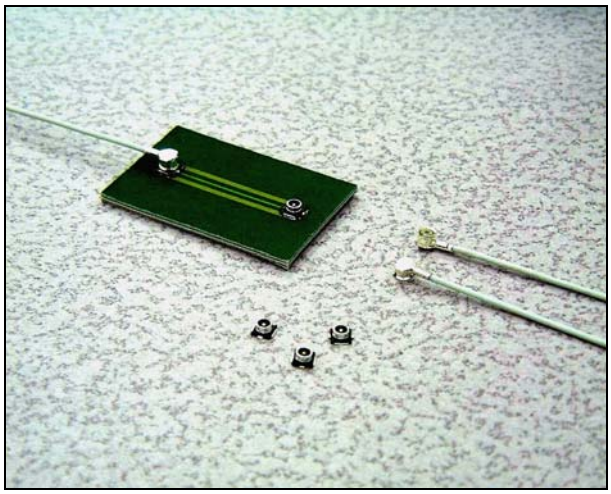
Sunridge MCB Series – Miniature Coaxial Interconnect, 2.5mm or 2.0mm Mated Height

Sunridge MCB series coaxial product fulfills the rigorous requirements of high frequency data transmission in digital world. Constructed in supreme Teflon coax cable and advanced mechanical design, MCB delivers high electrical performance of a typical 1.3 max VSWR measurement at 6.0GHz, while providing for a sturdy interconnection in a slim form factor of 3.0mm square footprint by 2.5mm max mated height. For tight spaced application, MCB2 plug offers an ultra low-mated profile of 2.0mm on the same MCB socket.

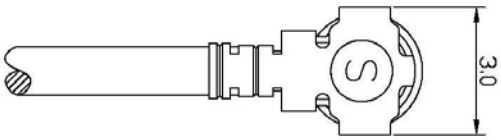


Applications: For Bluetooth, 802.11 WLAN, GPS, wireless communication designs in smart cell phone, PDA, and notebook or hand held information devices - for up to 6GHz frequency. A perfect push-button solution for antenna feedline.

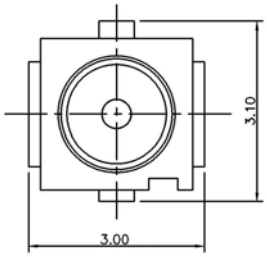
Features

- Space Economy: PCB footprint of 3.1mm x 3.0mm, mated height of 2.5mm or 2.0mm.
- Teflon Cable: Silver-plated center conductor with Teflon dielectric and jacket.
- Application-specific cable options: from 0.81mm OD flexible cable ideal for intricate routing inside a crammed package, to 1.24mm or 1.32mm OD cable that delivers RG178 performance with space and weight saving.
- PCB connector: Integral molded construction ensures product reliability.
- Sturdy Connection: Lead-in and interlock features among mating pair ensure solid coupling.
- Accessory: Extraction tool for easy replacement, and MCB-SMA adapter for tester fitting.

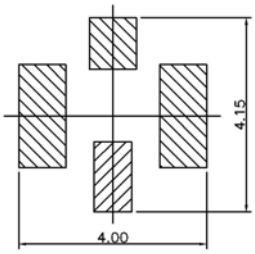
Form Factor



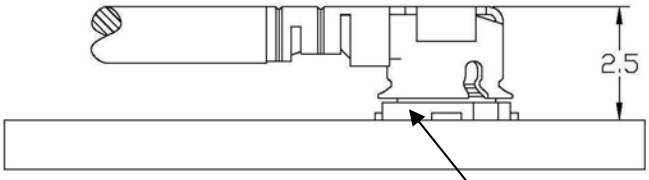
Cable Assembly (Plug)



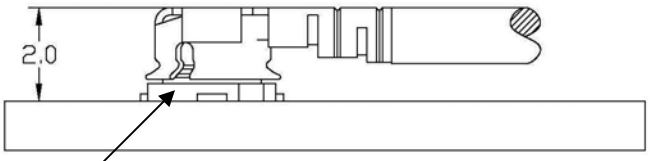
PCB Connector (Receptacle)
Pn: MCB-ST-00T



Recommended PCB Layout



MCB Profile



MCB2 Profile
(With same PCB connector)

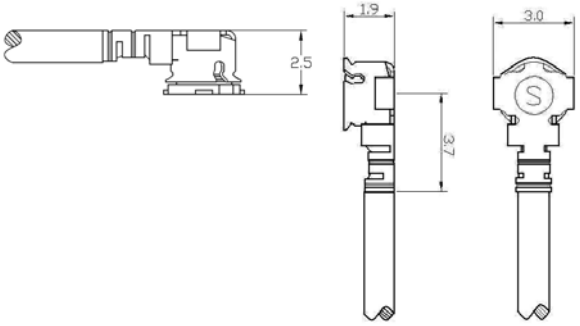
Pn: MCB-ST-00T(Ref)

(dimension: mm)

USA Headquarters: 1-626-535-1780
Taiwan Operations: 886-2-2906-2119
E-mail: sales@sunridgecorp.com

■ *MCB Cable Assembly*

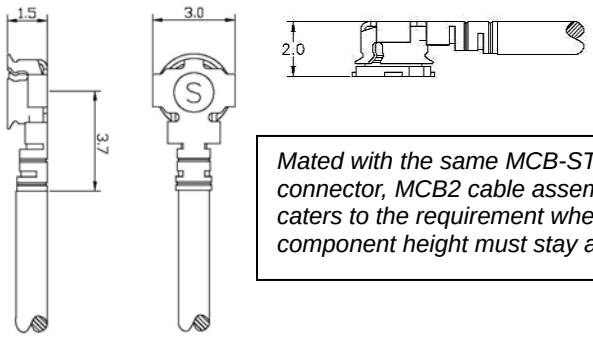
(Mate with MCB-ST-00T: 2.5mm max heights.)



Cable Option: MCB head can be assembled with cables of 0.81mm OD to 1.33mm OD.

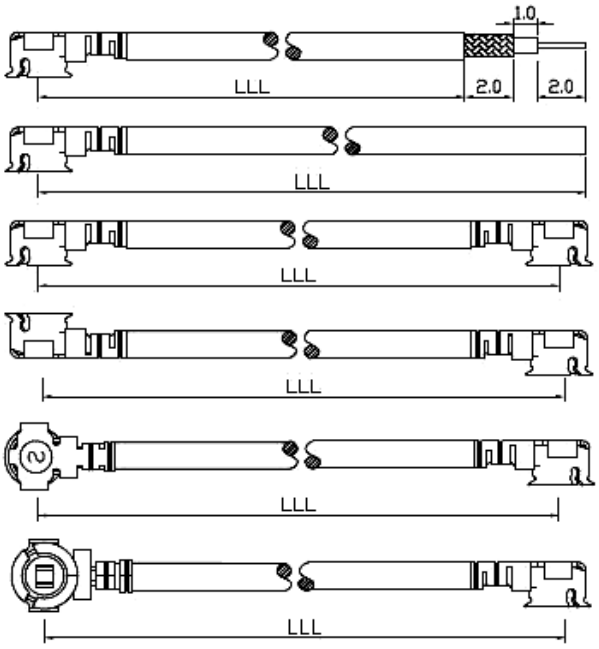
■ *MCB2 Cable Assembly -- For Space Tight Applications*

(Mate with MCB-ST-00T: 2.0mm heights.)



Mated with the same MCB-ST-00T pcb connector, MCB2 cable assembly caters to the requirement where component height must stay at 2.0mm.

Cable Option: Due to its miniature structure, MCB2 head can only be assembled with cable of 1.13mm OD or smaller, i.e, #59, #60 or #68 cable.



PN: MCB-SH-XX-LLL-T

PN: MCB-SH-XX-LLL-F

PN: MCB-DH-XX-LLL
(Both connectors face down)

PN: MCB-DH-XX-LLL-R1
(One connector faces down, one faces up)

PN: MCB-DH-XX-LLL-R2
(End view: near conn faces down, far conn faces right)

PN: MCB-DH-XX-LLL-R3
(End view: near conn faces down, far conn faces left)

● P/N Designation

For MCB head
MCBG - XX- XX - XXX – X (gold plated)
MCB - XX- XX - XXX – X (silver plated)
A B C D

For MCB2 head
MCB2G - XX- XX - XXX – X (gold plated)
MCB2 - XX- XX - XXX – X (silver plated)
A B C D

A. Head Configuration: **SH:** Single-Headed Cable Assembly
DH: Double-Headed Cable Assembly

B. Coaxial Cable Code: see cable selection guide (p.4)

C. Length (in mm): e.g., LLL = 200 means 200mm; LLL = 073 means 73mm

D. End Cut (for SH) T : stripped, tinned at outer & center conductor
F : open end flat cut

D. Orientation: (for DH) **blank**: Both connectors face down
R1: One faces down, one up
R2: End view: near one faces down, far one right
R3: End view: near one faces down, far one left

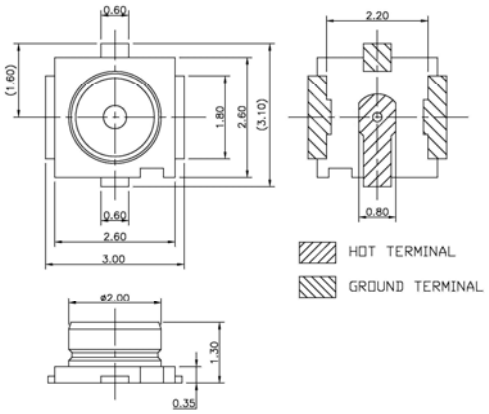
(dimension: mm)

USA Headquarters: 1-626-535-1780
Taiwan Operations: 886-2-2906-2119
E-mail: sales@sunridgecorp.com

Catalog No: MCB0080226

■ *PCB Connector*

Pn: MCBG-ST-00T (gold plated)
MCB-ST-00T (silver plated)

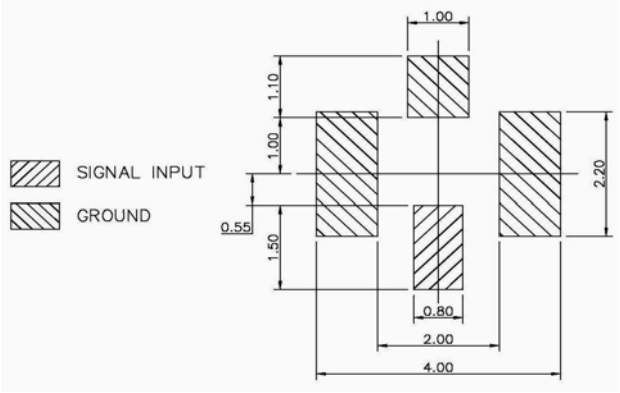


Stranded Package: 5,000pcs per tape reel.

■ *Material Spec*

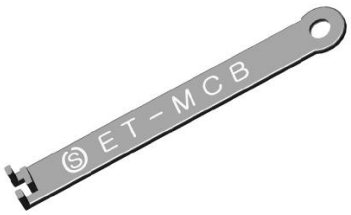
Outer Contact: Copper Alloy, Gold or Silver Plated.
Center Contact: Copper Alloy, Gold Plated.
Insulator: Engineering Plastic.
Cable: Silver plated center conductor with Teflon dielectric and jacket.

■ *Recommended PCB Layout*



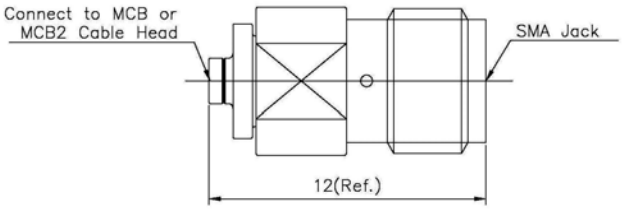
Electrical Characteristics	
VSWR @ 6GHz	1.3 Max.
Nominal Impedance	50 ohm
Temperature Range	-40°C to +90°C
Voltage Rating	250Vrms
Contact Resistance	15m ohm Max
Withstanding Voltage	AC300Vrms
Insulation Resistance	500m ohm Min

■ *Insertion/Extraction Tool:* **Pn: ET-MCB**



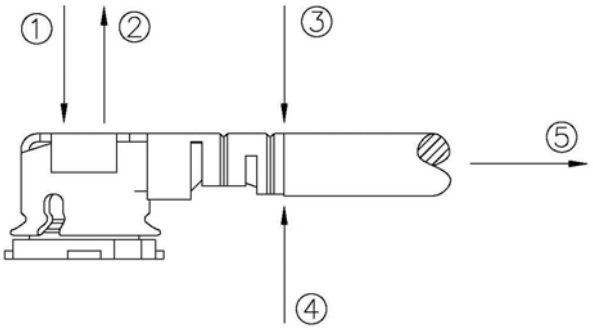
■ *Adapter:* Pn: MCBP-SMAJ

(Connection to Network Analyzer)



MCB Plug to SMA Jack

■ *Mechanical Application:*



① Insertion force (with tool): 800gf.
② Extraction force (with tool): 600gf.
③ Retention, downward force: 200gf max.
④ Retention, upward force: 200gf max.
⑤ Retention, pull back: 400gf max
Durability: 30 cycles

USA Headquarters: 1-626-535-1780
Taiwan Operations: 886-2-2906-2119
E-mail: sales@sunridgecorp.com

Catalog No: MCB0080226

Cable Selection Guide

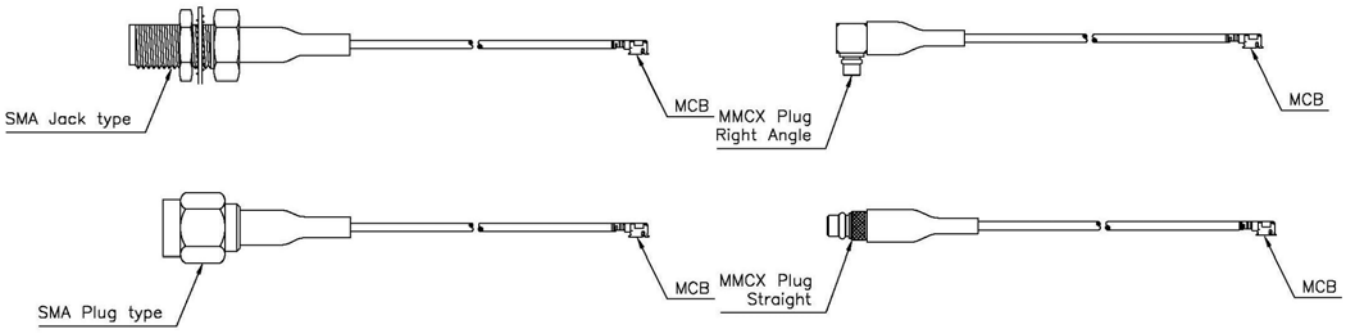
Cable Designation Code			#54 *	#53	#59	#62	#60	#68
Inner conductor	No. and Dia.	(No./mm)	7/0.102	7/0.08	7/0.08	7/0.07	7/0.064	7/0.05
	Material	—	Silver plated copper wire	Silver plated copper wire	Silver plated copper wire	Silver plated copper wire	Silver plated copper wire	Silver plated copper wire
	Total Dia.	(mm)	0.305	0.24	0.24	0.21	0.192	0.15
Dielectric	Material	—	FEP	FEP	FEP	FEP	FEP	PFA
	Total Dia .	(mm)	0.88	0.66	0.68	0.63	0.53	0.4
Outer conductor	Material	—	Tinned copper wire	Tinned copper wire	Tinned copper wire	Tinned copper wire	Tinned copper wire	Tinned copper wire
	Dia. of wire	(mm)	0.05	0.05	0.05	0.05	0.05	0.05
	Total Dia.	(mm)	1.13	1.12 (double shield)	0.93	0.8	0.78	0.65
Jacket	Material	—	FEP	FEP	FEP	FEP	FEP	PFA
	Nominal thickness	(mm)	0.1	0.1	0.1	0.05	0.1	0.08
Overall Dia.		(mm)	1.33	1.32	1.13	0.91	0.98	0.81
Nominal impedance		(Ohm)	50	50	50	50	50	50
Voltage rating		Vrms Max.	300	300	300	300	300	300
Nominal static capacitance		(pF/m)	96	95	97	97	97	96
Insertion loss		dB/m at 1GHz	1.61	2.11	2.06	2	2.66	3.53
		dB/m at 2GHz	2.33	3.04	2.97	2.6	3.82	5.17
		dB/m at 2.4GHz	2.58	3.35	3.27	3.1	4.45	5.71
		dB/m at 3GHz	2.92	3.77	3.69	3.5	4.73	6.45
		dB/m at 5GHz	4.1	4.98	4.87	4	6.21	8.53
		dB/m at 6GHz	4.31	5.5	5.38	4.4	7.45	9.42

(data as provided by material suppliers, for reference only)

* #54 performs as well as RG178 (1.80mm OD) in a much smaller size, which works well for MCB's unique design; its RG178 alike structure, meanwhile, is process compatible for a wide variety of RF connector types.

Integrated Solution

MCB- single headed cable is typically integrated with another R/F connector for interconnection, say, from module board to panel or to antenna fitting. Sunridge is equally committed to both R/F cable assy customers and OEM's. Send your application requirement to *engineering@sunridgecorp.com* for a project evaluation.

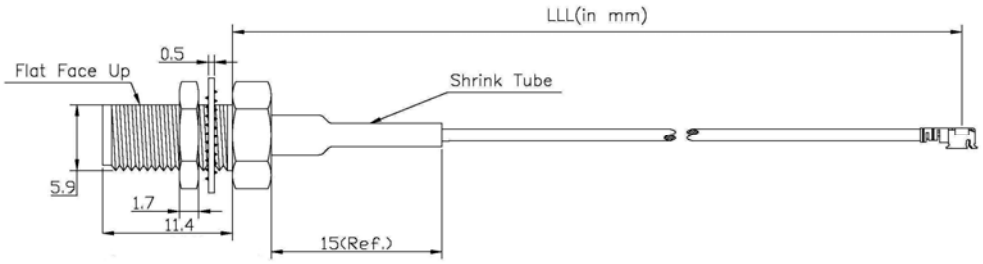


(dimension: mm)

MCB- Derivative Cable Assembly P/N Selector:

(Illustration of the most commonly used MCB-RF cable assy. A variety of other RF configurations is readily available at Sunridge Corp. Contact engineering@sunridgecorp.com for project inquiry.)

■ *MCB to SMA Bulkhead Jack (Panel Mount) Cable Assembly:*



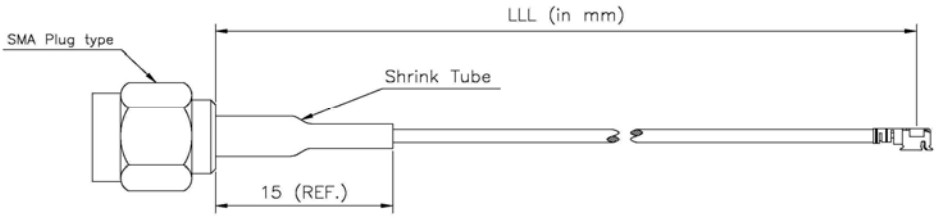
Range	Tolerance
50 < LLL < 100	± 2
100 < LLL < 200	± 3
300 < LLL < 300	± 5
300 < LLL < 500	± 10
500 < LLL < 1000	± 25
1000 < LLL	± 60

LLL: Length in mm. e.g., LLL = 200 means 200mm; LLL = 073 means 73mm

Descriptions	Recommended Cable	Sunridge P/N (MCB gold plated)
MCB to SMAJB	#54, 1.33 mm OD	MCBG-RH-54-LLL-SMAJB207
MCB to SMAJB Reverse Polarity (RP)	#54, 1.33 mm OD	MCBG-RH-54-LLL-SMAJB281
MCB to SMAJB with O-Ring Seal	#54, 1.33 mm OD	MCBG-RH-54-LLL-SMAJB209
MCB to SMAJB RP with O-ring Seal	#54, 1.33 mm OD	MCBG-RH-54-LLL-SMAJB283
MCB2 to SMAJB	#59, 1.13 mm OD	MCB2G-RH-59-LLL-SMAJB103
MCB2 to SMAJB Reverse Polarity (RP)	#59, 1.13 mm OD	MCB2G-RH-59-LLL-SMAJB181
MCB2 to SMAJB with O-Ring Seal	#59, 1.13 mm OD	MCB2G-RH-59-LLL-SMAJB105
MCB2 to SMAJB RP with O-ring Seal	#59, 1.13 mm OD	MCB2G-RH-59-LLL-SMAJB183

P/N Selection (referring to catalog P.2): For MCB silver-plated option, use MCB- or MCB2- prefix. For 2.5mm mated height, use MCBG (or MCB) prefix; for 2.0mm mated height application, use MCB2G (or MCB2) prefix.

■ *MCB to SMA Plug Cable Assembly:*



Range	Tolerance
50 < LLL < 100	± 2
100 < LLL < 200	± 3
300 < LLL < 300	± 5
300 < LLL < 500	± 10
500 < LLL < 1000	± 25
1000 < LLL	± 60

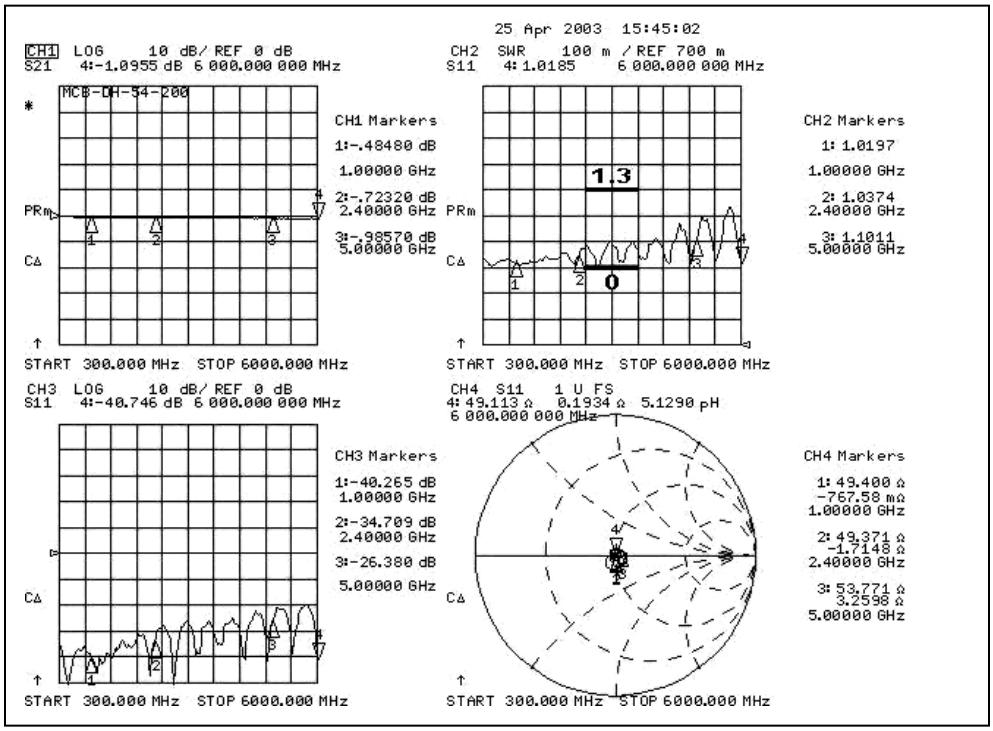
LLL: Length in mm. e.g., LLL = 200 means 200mm; LLL = 073 means 73mm

Descriptions	Recommended Cable	Sunridge P/N (MCB gold plated)
MCB to SMAP	#54, 1.33 mm OD	MCBG-RH-54-LLL-SMAP205
MCB to SMAP Reverse Polarity (RP)	#54, 1.33 mm OD	MCBG-RH-54-LLL-SMAP281
MCB2 to SMAP	#59, 1.13 mm OD	MCB2G-RH-59-LLL-SMAP103
MCB2 to SMAP Reverse Polarity (RP)	#59, 1.13 mm OD	MCB2G-RH-59-LLL-SMAP181

P/N Selection (referring to catalog P.2): For MCB silver-plated option, use MCB- or MCB2- prefix. For 2.5mm mated height, use MCBG (or MCB) prefix; for 2.0mm mated height application, use MCB2G (or MCB2) prefix.

Performance Measurement Reference:

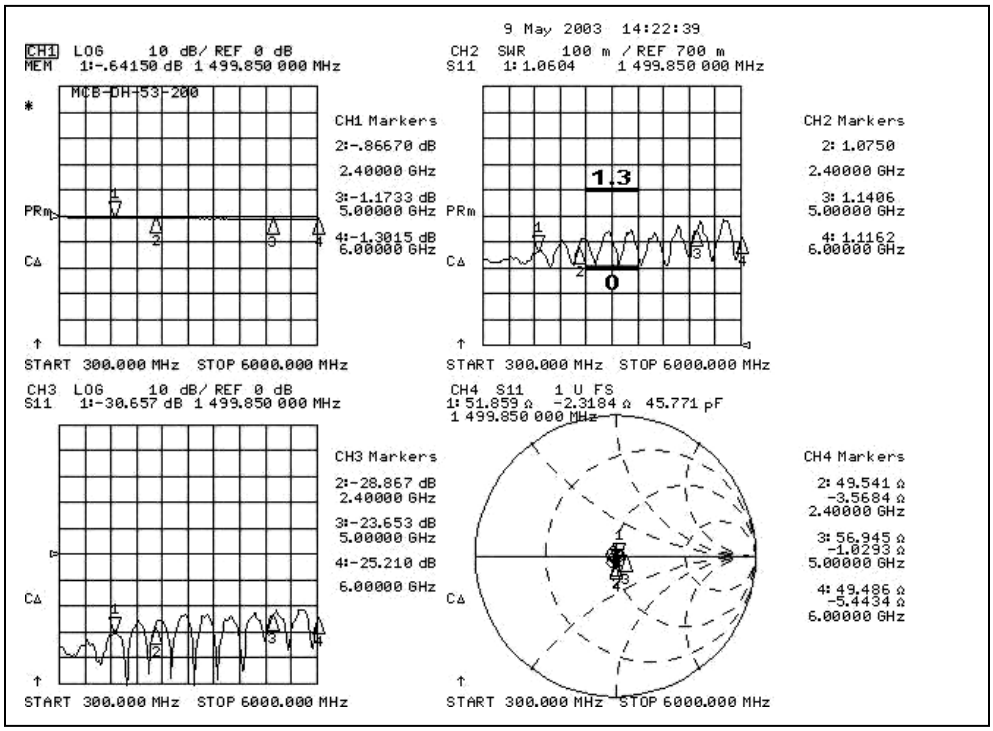
(Test sample: MCB dual head cable assy, 200mm; Test instrument: Agilent 8753ES network analyzer.)



MCB-DH-54-200

Length: 200mm
Cable Code: #54
OD: 1.33mm
Inner Conductor: 0.24mm
Dielectric: 0.88mm
Outer Conductor: 1.13mm
Jacket: 1.33mm

RG178 grade

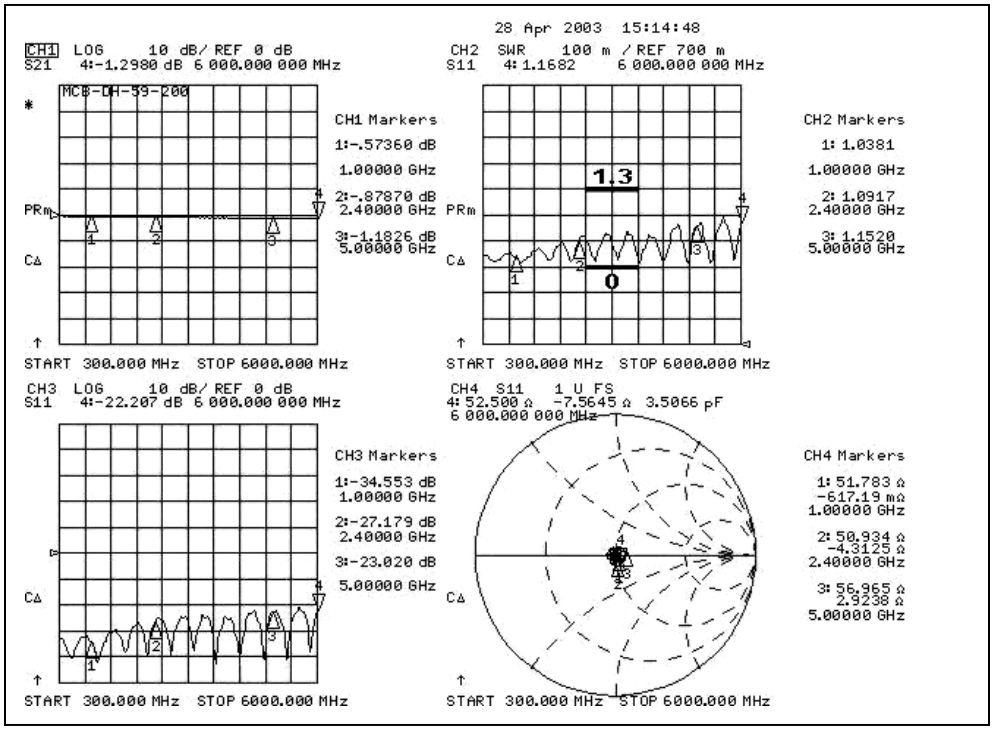


MCB-DH-53-200

Length: 200mm
Cable Code: #53
OD: 1.32mm
Inner Conductor: 0.24mm
Dielectric: 0.66mm
Outer Conductor:
1.12mm,double shielded
Jacket: 1.32mm

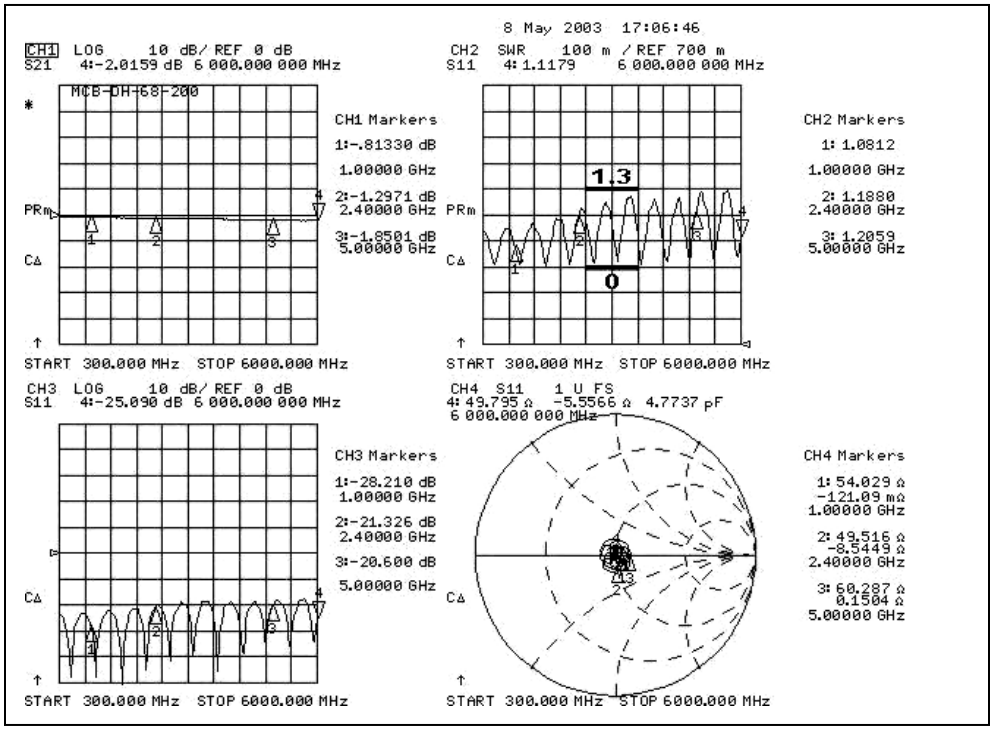
■ *Performance Measurement Reference:*

(Test sample: MCB dual head cable assy, 200mm; Test instrument: Agilent 8753ES network analyzer.)



MCB-DH-59-200

Length: 200mm
Cable Code: #59
OD: 1.13mm
Inner Conductor: 0.24mm
Dielectric: 0.68mm
Outer Conductor: 0.93mm
Jacket: 1.13mm

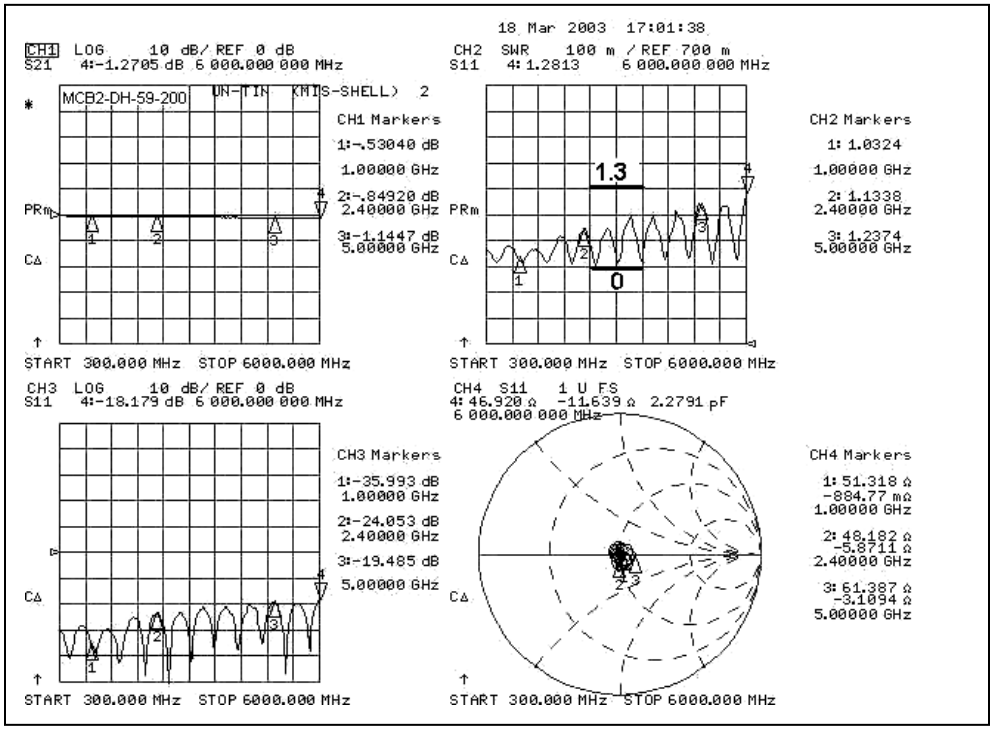


MCB-DH-68-200

Length: 200mm
Cable Code: #68
OD: 0.81mm
Inner Conductor: 0.15mm
Dielectric: 0.40mm
Outer Conductor: 0.65mm
Jacket: 0.81mm

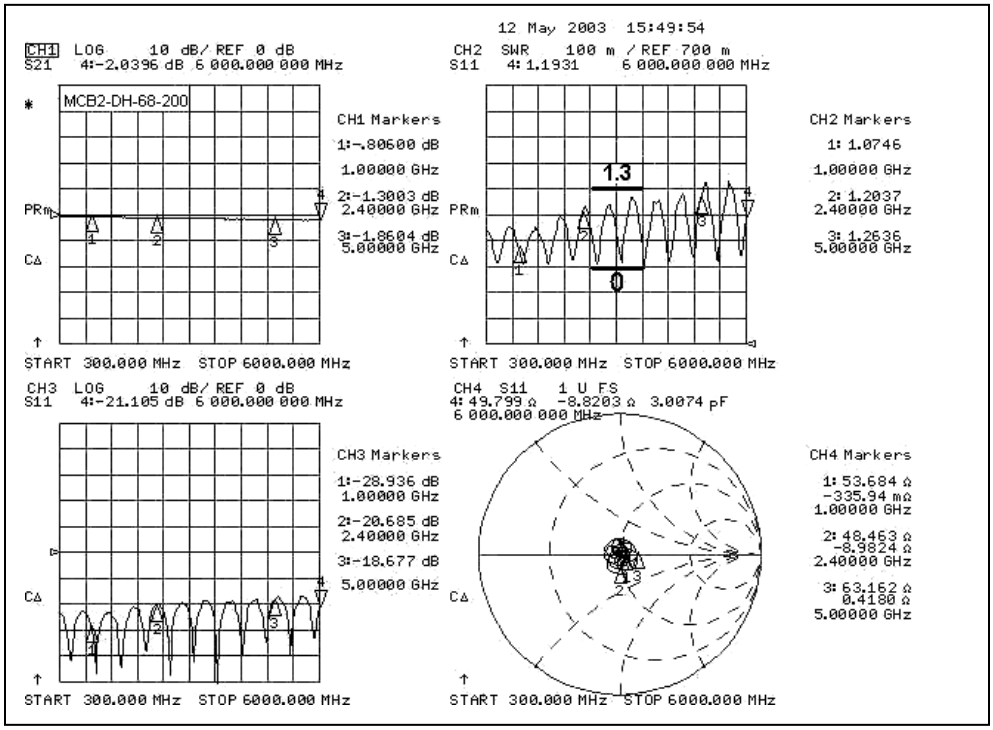
■ *Performance Measurement Reference:*

(Test sample: MCB2 dual head cable assy, 200mm; Test instrument: Agilent 8753ES network analyzer.)



MCB2-DH-59-200

Length: 200mm
Cable Code: #59
OD: 1.13mm
Inner Conductor: 0.24mm
Dielectric: 0.68mm
Outer Conductor: 0.93mm
Jacket: 1.13mm



MCB2-DH-68-200

Length: 200mm
Cable Code: #68
OD: 0.81mm
Inner Conductor: 0.15mm
Dielectric: 0.40mm
Outer Conductor: 0.65mm
Jacket: 0.81mm

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