

WX.0029.GL.ECF(LTE+WIFI+AM/FM+GNSS)

Antenna Specification

1. Application:

This application shall apply for antenna unit which shall be used such as automotive, conventional communications, smart home, etc..

1. Electrical Specification:

Those specifications were specially defined for customer's model, and all characteristics were measured under the model's handset testing jig .

2-1. Frequency Band:

Frequency Band	MHz
LTE+GNSS+AM/FM+WIFI	4G:690-960/ 1710-2690MHz GNSS:1561/1575.42MHz AM/FM:530-1710KHz/ 76-109.9MHz WIFI:2400-2500MHz

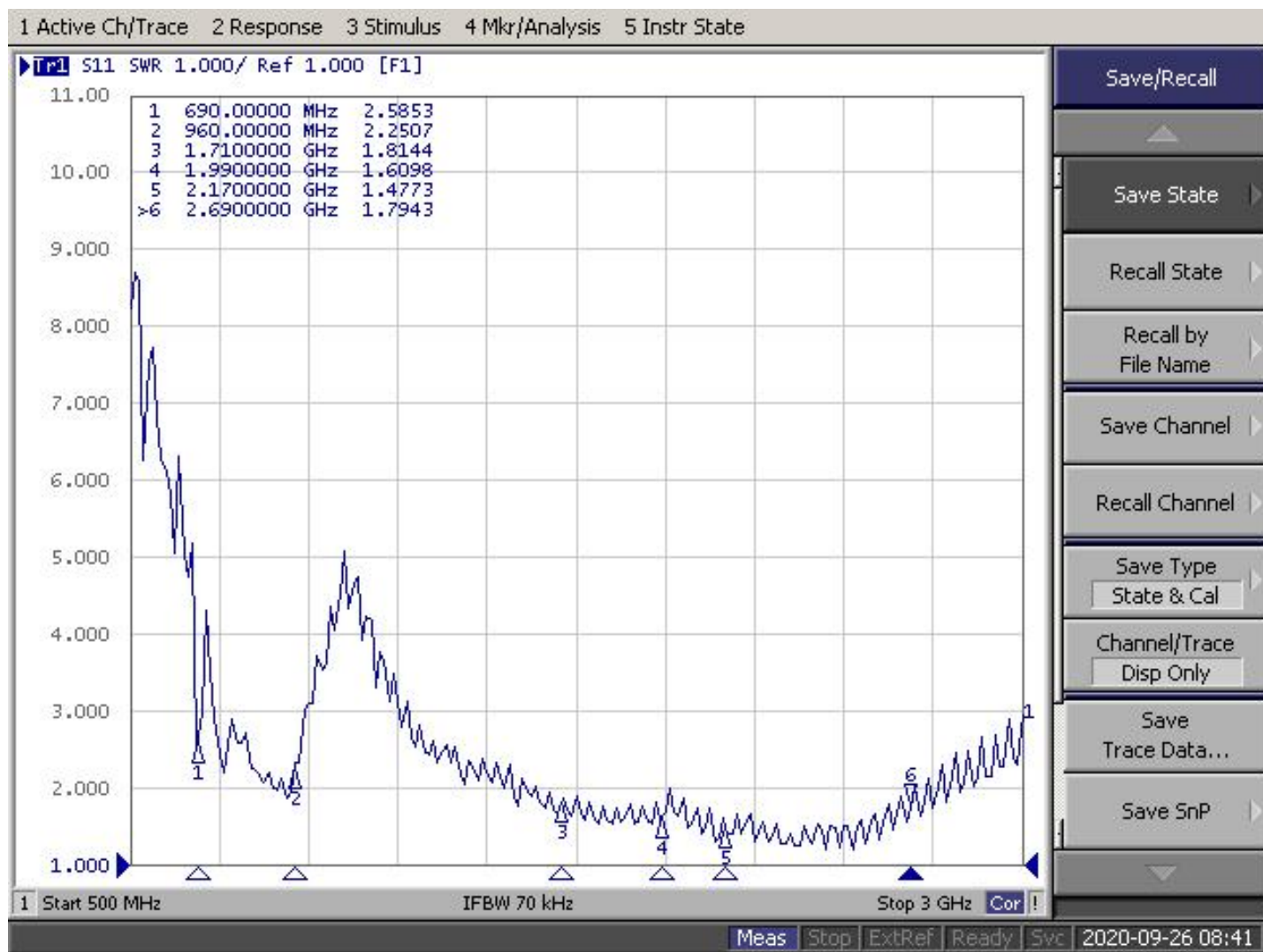
2-2. Impedance

50 ohm nominal

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2-3-1. VSWR (4G)

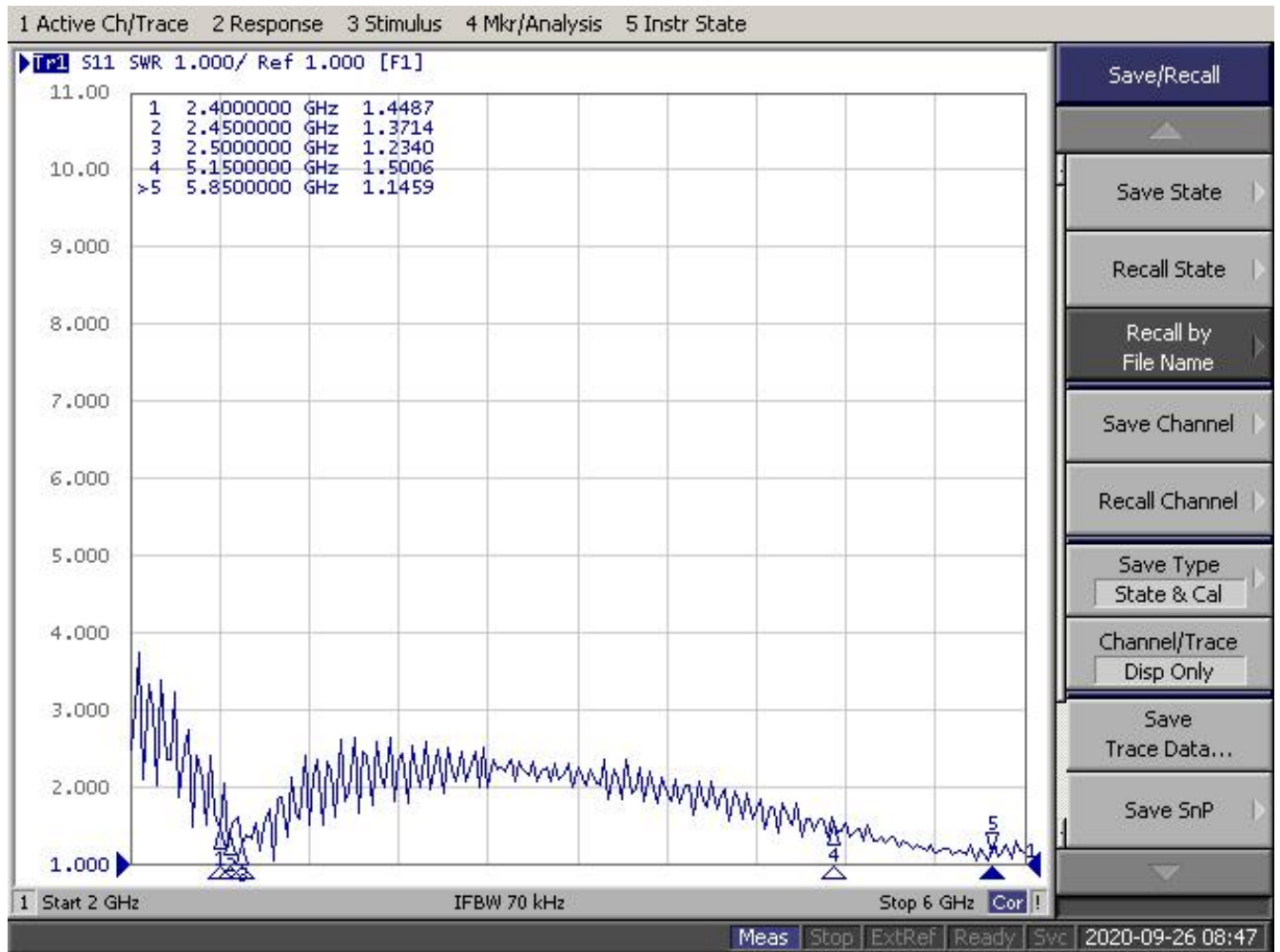
Frequency Band(MHz)	690	960	1710	1990	2400	2690
2-3-3. Typical Value:	2.58	2.25	1.81	1.60	1.47	1.79



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2-3-2. VSWR (WIFI)

Frequency Band(MHz)	2400	2450	2500
2-3-3. Typical Value:	1.44	1.37	1.23



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ANGLES=± HOLEDIA=±



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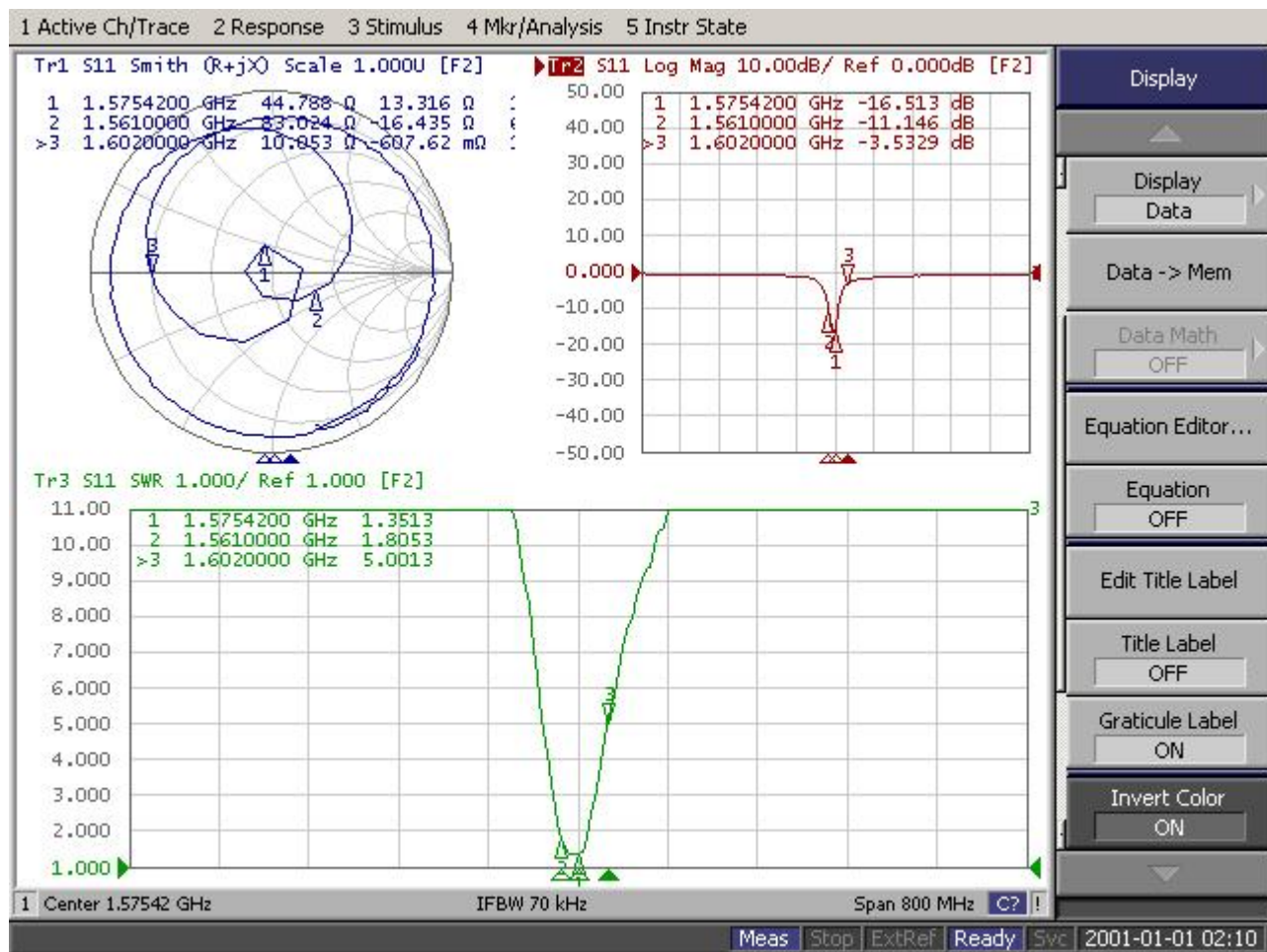
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2-3-3. VSWR (GNSS-陶瓷片)

Frequency Band(MHz)	1561	1575.42
2-3-3. Typical Value:	1.80	1.35



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ANGLES=± HOLEDIA=±

SCALE:

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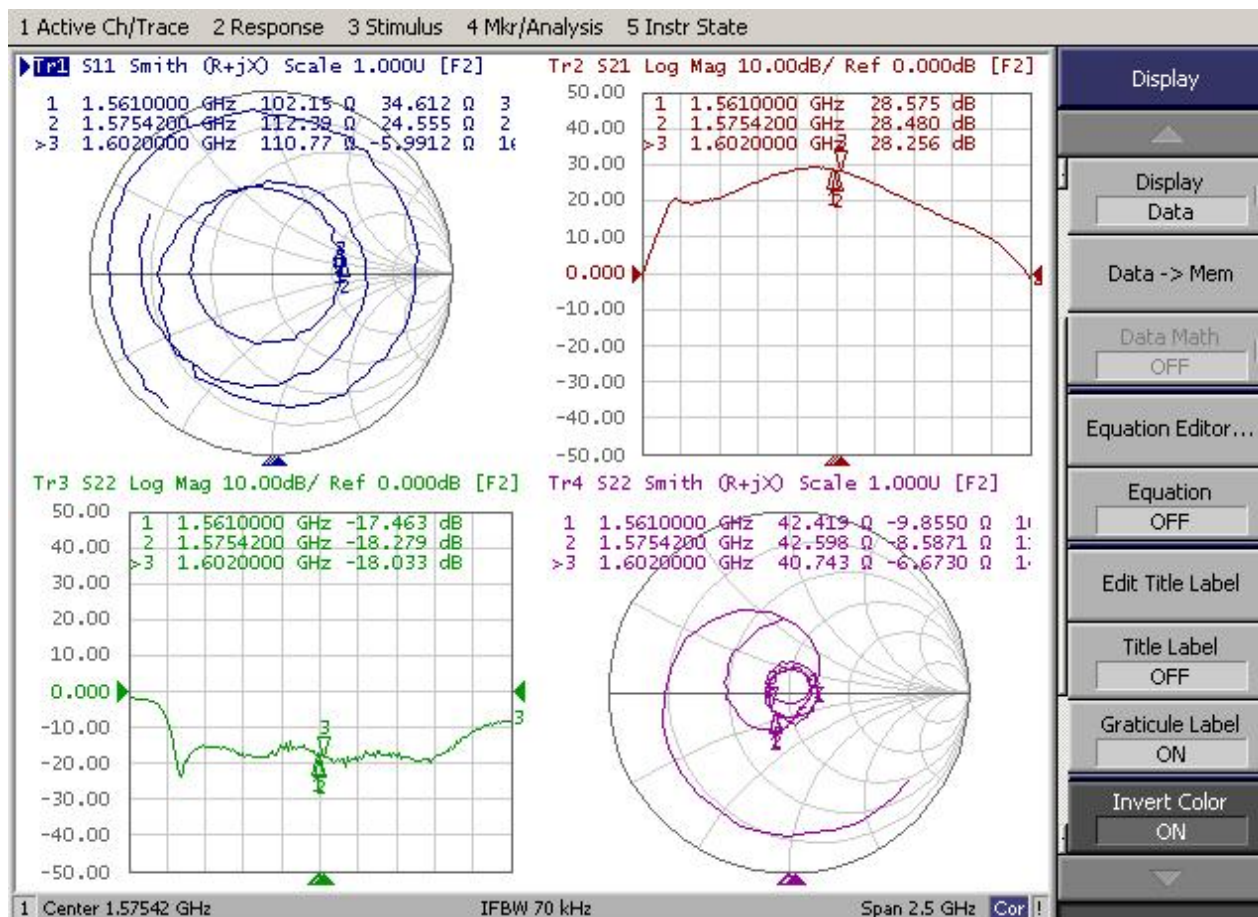
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2-3-3. VSWR (GNSS-LNA)

Characteristics	Specification
Frequency Range	1560MHz~1576MHz
Gain	28 ± 3 dB
Noise Figure	<2.0 dB
Output V.S.W.R	<2.0
Operation Voltage	3.3~5 V
Current	<25 mA



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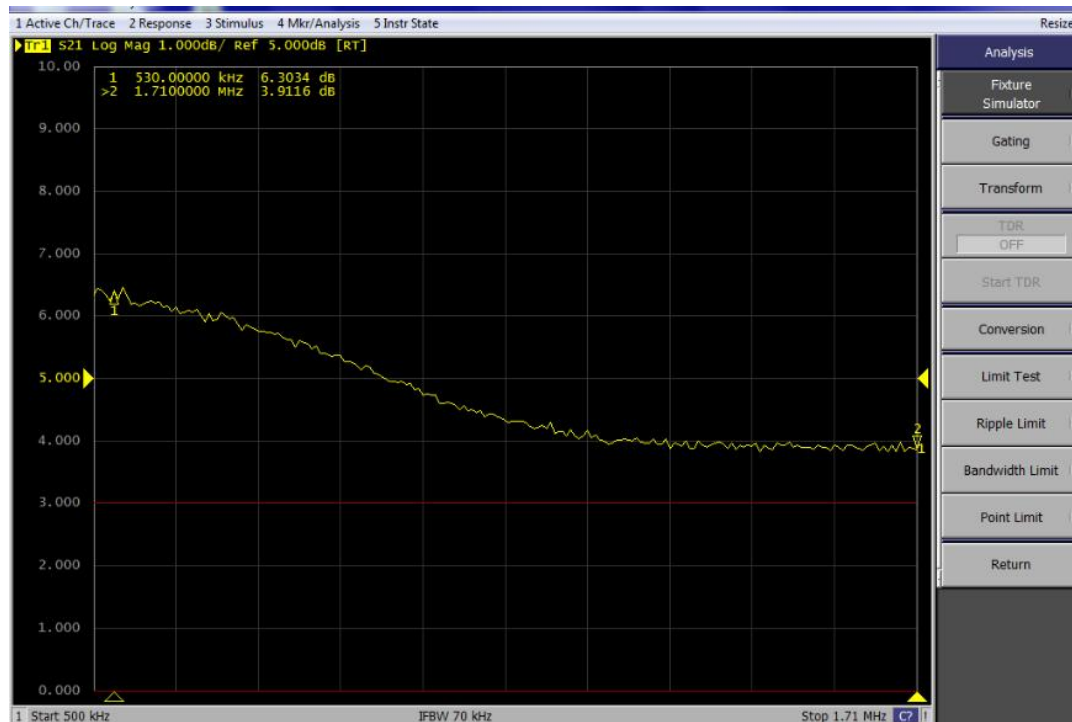
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2-3-3:AM/FM

Frequency	AM: 530 – 1710 kHz; FM: 87.5MHz – 108MHz	
Frequency (MHz)	Gain (dB)	Attenuation (dB)
87.9	≤ 16	n/a
107.9	≤ 16	n/a
900	n/a	≥ 30
1800	n/a	≥ 25
Frequency (kHz)	Gain (dB)	Attenuation (dB)
100	n/a	≥ 12
530	≤ 13	n/a
1710	≤ 13	n/a

Noise Figure/dB	AM: ≤20 FM: ≤5
IM2/dB	AM: ≥30 FM: ≥70
IM3/dB	AM: ≥45 FM: ≥60
Voltage	12.3 ± 0.1
Current Maximum	100 mA

AM GAIN



Freq (KHz)	Gain (dB)
530	6.3
1710	3.9

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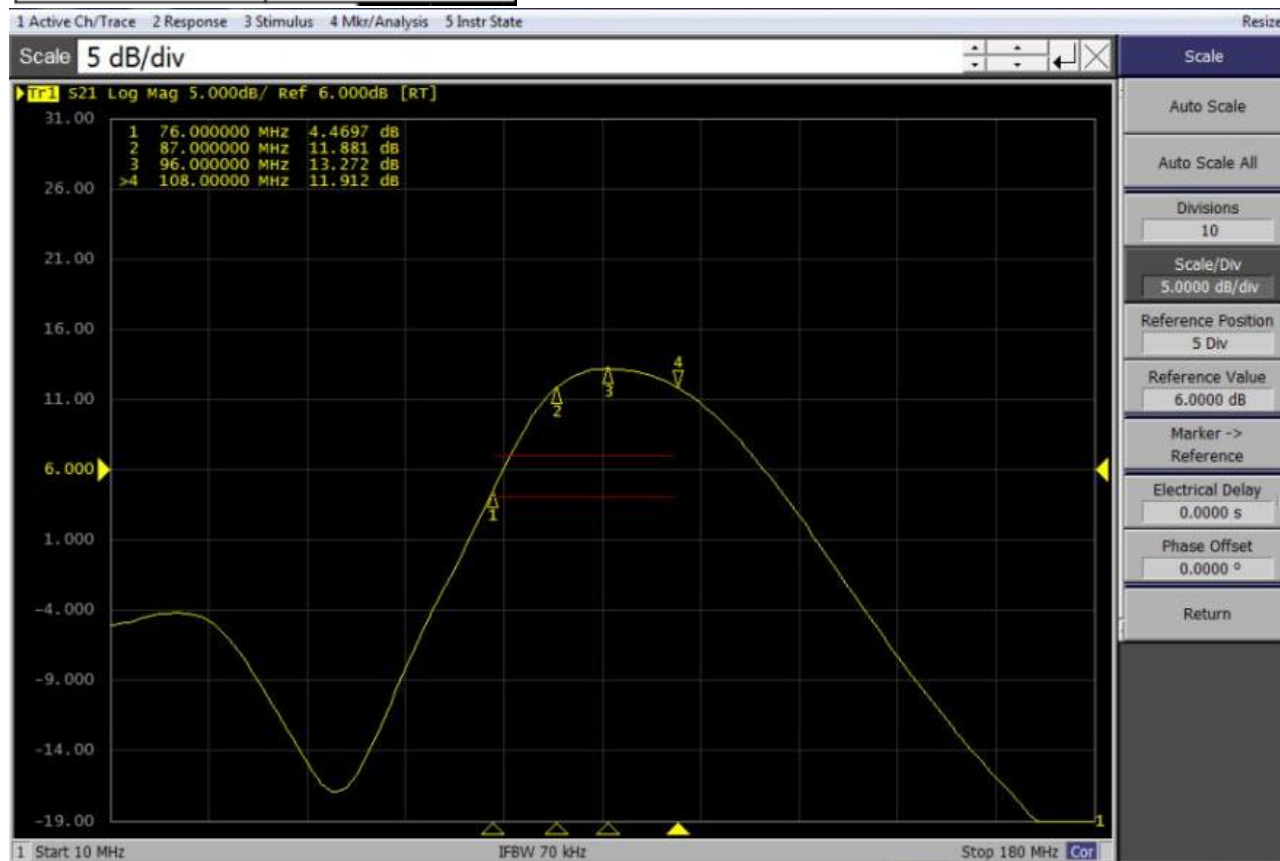
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FM GAIN

Freq (MHz)	Gain (dB)
87	11.8
96	13.2
108	11.9



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ANGLES=± HOLEDIA=±



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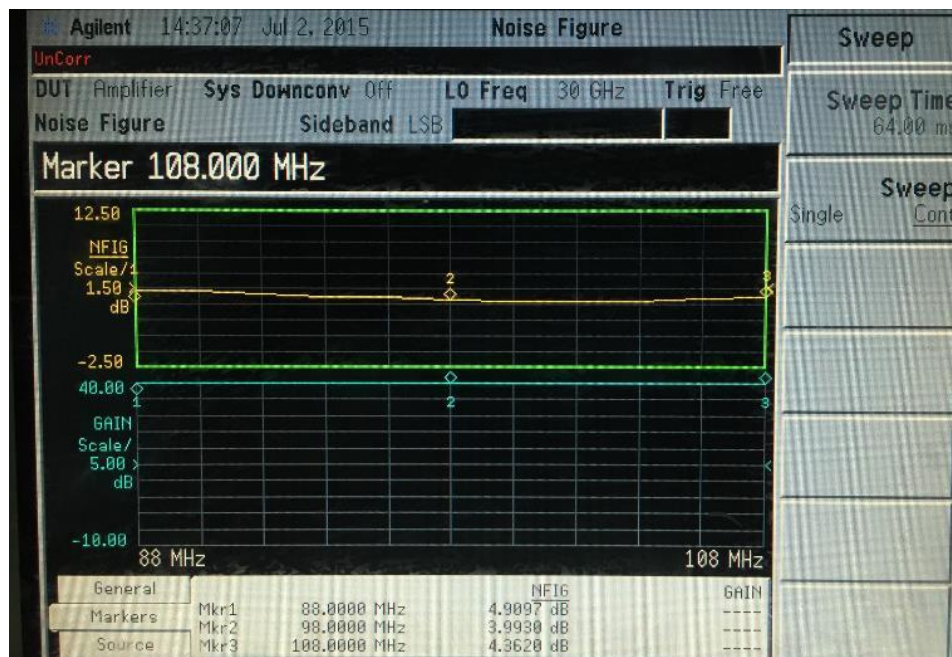
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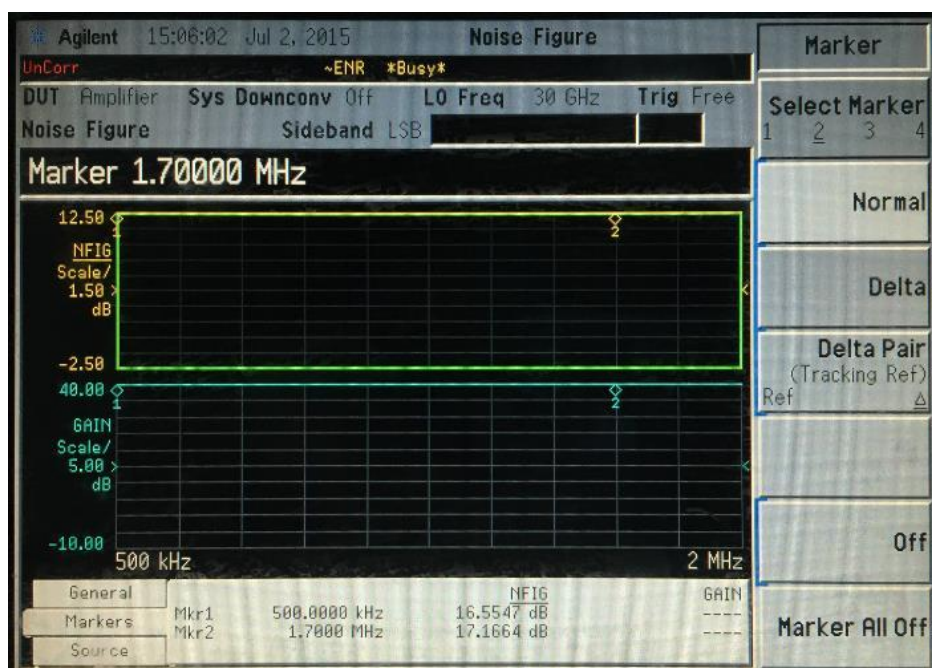
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Freq (MHz)	NF (dB)
88	4.9
96	3.9
108	4.3



Freq (KHz)	NF (dB)
500	16.5
1700	17.1

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X=± X.X=± X.XX=±

ANGLES=± HOLEDIA=±

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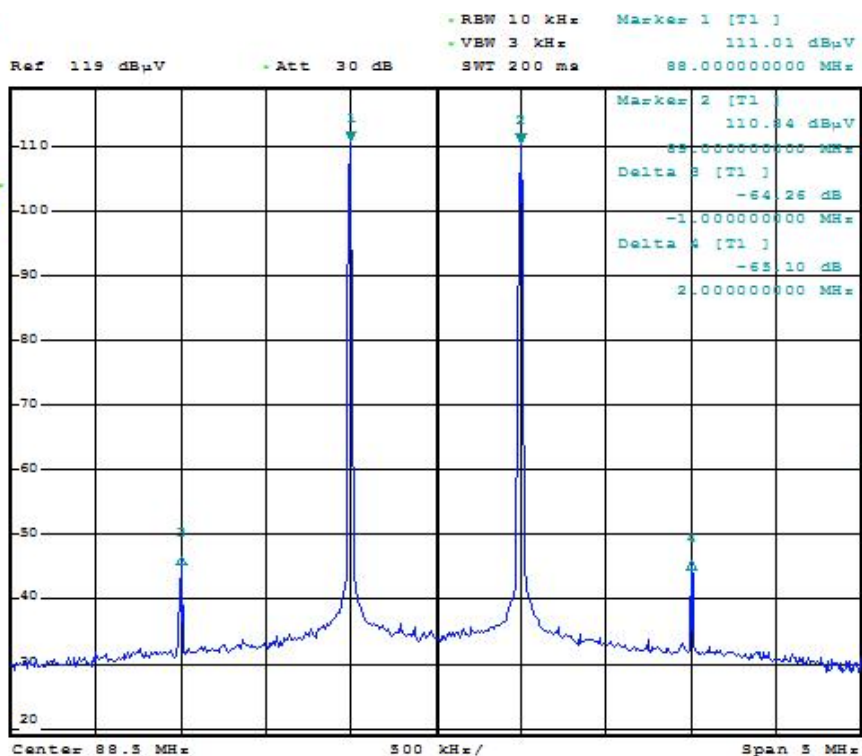
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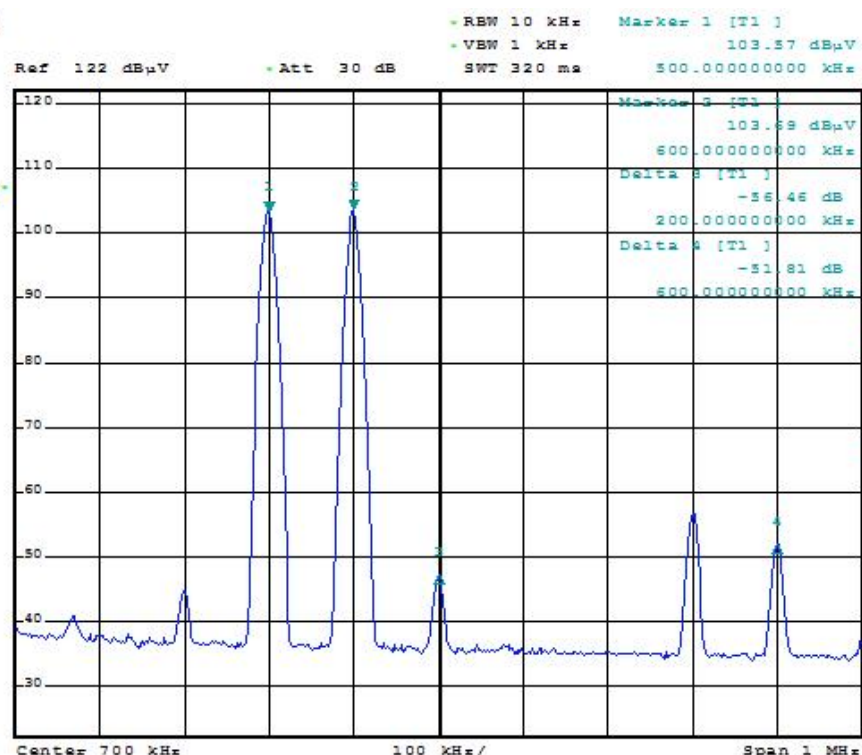
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FM IM3

Freq(MHz)	
88	110 dBuV
89	110 dBuV
IM3	64 dB
IM3	65 dB



AM IM2&IM3

Freq (KHz)	
500	103 dBuV
600	103 dBuV
IM2	52 dB
IM3	47 dB

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SCALE:

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2-4-2 Efficiency and Gain/ 4G

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
690	20.47	-6.89	-1.4
700	21.09	-9.55	-3.09
710	18.96	-7.22	-2.63
720	23.7	-6.25	-2.94
730	19.65	-7.07	-1.93
740	27.51	-5.6	-1.32
750	26.89	-4.33	-1
760	23.61	-6.27	0.02
770	22.2	-6.54	-0.31
780	25.29	-4.52	0.57
790	22.79	-6.42	-0.76
800	27.54	-5.6	-0.05
810	32.48	-3.72	-0.11
820	34.93	-3.47	1.28
830	31.19	-3.85	1.4
840	42.44	-2.8	2.27
850	44.04	-2.67	2.44
860	38.11	-3.18	1.53
870	38.92	-3.11	2.43
880	46.81	-2.46	2.55
890	34.49	-3.52	2.48
900	39.43	-3.06	1.05
910	48.05	-2.36	1.93
920	31.79	-3.79	1.7
930	37.56	-4.25	0.21
940	39.18	-4.07	0.17
950	32.47	-4.89	-0.14
960	36.23	-4.41	0.25

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1710	45.92	-2.52	3.16
1730	49.22	-2.28	3.15
1750	40.06	-3	2.43
1770	42.56	-2.04	3.29
1790	40.6	-2.96	2.24
1810	37.63	-3.22	1.8
1830	37.81	-3.21	1.92
1850	34.2	-3.55	2.02
1870	42.75	-2.78	2.78
1890	34.98	-3.47	2.98
1910	47.5	-2.4	3.35
1930	37.67	-3.22	2.13
1950	39.18	-3.08	2.21
1970	38.06	-3.18	2.04
1990	29.76	-4.01	1.1
2010	33.81	-4.71	1.34
2030	29.78	-5.26	1.43
2050	28.47	-4.15	1.17
2070	34.71	-4.6	2.02
2090	31.46	-5.02	1.38
2110	31.95	-3.77	2.64
2130	28.5	-5.45	0.15
2150	26.36	-5.79	1.58
2170	33.31	-4.77	2.95
2190	29.52	-5.3	1.2
2210	38.41	-4.16	2.07
2230	38.52	-4.14	2.76
2250	39.94	-3.99	2.07

UNLESS OTHER SPECIFIED TOLERANCES ON:

$X=\pm$ $X.X=\pm$ $X.XX=\pm$

ANGLES= $\pm$ HOLEDIA= $\pm$

SCALE:

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Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2290	35.01	-4.56	1.37
2310	36.53	-4.37	1.12
2330	30.08	-5.22	0.4
2350	36.37	-4.39	1.39
2370	29.38	-5.32	0.7
2390	38.05	-4.2	1.72
2410	39.81	-2.23	3.87
2430	41.74	-2.09	1.31
2450	36.26	-2.5	1.22
2470	40.17	-2.21	1.36
2490	42.78	-2.02	1.37

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2510	35.62	-4.48	1.1
2530	34.48	-4.62	1.21
2550	31.39	-5.03	1.09
2570	32.13	-4.93	1.35
2590	31.79	-4.98	1.72
2610	27.24	-5.65	1.24
2630	34.75	-4.59	1.47
2650	26.54	-5.76	0.61
2670	31.87	-4.97	0.92
2690	25.43	-5.95	-0.51

Efficiency and Gain/ WIFI

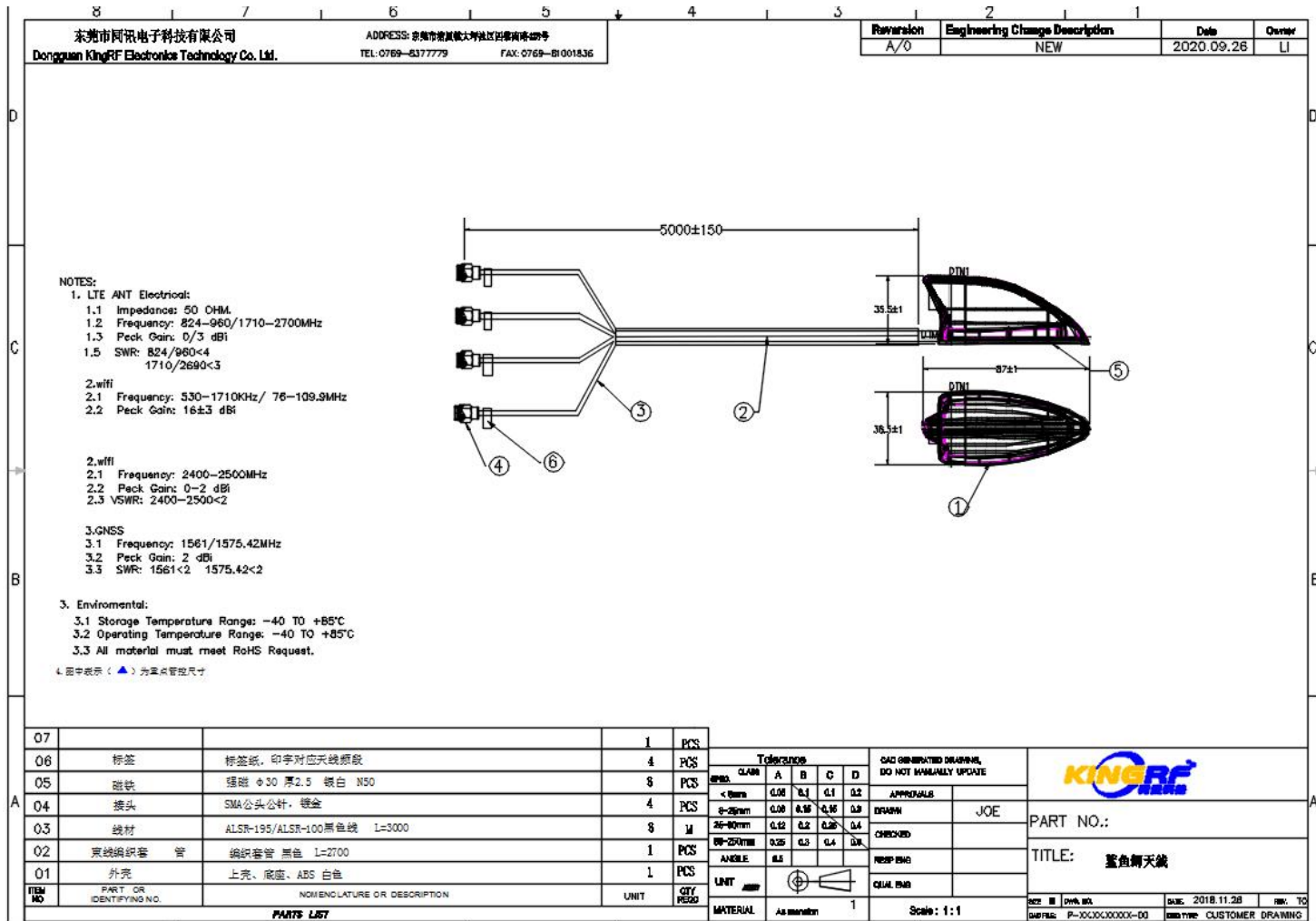
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	30.76	-3.9	0.34
2410	31.89	-3.78	0.63
2420	28.06	-4.2	0.14
2430	38.94	-3.1	0.42
2440	33.08	-3.66	0.51
2450	35.41	-3.43	0.42
2460	35.16	-3.45	0.67
2470	36.06	-3.37	0.35
2480	34.9	-3.48	0.47
2490	37.76	-3.21	0.72
2500	29.54	-4.03	0.16

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3. Mechanical Specification:

3-1. Mechanical Configuration (Unit: mm)

The appearance of the antenna is according to drawing



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ANGLES = $\pm$ HOLEDIA = $\pm$

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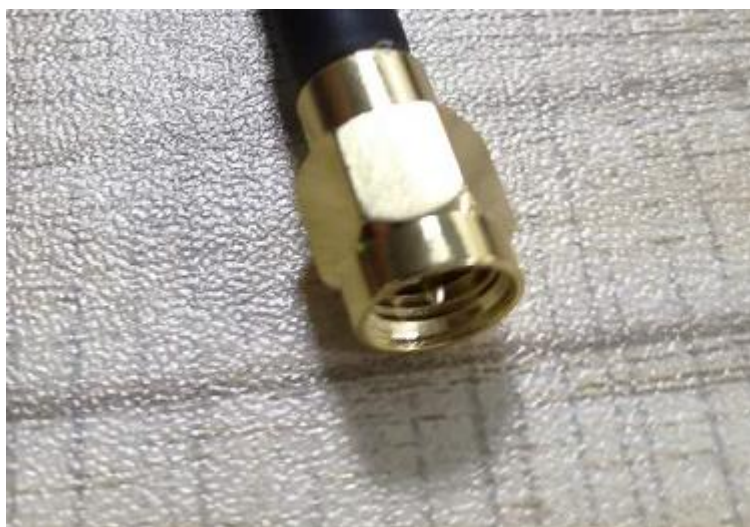
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3-2. Connector appearance: SMA



3-3.Product Image:



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4 .Packaging specification

Product number: xxx

Product model: xxx

一、 Label requirements:

Customer	xxx		
supplier	xxxxx		
Material coding	xx		
Product model	xx		
Number	XXX PCS	Factory date	X X X
Remarks			

二、 Boxing:

Job description:

1. Inner packaging:

XXpcs A bag

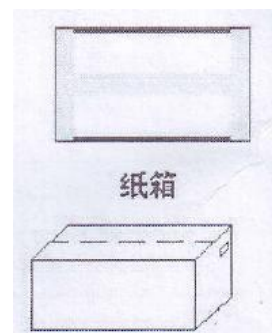
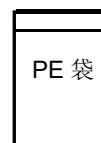
2. External packaging:

Xx PCS ;

3. Matters needing attention:

a. Whether to add partition and pearl cotton;

b. Label attachments, such as ROHS, etc.;



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