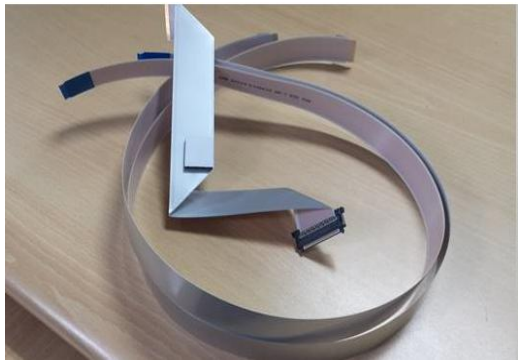
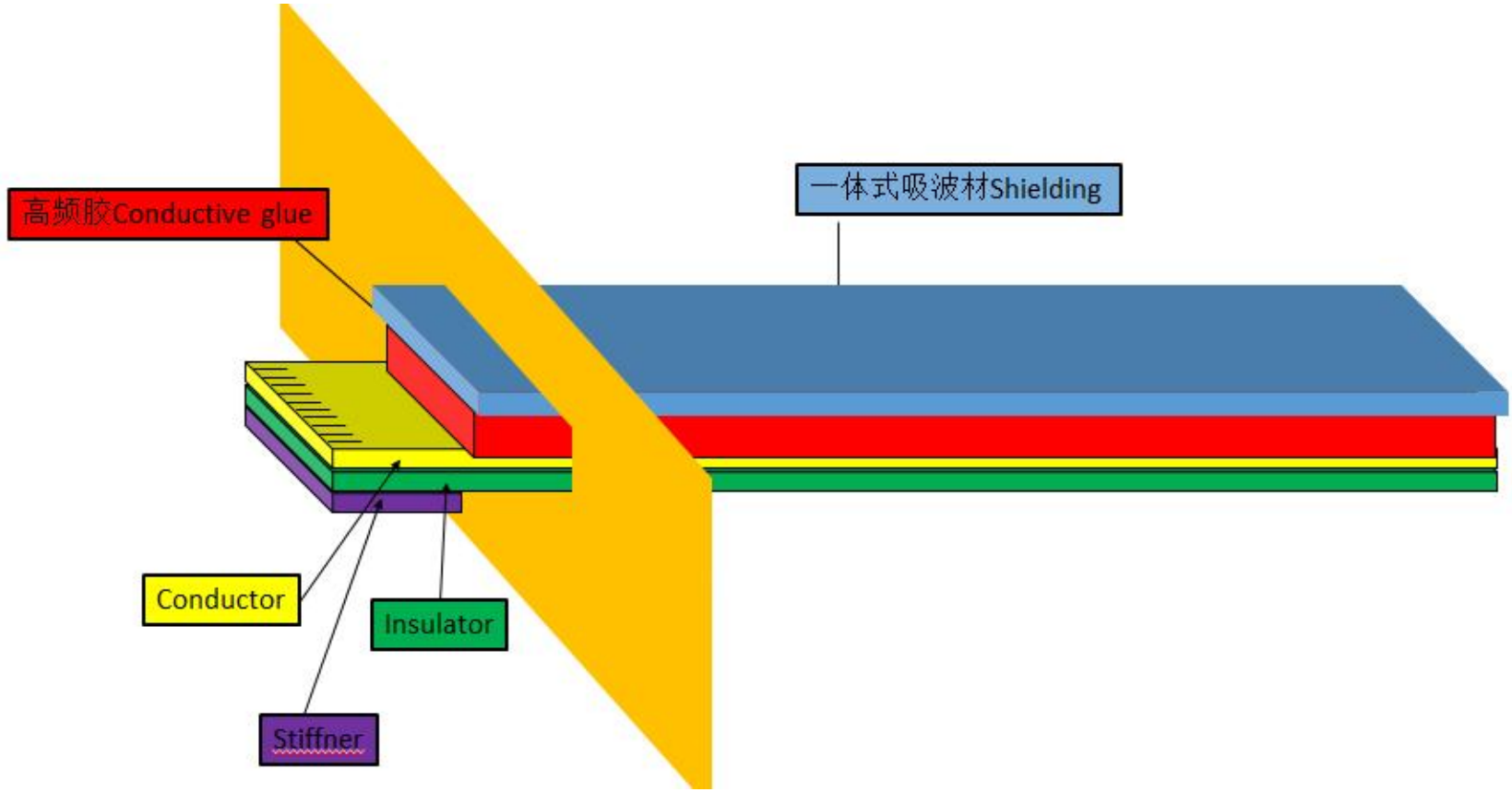
高頻一體式吸波材

一體材與FFC綫材



高頻吸波材Shielding結構圖

- 高频吸波材結構示意圖



高頻一體膜介紹

- 為了滿足現在FFC用於4K&8K電視與5G时代相關傳輸需求,開發一體複合膜
- 應用目標：

  4K&8K显示器&TV (V-BY-ONE US)

  USB3.0,USB3.1
- 一体高频膜特点：

① 提高传输速率(提高传输速率5Gbps➔13Gbps,目标16Gbps)

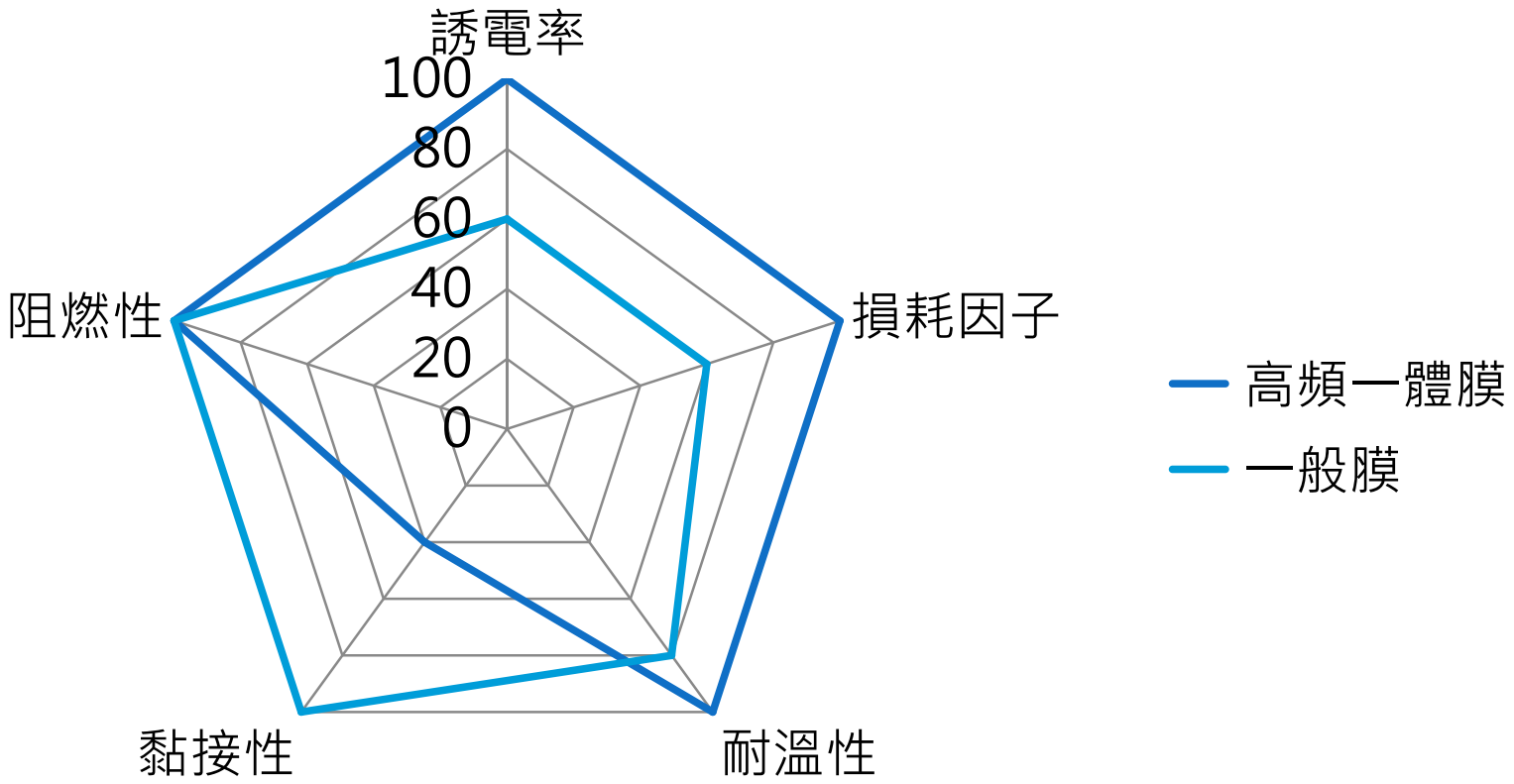
② 低介电常数材料，能过EDP5.4G测试

③ 结构更轻薄(线身最薄可以做到0.28mm)

④ 耐高温性能优异(VW-1 & 94V0 UL防火等级)

高頻一體膜与普通热熔胶膜性能对比

■ 高頻一體膜与普通热熔胶膜性能对比差异



Insertion Loss

TEST Data Summary Page 1 of 1

Insertion_Loss

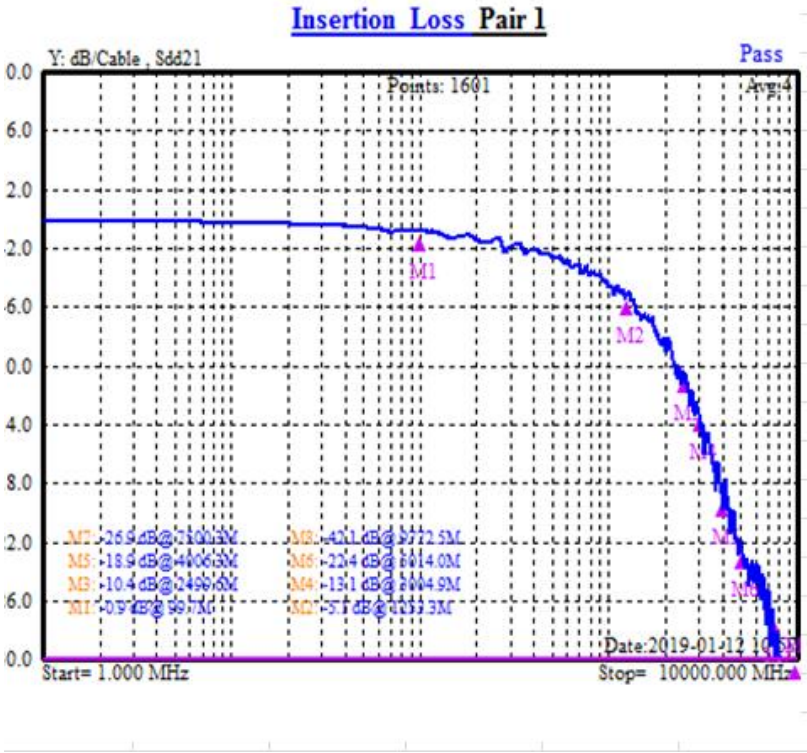
Start Freq	End Freq	Spec Max	Spec Min	Pair 1	Pair 2
100	100	--	-5	-0.869	-0.867
1250	1250	--	-10	-5.120	-5.095
2500	2500	--	-15	-10.438	-10.403
3000	3000	--	-15	-13.120	-13.081
4000	4000	--	-15	-18.941	-18.898
5000	5000	--	-20	-22.391	-22.351
7500	7500	--	-35	-26.897	-26.841
1	10000	--	-50	-42.102	-41.953
MHz	MHz	dB	dB	Pass	Pass

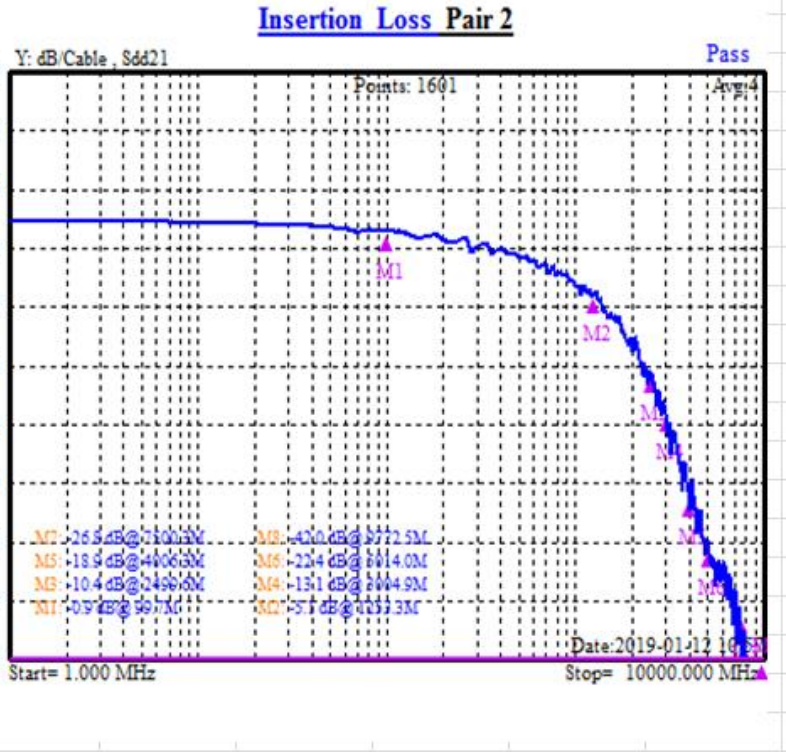
Cable_Differential_Impedance , Tr= 200 ps (10%_90%)

Pair Name	Spec Max	Spec Min	Max Value	Min Value	Differ.	Average	Status
Pair 1	110	90	95.65	94.41	1.24	95.03	Pass
Pair 2	110	90	95.65	94.41	1.24	95.03	Pass
Unit :	Ohm	Ohm	Ohm	Ohm	Ohm	Ohm	--

Insertion Loss

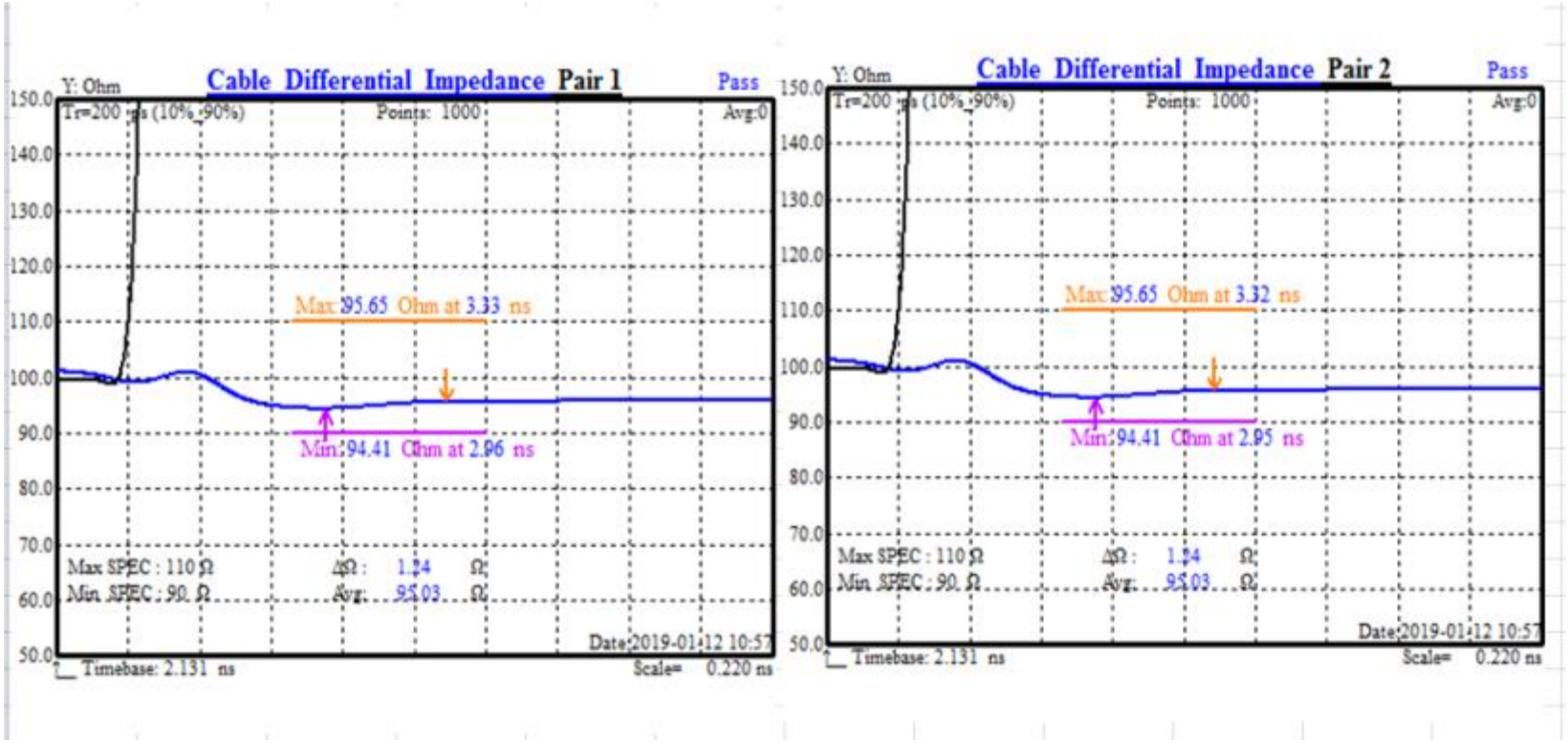
TEST Graphic Summary Page 1 of 1





特性阻抗值

- 阻抗值可依客戶需求作調整



Return Loss

VW-1 Flame

Test Result

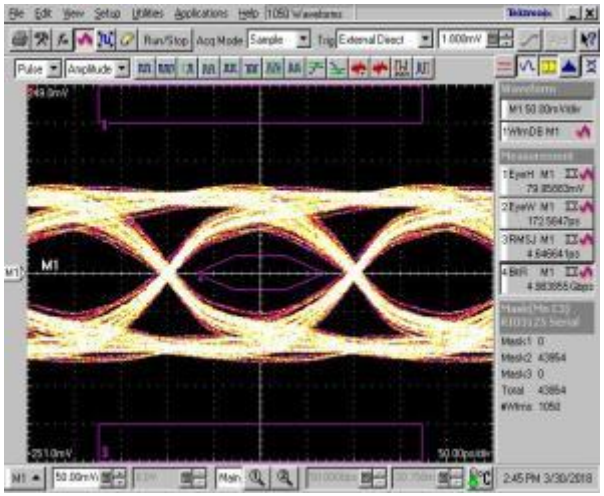
Specimen	1					2					3				
Number of Flame application	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Flame time after each application (s)	13.6	0	0	0	0	9.0	0	0	0	0	5.8	0	0	0	0
Whether the flaming of the specimen exceeds 60 seconds after removal of the burner flame following any application	No					No					No				
Whether the cotton was ignited by flaming or glowing particles or flaming drops at any time	No					No					No				
Whether the indicator flag was burned away or charred more than 25 percent	No					No					No				
Judgment	a) Can't convey flame along its length.(See note 1) b) Can't convey flame to combustible materials in its vicinity. (See note 2)														

UL94VW-1测试报告

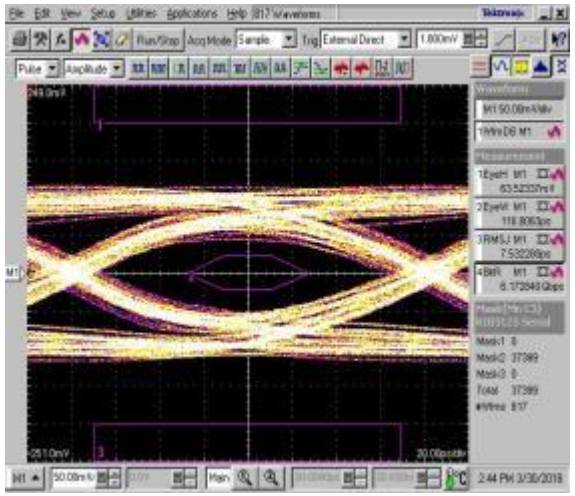
普通屏蔽方式---眼图测试结果

线长：500mm　导体规格：0.035mm*0.3mm

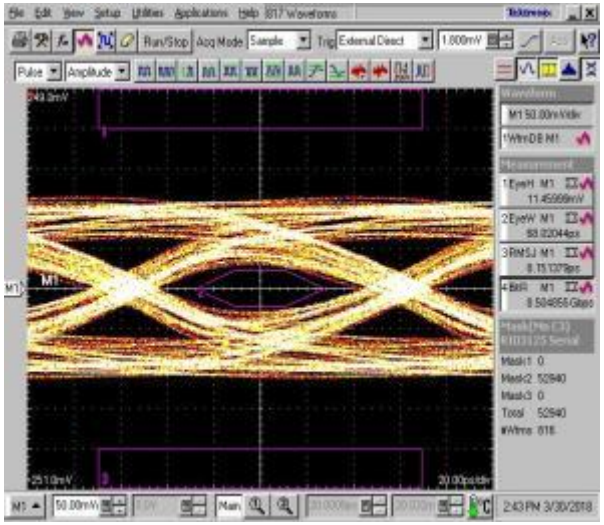
5G眼图



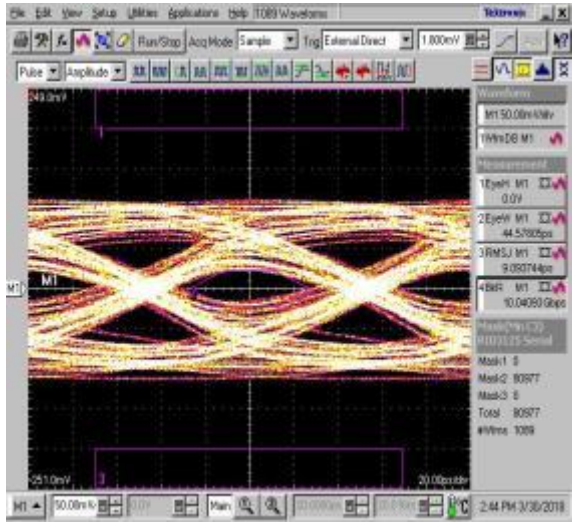
6G眼图



8.5G眼图

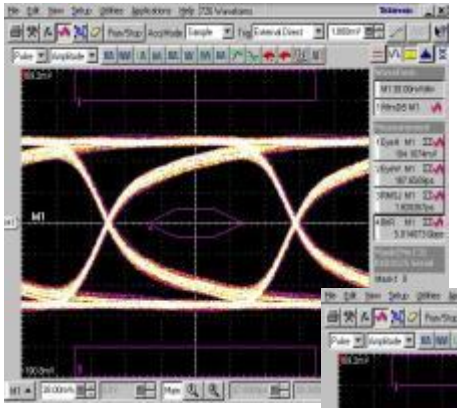


10G眼图

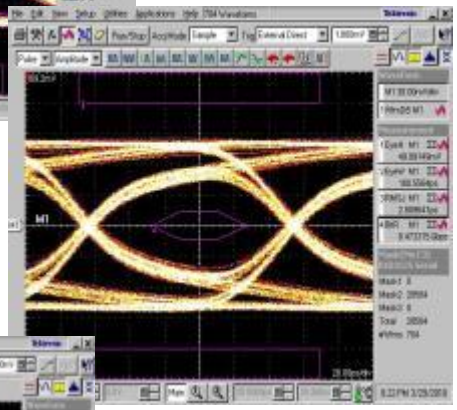


一体高频膜---眼图测试结果

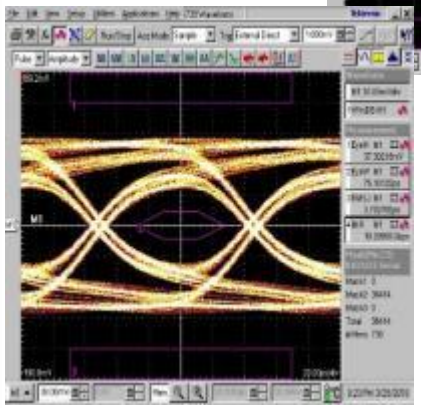
线长：600mm　　导体规格：0.035mm*0.3mm



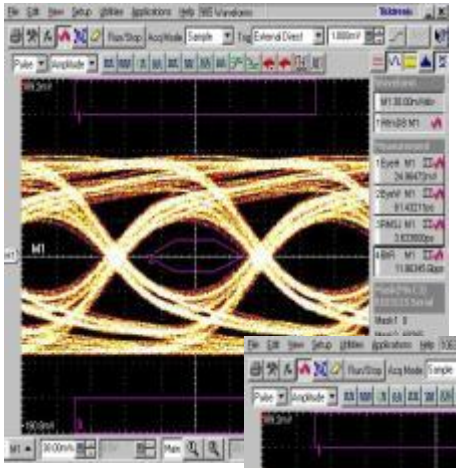
5G
眼
图



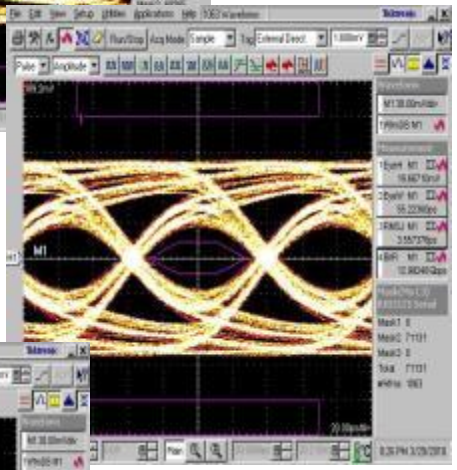
8.5G
眼
图



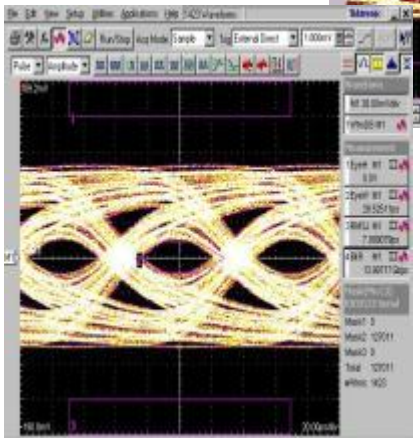
10G
眼
图



12G
眼
图



13G
眼
图



14G
眼
图

高频FFC线的应用

- 高清摄像头
  ---传输速度快,清晰度高

传输速度快 清晰度高 耐高温高湿

- 高清电视4K,8K

电子竞技项目显示器配置采用高频膜用于高质量画面传输(msi)

日本现有家电厂家索尼、msi、华为已大批量使用高频FFC线材，来满足高清电视的传输要求

高频FFC线的应用

智能家居
SMART HOME

High Frequency FFC

MZ-9706G Insulation Film

FFC柔性扁平电缆

- Flexible Flat Cable(FFC)

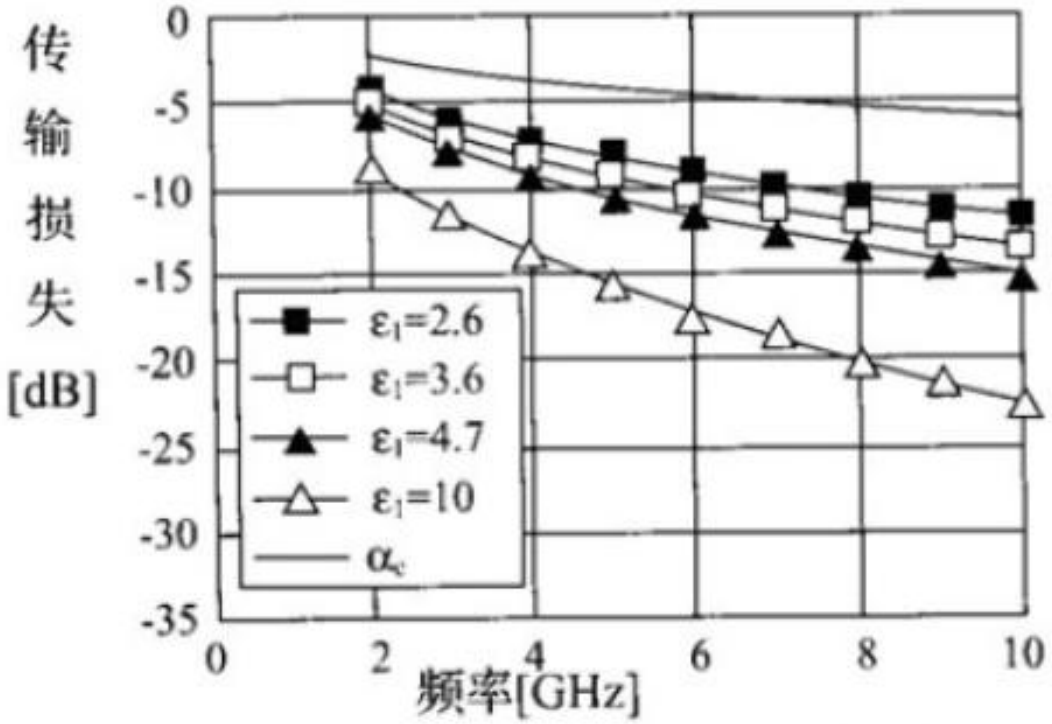
Is a kind of PET insulation material and thin flat copper wire, the new data cable through high-teach automation equipment production line together, having a soft, random bending folding, thin thickness, small volume, simple connection, convenient disassembly, easy to solve electromagnetic shielding(EMI) etc..

FFC requirements for high frequency transmission

- 高傳輸速度(5Gb/s以上) High transmission speed (above 5Gb/s)
- 恆定的阻抗值 Constant impedance value
- 低衰減 Low attenuation
- 低回波損耗 Low return loss
- 低干擾性 Low interference
- 恆定電容 Constant capacitance

介电材料与传输损失

Dielectric material and transmission loss



(a) 不同 ε 基材与传输损失的关系

技术报告Technical Report

技术报告书 Technical report	
件名 subject	绝缘胶带的电气特性
目的 goal	绝缘胶带(V-by-one作为对应开发)分层后，快速测定了FFC的电气特性
样品 sample	烯系绝缘胶带，分层FFC(后加工使用本公司标准) 比较样品:现在的量产品（绝缘胶带：聚酯系绝缘胶带）
试验方法 Test method	·差动阻抗 根据TDR、差动电阻测定。 装置:Tektronix公司制造 DSA8200 ·减衰特性 根据Network Analyzer、减衰特性测定。 装置:Agilent Technologies公司制造 E8361C ·eye pattern 装置:Agilent Technologies公司制造16Gpps PPG、DCA-D、PLTS(palse pattern generator)

差动电阻Impedance

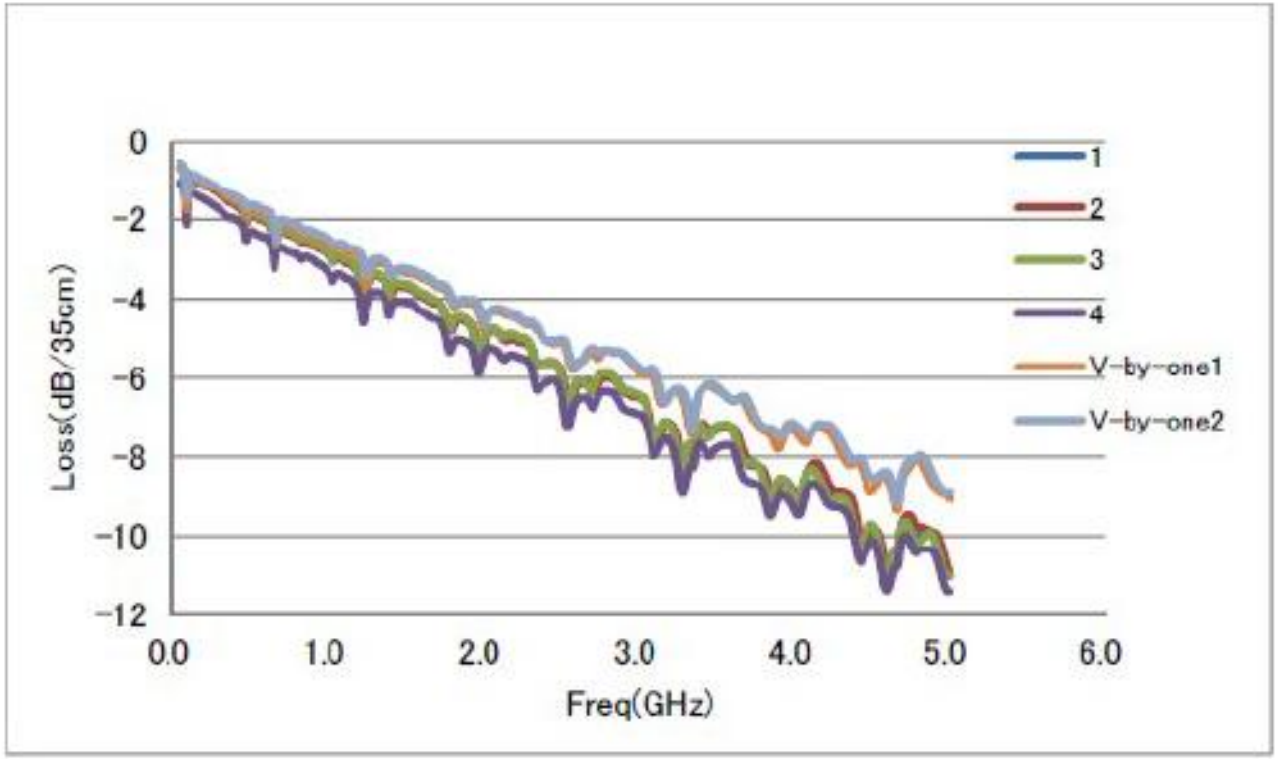
·差动电阻

		测定值(Ω)		AVG
量产品	No.1	95.9	95.4	95.8
	No.2	97.6	95.4	
	No.3	95.0	95.3	
	No.4	95.9	95.6	
V-by-one	No.1	100.4	98.5	99.7
	No.2	100.4	99.5	

<量产品 聚酯系绝缘胶带 Rs=95.9Ω>

衰减特性Cable loss

·减衰特性



眼图频率量测 Eye pattern

•eye pattern

样品	频率(GHz)	1	2	3	4	5	6	8	10	10+
量产品	Eye Hight(mV)	729.6	627.0	500.8	438.8	352.4	285.0	164.4	16.6	289.4
V-by-one		766.6	669.8	567.6	497.2	410.8	351.8	236.4	106.0	324.4

结论 Conclusion

- 可通過UL驗證(阻燃，耐熱，耐電壓，符合電線電纜規範) Can be verified by UL (flame retardant, heat resistance, voltage, wire and cable comply with specifications)
- 高頻傳輸Cable Loss小，相同傳輸頻率，可以有較長傳輸距離，或相同長度，可傳輸頻率較快。High frequency transmission Cable Loss small, the same transfrequency, you can have a longer transmission distance, or the same length, can be transmitted faster.
- 可用於4K電視，大尺寸，未來開發8K線材。 Available for 4K TV, large size, future development of 8K wire.
- V-by-one可達1.4米長，eDP可達1.2米長V-by-one up to 1.4 meters long, eDP up to 1.2 meters long

Mztape 铭展®

铭展胶粘

粘接你我

THANKS !