27885218
Fax: 886-2-27831658

TITLE: 2.4GHz Antenna

PART NO.: AN2400-3901BRS

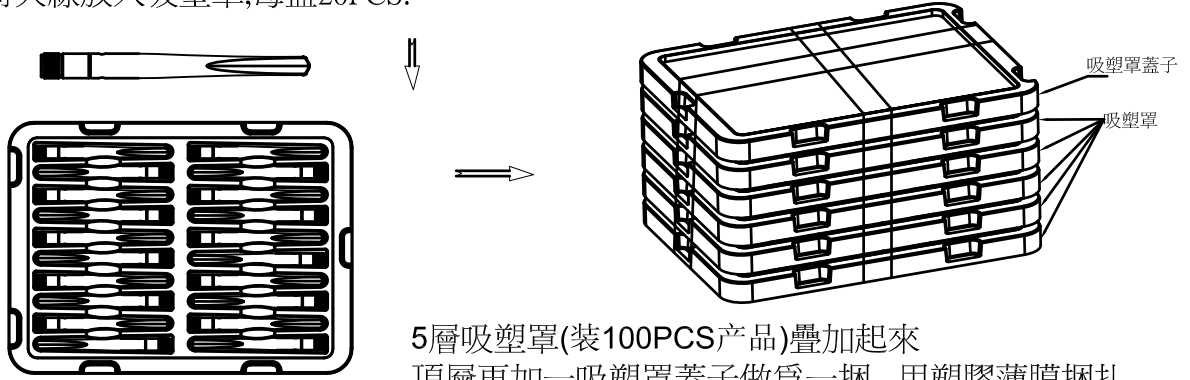
CUSTOMER P/N: /

APP BY	CHK BY	RF BY	DES BY	Tolerance
Grant	Kenny	SF	HC	
2016/10/21	2016/10/21	2016/10/21	2016/10/21	X.XX ±0.2
				X° ±1

UNITS: mm
SCALE: 1/1
REVISION: A

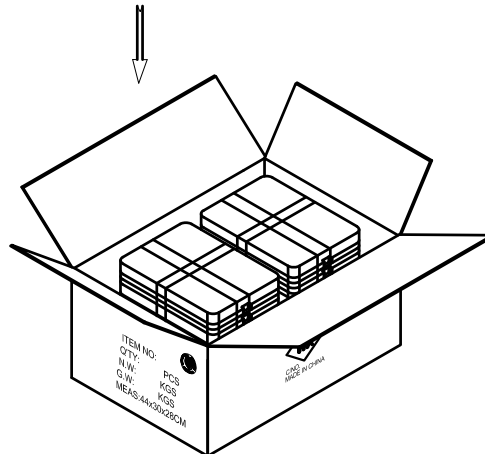
Part Number : AN2400-3901BRS	Revision : A
Name: Antenna	Customer : ALL

一. 將天線放入吸塑罩,每盤20PCS.



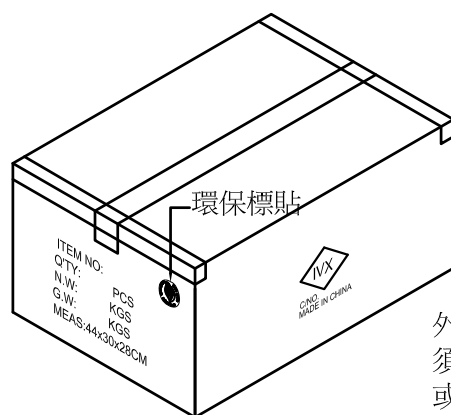
5層吸塑罩(裝100PCS产品)疊加起來
頂層再加一吸塑罩蓋子做爲一捆，用塑膠薄膜捆扎。

二. 將捆好的吸塑罩放進外箱
一箱放10捆即1000PCS產品
擺放要整齊。



規格:44.0x30.0x28.0cm
1000PCS/箱.

三. 封箱.



外箱側麥右上角貼一張環保標籤。
須填寫產品品號/數量/淨重/毛重。
或以實際重量填寫,未裝滿空間和尾
數箱請用合適箱替代并用填充物填滿。
標貼依客戶要求由業助提供。

SGS 台灣網站 → http://twap.sgs.com/sgsrsts/chn/cheres_tw.asp
 SGS 大陸網站 → http://rsts.cn.sgs.com/chn/cheres_cn.asp
 SGS 韓國網站 → http://rohs.kr.sgs.com/sgsrsts/en/cheres_en.asp

COR/F-G-47a

請輸入以下報告正確資料及檢查碼以便查核

1. 報告編號
2. 報告日期 (YYYY/MM/DD)
3. 產品名稱 (輸入前 10 個字不含空白)
4. 圖示檢查碼 (依指示畫面)



物料中HSF對象物質含量調查表

康捷電子有限公司	
填表：	時麗
部門：	研發部
職務：	文員

物料名稱：AN2400-3901BRS

序號	物料型號	物料各構成名稱	各構成物 料的材質	測試報告裡RoHS對應物質測試結果						檢測報告編號	測試日期	測試名稱	測試機構 名稱
				Cd	Pb	Hg	Cr(VI)	PBBs	PBDEs				
1	BODY-AN39-01B-P	Body	POM	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	CANML1808483301	2018.05.10	聚甲醛	SGS
2	BODY1-AN39-01B	Body-1	ABS	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	0114071849p6 001	2017.12.01	POLYLAC@ PA-757	TuvRheinland
3	R-AN94-02S	TUBE	銅	N.D.	17	N.D.	N.D.			CANEC1722589401	2017.11.15	(C2700)H65.	SGS
4	SMA809-ZPR5A56	SMA Male Reverse	銅	10	26674	N.D.	N.D.	N.D.	N.D.	SHAHG1802222802	2018.02.02	有色金屬棒 C3604	SGS
5			POM	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	CANML1808483301	2018.05.10	聚甲醛	SGS
6	R-RG-178U-03	Cable RG178	FEP	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	NGBML1800155002	2018.01.17	聚全氟乙丙烯樹脂.	SGS
7			PTFE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	NGBML1800151702	2018.01.16	聚四氟乙烯分散樹脂.	SGS
8			鍍銀銅	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	SHAEC1728677802	2018.01.04	鍍銀銅絲	SGS
9			鍍錫銅	N.D.	11	N.D.	N.D.	N.D.	N.D.	A2180042511101001C	2018.04.10	鍍錫圓銅線	CTI

根據測試報告如實填寫鉛、鎘、汞、六價鉻、PBBs和PBDEs六項禁用物質的含量

包裝材料中鉛、鎘、汞、六價鉻總含量不超過100ppm，鎘的允許濃度為5ppm

歐盟ROHS指令豁免條款2009/95/BC、鋼中合金元素中的鉛含量達0.35%、鋁含量達0.4%、銅合金中的鉛含量達4%