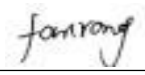
Record of Revision

Anray PART NO: Anray191660102BA01 CUSTOMER PART NO:	CUSTOMER APPROVED BY: DATE:

REV.	DESCRIPTION OF CHANGES	CHECKED BY	APPROVED BY	DATE

Product Specification For VHD WiFi 2.4G/5G Intenna

CUSTOMER APPROVAL			CHECKED	APPROVED
		SIGNATURE		
		DATE		
ANRAY APPROVAL			CHECKED	APPROVED
		SIGNATURE		
VERSION	0	DATE	2019.03.01	2019.03.01

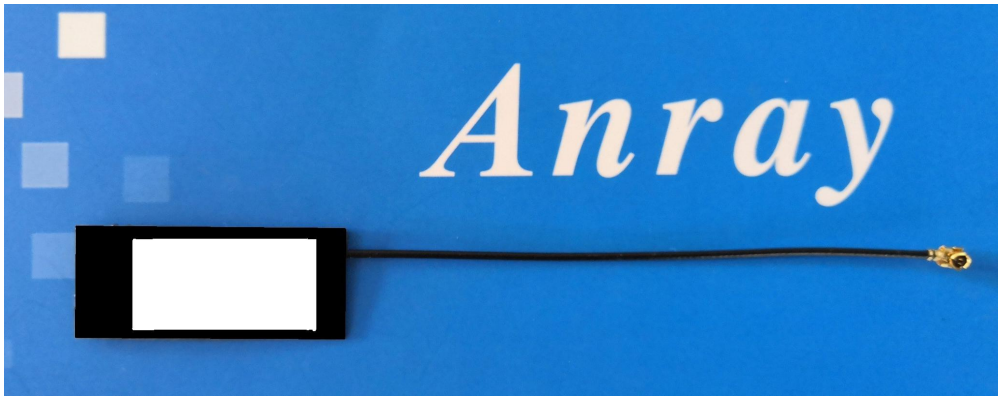
Anray Communication Technology CO.LTD

北京偶极通信设备有限责任公司

Contents

1. Part Number

Anray191660102BA01



2. Electrical Properties

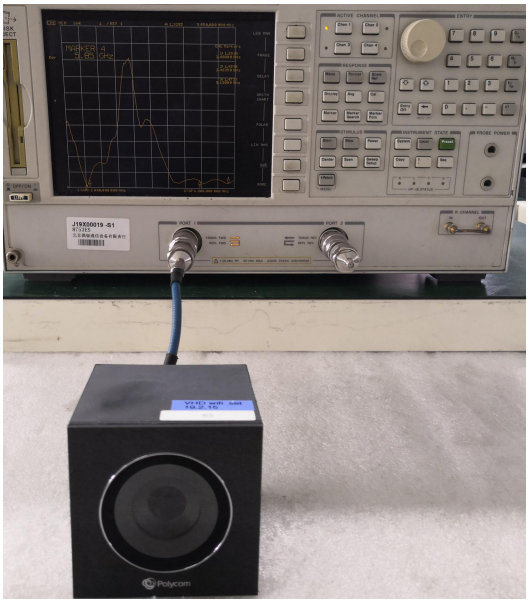
Item	Property	
Frequency Band	2400~2483.5 MHz/5150~5850 MHz	
Impedance	50 Ohm Nominal	
VSWR (With SET)	2400~2483.5 MHz	≤2.0
	5150~5850 MHz	≤2.0
Peak Gain (With SET)	2400~2480 MHz	＞3.0 dBi(Typic)
	5150~5850 MHz	＞3.0 dBi(Typic)
Polarization	Linear	
Radiation Pattern	Omni-Directional	
Antenna Type	Dipole Type	

3. VSWR & Return Loss

1）VSWR

The Testing Condition: Free Space

a) Test instrument: Agilent 8753ES S-parameter Network Analyzer(NA)
b) Test condition: Free space
c) The VSWR of the coaxial cable : ＜1.05



Freq.(MHz)	2400	2483.5	5150	5850
VSWR	1.20	1.48	1.47	1.32

2）Return Loss

The Testing Condition: Free Space

d) Test instrument: Agilent 8753ES S-parameter Network Analyzer(NA)
e) Test condition: Free space
f) The VSWR of the coaxial cable : ＜1.05

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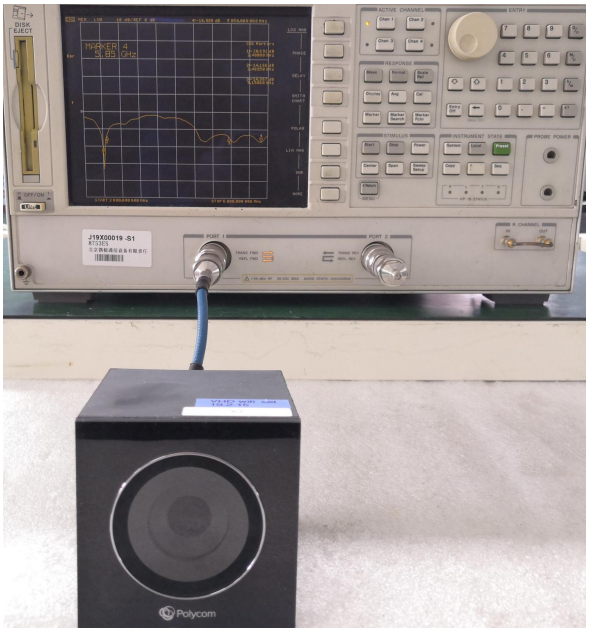
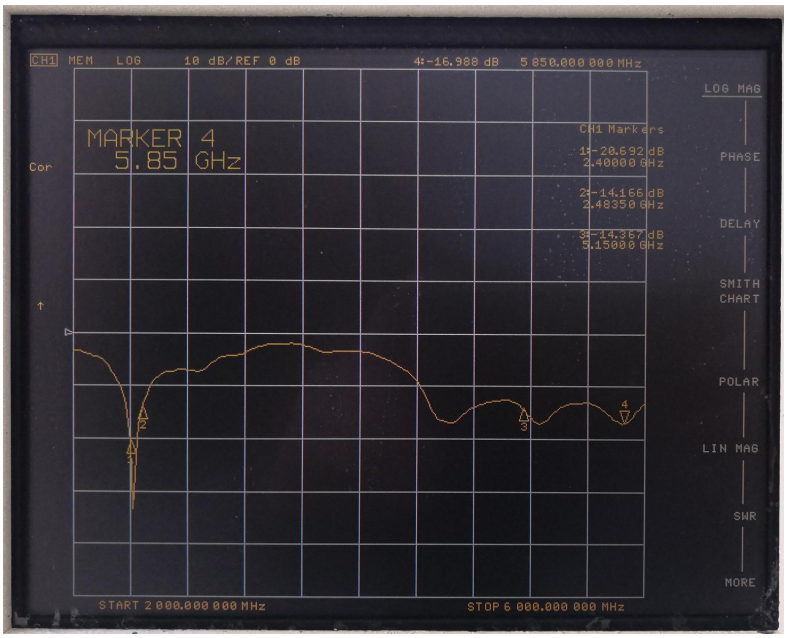


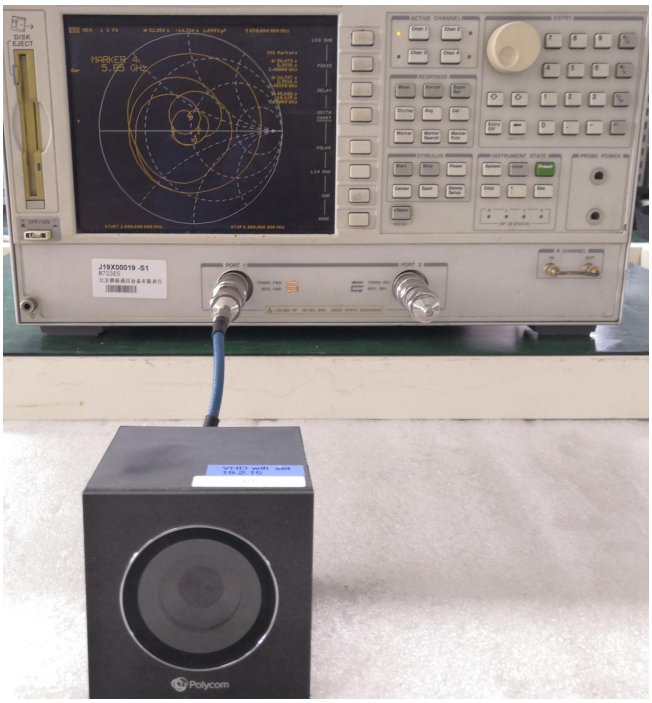


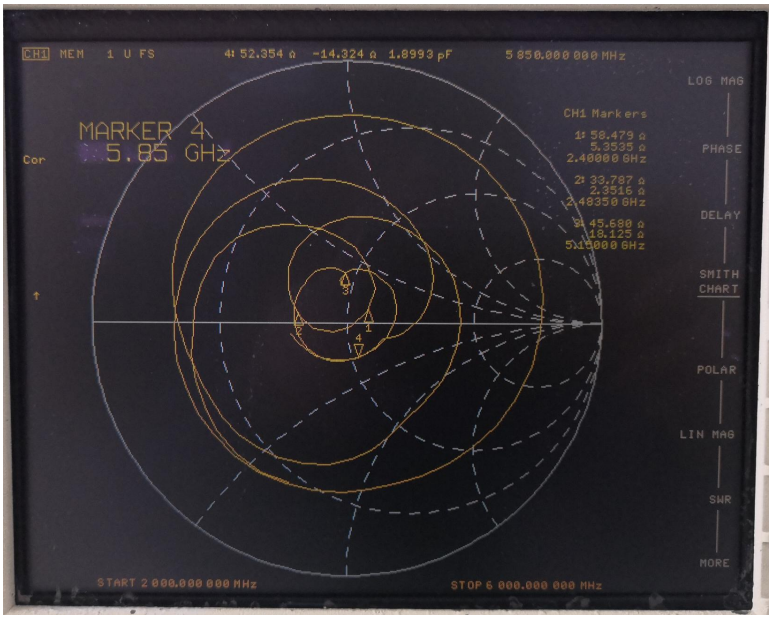
Freq.(MHz)	2400	2483.5	5150	5850
Return Loss(dB)	-20.69	-14.16	-14.36	-16.98

4. Smith Chart

The Testing Condition: Free Space

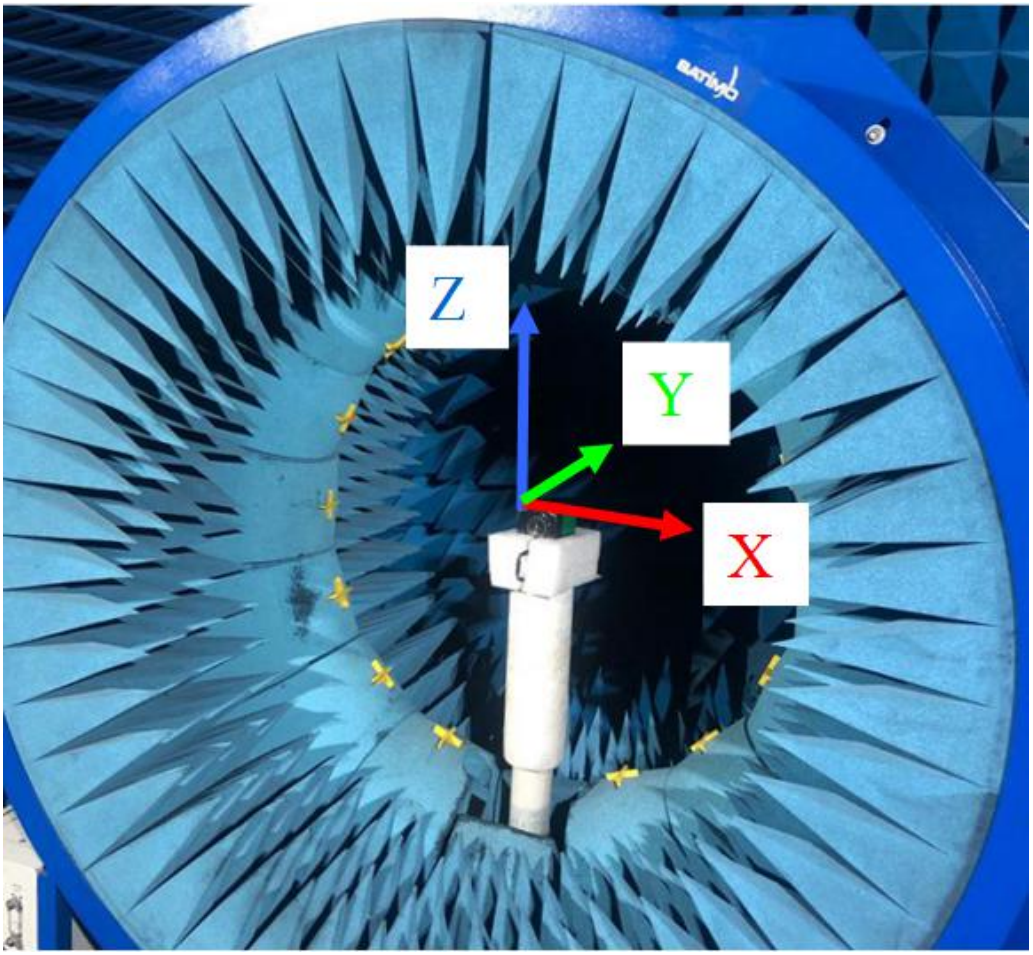
g) Test instrument: Agilent 8753ES S-parameter Network Analyzer(NA)
h) Test condition: Free space
i) The VSWR of the coaxial cable : ＜1.05





5. Test Condition

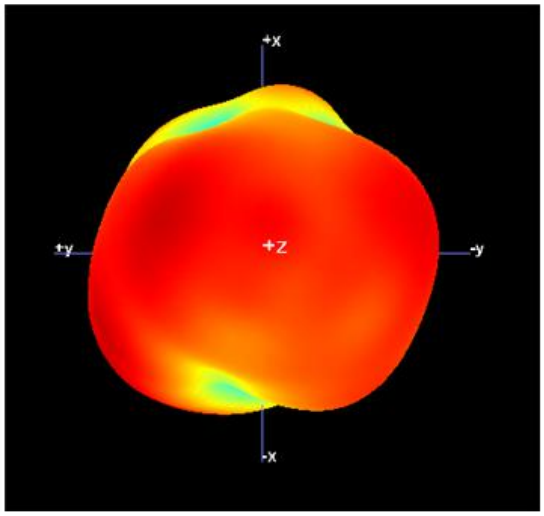
a) Test site: Satimo Chamber
b) System : Refer to picture



6.Passive Testing

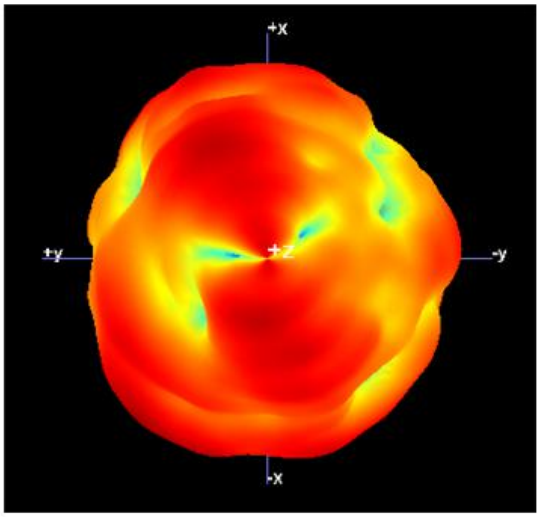
6.1 3D Radiation Pattern & Gain@2.44GHz&5.55GHz

2.44 GHz



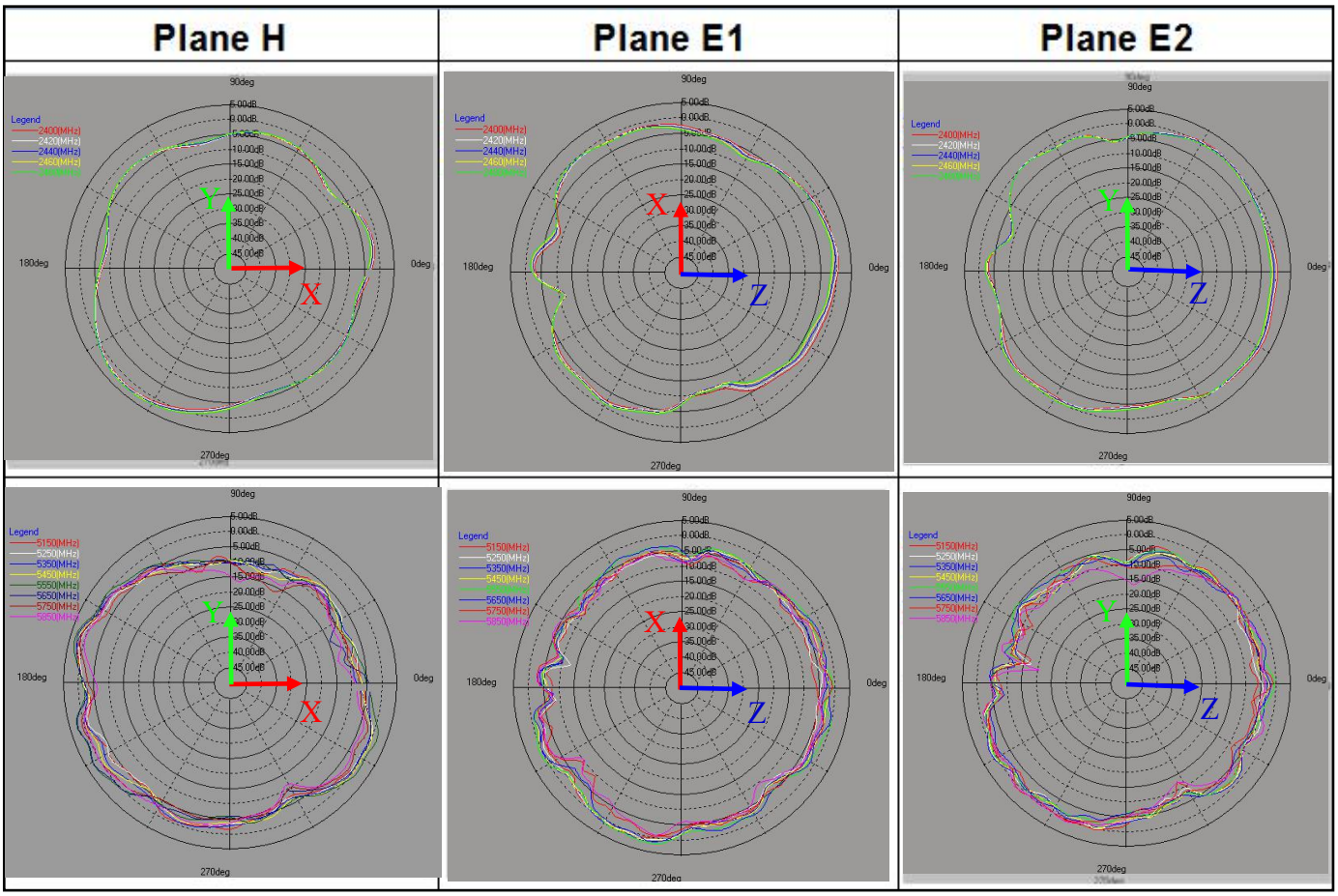
- Gain : 3.46dBi
- Efficiency : 61.9%

5.55 GHz



- Gain : 4.52dBi
- Efficiency : 68.4%

6.2 2D Radiation pattern



7. Mechanical Properties

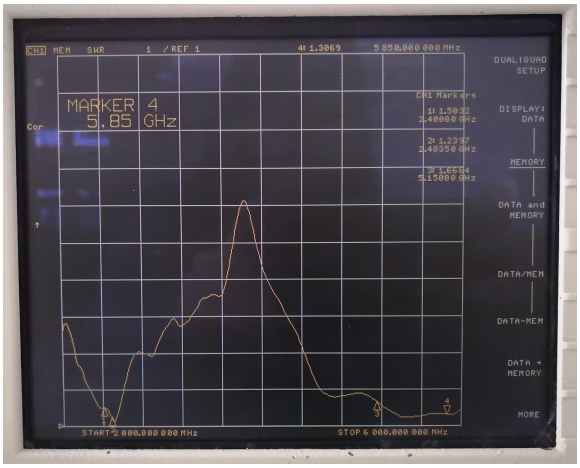
Table Ⅰ

Item	Property
PCB Color	Black
Connector	IPEX
Double-Sided Adhesive Tape	Thickness=0.2mm
PCB Material	FR-4(T=0.6mm)
Cable	Ø1.13(107mm/Black)

8. Environmental Characteristics

Operation Temperature: -30~+70 ºC /Storage Temperature: -30~+70 ºC

Table II

NO	Test Item	Test Condition	Specification
7.1	High Temperature Operating	1. Temperature:+70±2 ºC 2. Time:24hours	1、Normal function test must be satisfied after the test. 2、No material deformation is allowed.
7.2	Low Temperature Operating	1. Temperature:-30±2 ºC 2. Time:24hours	
7.3	High Temperature Storage	1. Temperature:+70±2 ºC 2. Time:24hours	
7.4	Low Temperature Storage	1. Temperature:-30±2 ºC 3. Time:24hours	
7.5	Humidity	1. Temperature:60±2 ºC 2. RH：95% 3. Time:24hours	
Test Result			
Product has no material deformation		 VSWR≤2.0	

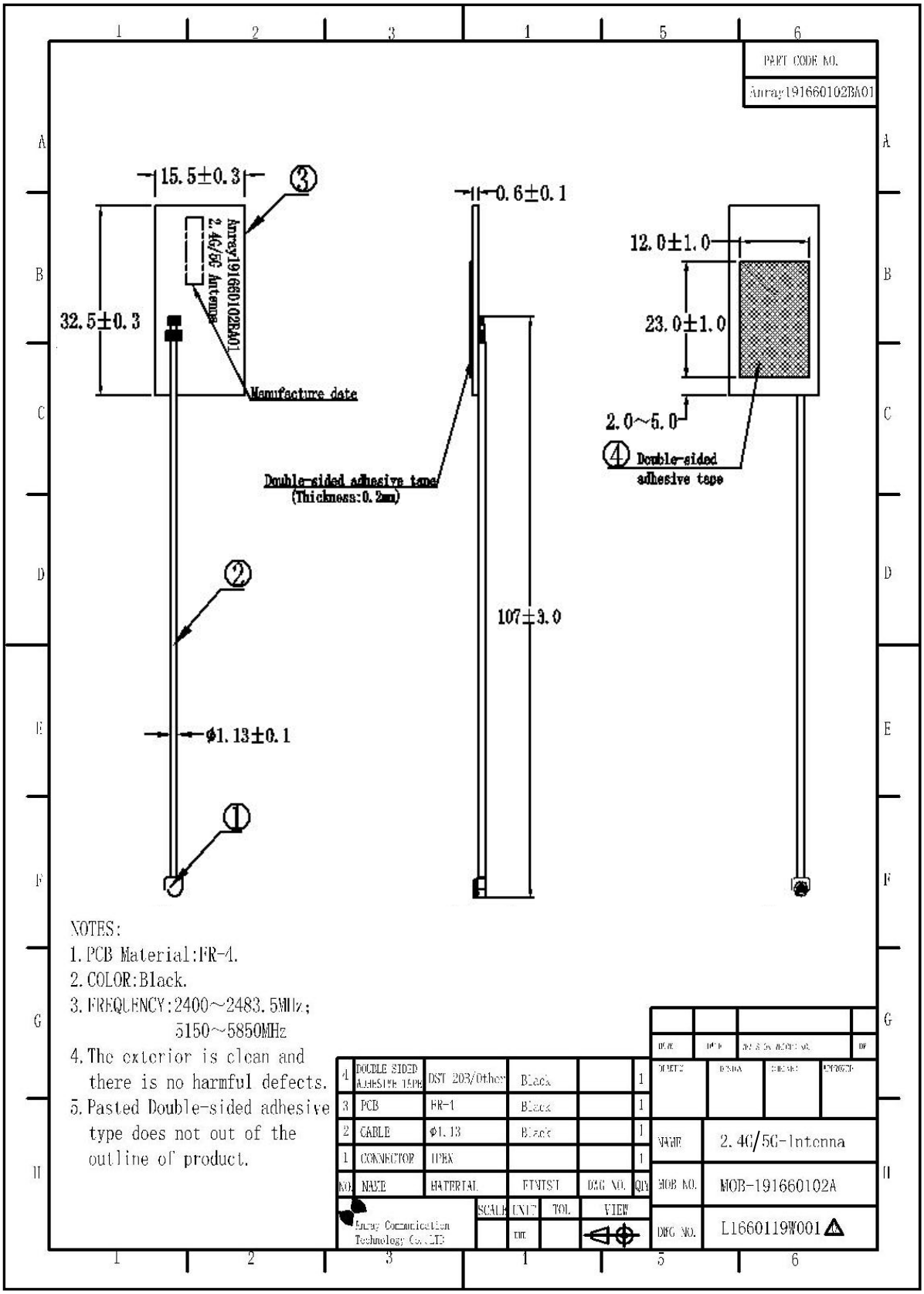
9. Critical Parameter for Inspection

Critical Parameter for Inspection – Rev 0.2

Vendor Name	Anray communication	Supplier Name	------	Revision Date	2019/03/01
Part No.	Anray191660102BA01	Customer Part No.	------	Description	2.4G/5G WiFi Intenna

No	Critical Parameter	Specification	Instrument	Inspection Condition	All Inspection (O/X)	Remark
1	Dimension of Wire	2D drawing	Vernier Caliper	Normal	GBT-2828	
2	Soldering	Tightly	Soldering Machine	Temperature Control: 370°C~400°C	All	
3	Dimension of Antenna	Spec	Vernier Caliper	Normal	GBT-2828	
4	VSWR	Spec	Network Analyzer	Free Space	GBT-2828	
5	Gain	Spec	Satimo Chamber	Free Space	GBT-2828	

10.Physical Dimension



11. OQC Inspection

ANRAY	Creation	Review	Approval

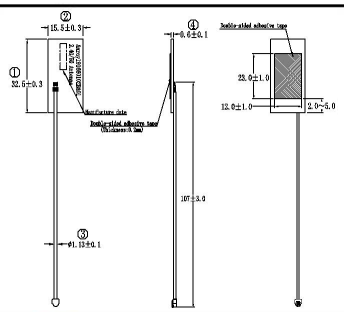
OQC Inspection Report

CUSTOMER	Creation	Review	Approval

1. Material History

Shipment Date		Incoming Date		Final Decision	
Supplier	Anray	Model	VHD WiFi 2.4G/5G Intenna	Supplier	Customer
Description	2.4G/5G Intenna	Part No.	Anray191660102BA01		
Lot Size		Lot No.			
Etc					

2. Dimension & Functional Point



3. Inspection Result

3.1 Basic Inspection — Decision

Inspection Item	Part No / Description / Quantity
Defect Symptom	

3.2.1 Sample (Appearance) GII — Decision

Inspection item	Based on appearnace inspection standard			
Sample Q'ty		Symptom		Defect Rate

3.2.2 Sample (Dimension) SIII — Decision

NO	C/P	Specification	Instrument	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Min	Max	Avg
1		32.5±0.3	Caliper													
2		15.5±0.3	Caliper													
3		¢1.13±0.1	Caliper													
4		0.6±0.1	Caliper													
5																

Note: * dimension is executed by "SIII" , and the standard is C=0

3.3 Functional GII — Decision

NO	C/P	Specification	Instrument	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	Min	Max	Avg
A		2400MHz VSWR ≤ 2.0	Network													
B		2483.5MHz VSWR ≤ 2.0	Network													
C		5150MHz VSWR ≤ 2.0	Network													
D		5850MHz VSWR ≤ 2.0	Network													

3.4RoHS — Decision

SPEC																				
	Plastic	<1000ppm	<100ppm	<1000ppm	<1000ppm	<1000ppm	<1000ppm													
	Metal	<1000ppm	<100ppm	N/A	<1000ppm	N/A	N/A													
Supplier		ND/ND	ND/ND	ND	ND/ND	ND	ND													
Customer																				

12. Cable Spec.

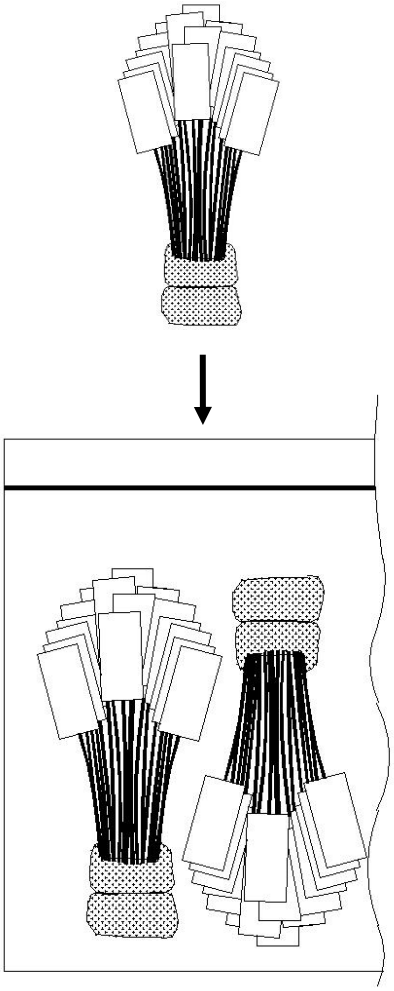
Item		Property	
Conductor	Material	Silver-coated Copper Wire	
	Composition(No./mm)	7/0.083	
	NOM.O.D(mm)	0.246±0.03	
Insulation	Material	PEP(Natural)	
	Nom.Thick.(mm)	0.23	
	NOM.O.D(mm)	0.70±0.03	
Shield	Material	Tinned annealed copper wire	
	Composition	16*4/0.05	
	Coverage(%)	90±5	
	NOM.O.D(mm)	0.92±0.03	
Jacket	Material	FEP	
	Nom.Thick.(mm)	0.10	
	NOM.O.D(mm)	1.13±0.05	
	Color	According to customers	
Conductor Resistance		Max.581Ω/km	
Insulation Resistance		Min.581MΩ/km	
Dielectric Strength		1000V(AC)/min	
Capacitance		98pF/m	
Characteristic Impedance		50±2.0	
Attenuation		1GHz	2.20dB/m
		2GHz	3.10dB/m
		3GHz	3.90dB/m
		4GHz	4.50dB/m
		5GHz	5.00dB/m
		6GHz	5.50dB/m
Standing wave(0-6GHz)		≤1.35	

13. IPEX Connector Spec.

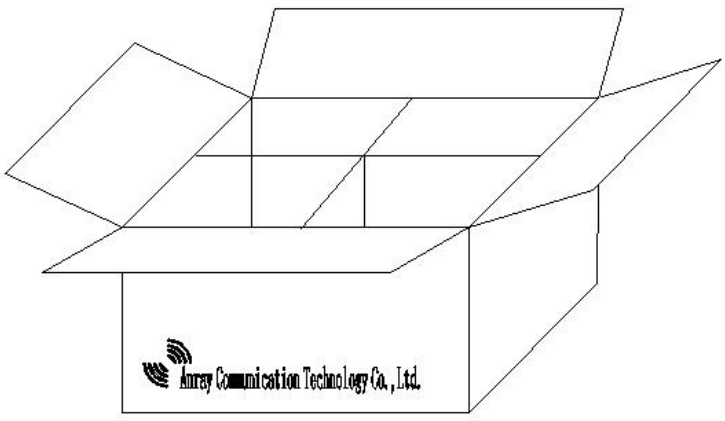
Item	Property
Frequency Band	DC~6GHz
Impedance	50 Ohm Nominal
Rated Voltage	AC60Vr.m.s
VSWR	Plug:1.3MAX(0.1~3GHz) 1.5MAX(3~6GHz) Receptacle:1.3MAX(0.1~3GHz) 1.4MAX(3~6GHz)
Service Temperature	233K~363K(-40℃~90℃）
Insulation Resistance	Initial:500MΩ MIN After testing:100MΩ MIN
Dielectric Withstanding Voltage	No creeping discharge,flashover,no insulator breakdown shall occur.

14. Packing Specification (Unit: mm)

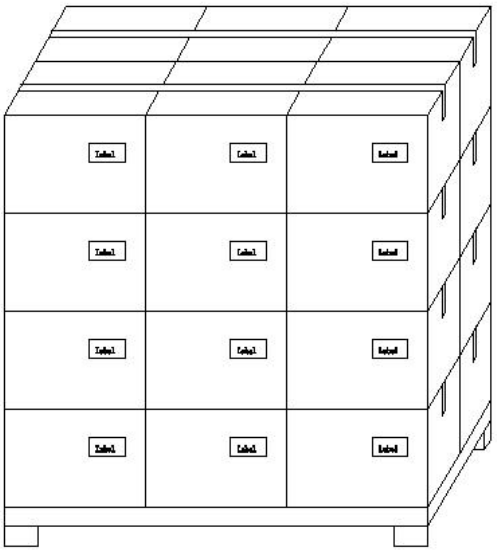
100pcs per bundle（Material：PE）



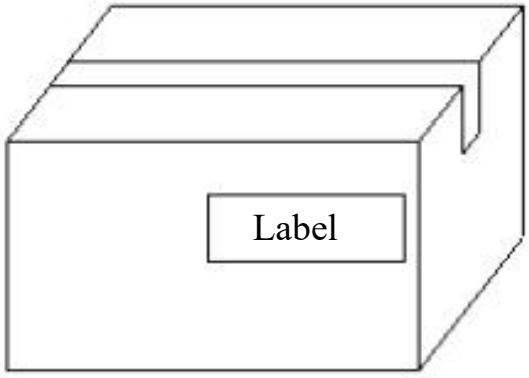
Refer to packing list.(Box Material：Crimp Paper）



24 boxes in one pallet



15. Label Style



XXXX Customer name	
SHIP TO	
PARTS NAME	
CUSTOMER P/N	
ANRAY P/N	
PO NO	
QTY	
N.W	
G.W	
LOT NO	
DATE	
CTN NO	
MADE IN	

16.WARRANTY DOCUMENT

Warranty Information

COMPANY	Anray Communication Technology CO.LTD
ADDRESS	NO.7,Jinguang Road Kaixuan Street,Fangshan District,Beijing

Warranty Production

PRODUCT NAME	INTENNA	**PRODUCT MODEL**	VHD WiFi 2.4G/5G Intenna
PART NO.	Anray191660102BA01	**TYPE**	PCB+CABLE ANT

Effective Life Time

STORAGE CONDITION	Temperature: 5~35 ºC Humidity: 30%~70%RH
STORAGE LIFE TIME	Three Years
EVIDENCE FOR STORAGE LIFE TIME	GB 5080 （Base on China government suggested）
TREATMENT AFTER STORAGE LIFE TIME	Open packing: If inspection is ok →continue using If inspection is NG→discard

17. Meet ROHS

This intenna meet to ROHS standard.