Summary of Construction Details
DCA-101

Coil Design:	W6733C Cross section design: Cu/Sc: 1.32 Inner, 1.83 Outer Inner: 30 strand, 19 turns, Outer: 36 strand, 26 turns
Cable Insulation:	1 mil Kapton, 48% overlap / fiberglass tape impregnated with EPON F185 B stage epoxy
Ramp Splice:	External ramp splices constrained by end collets
Coil End Parts:	Grouped end design, solid G10 end parts
Coil Wedges:	All are symmetrical. Inner lower & inner middle wedges are identical.
Collar Design:	FNAL Option "A"; shimless design; 1.5mm thick stamped laminations, Nitronic 40, 90 KSI
Collar Pack Assy.:	Alternating left-right, spot-welded lamination pairs, 6-inch long packs
Collaring Shoes:	0.015 inch thick brass collaring shoes
Yoke Design:	Vertically split, 1.5 mm stamped laminations
Yoke Modules:	Laminations assembled with stacking tubes into yoke modules, 11.3 feet in length. Monolithic yoke modules at ends.
Skin strain gages:	None.
Accelerometers:	Installed on cold mass cradle in the X and Y directions.
Strain Gage Collar Packs:	Two packs. Located at the positions of lowest and highest anticipated prestress.
End Force Gauges:	Bullet type strain gages. Four bullet gages are located on the return end of the magnet.
Voltage Taps:	50 taps on inner coils; 5 taps located on splices.
Spot Heaters:	Two spot heaters, located on the midplane of the lower inner coil.
Quench Heaters:	One located in each quadrant (4 total). Two are the baseline design and two are R&D heaters
End Wiring:	Auxiliary voltage tap terminal board, Low voltage instrumentation terminal board, ASST instrumentation board
Main Bus Assembly:	Located in upper bus slot in yoke. Connections are for counter-clockwise current flow.
Temperature Sensors:	Four sensors mounted in two collar packs, one pack near each end of magnet

SJ Dwyer 11/23/92

BNL CABLE TEST, RUN 2843 07 MAY 1991

ALSO GOOD FOR 3-I-00047

Cable I.D.	SSC-3-I-00044 (BEG)	
Critical current (7T, 4.22K)	10764	A
Crit.cur.density (7T, 4.22K)	1772	A/mm2
Cable resistance (295K)	19.4	uohms/cm
Cable resistance (10K)	.49	uohms/cm
Residual resistance ratio, RRR	40	
Copper:superconductor ratio	1.53	
Strand I.D.	IGC 819-822	
Strand crit.current (7T, 4.22K)	345	A
Strand crit.cur.density (7T, 4.22K)	1686	A/mm2
Strand n-value	35	
Strand Ic(5)/Ic(6) ratio	1.263	
Degradation, 1-Icable/(N.Istrand)	-3.9	%

Note: Degradation based on 4 wires, ref.1242. Same for cables 44-48.
Same cable sample for cables 44-47.

USED IN DCA101 inner
other INNER coil is from VQP (Spec Cu:SC = 1.32)

Cable Parameters

Coil section	Strands	Strand dia.	Cu/Sc
Lower Inner	30	0.808mm	1.32/1
Upper Inner	30	0.808mm	1.53/1
Outer	36	0.648mm	1.8/1

Mechanical Data

Coil Section	Coil Ser. #	Cable Ser. #	Mean Thkness. (mm) 1,2	Mean Width (mm) 1,3	Mean Keyst. Angle (deg) 1,4	Residual Twist (deg) 1
Upper Inner	DCAI-1001	SSC-3-I-47	1.4589	12.336	1.151	50
Upper Outer	DCAO-1001	SSC-4-S-43	1.1565	11.70534	1.014	60
Lower Inner	DCAI-1002	SSC-3-I-101	1.4589	12.336	1.151	50
Lower Outer	DCAO-1002	SSC-4-S-42	1.1565	11.70534	1.014	60

1 As measured by monitoring cable during mfg..
2 Design Value is 0.0574±0.0005 for inner cable & 0.0459±0.0005 for outer
3 Design value is 0.366±0.001 for inner & 0.383±0.001 for outer
4 Design value is 1.6±0.15 for inner & 1.2±0.15 for outer

Electrical Data

Cable Ser. #	B(T)	Ic(A) 1	Jc(A/mm) 1	R(295)	R(10)
DCAI-1001					
DCAO-1001					
DCAI-1002					
DCAO-1002					

1 Values @ 4.22K

From: SMTP%"cubs@grumpy.ssc.gov" 7-JUN-1993 16:55:58.23
To: JCT
CC:
Subj: latest DCA101-02 data

Date: Mon, 7 Jun 93 16:51:37 CDT
From: cubs@grumpy.ssc.gov (Barney Horton)
Message-Id: <9306072151.AA00642@grumpy.ssc.gov>
To: jct@sscvx1.ssc.gov
Subject: latest DCA101-02 data

Included is the latest cable property data for DCA101 and DCA102.

Jun 7 1993 Cable Properties

Magnet : DCA101

Cable Parameters

	Strands	Strand dia.	Cu/Sc
Lower Inner	30	0.808mm	1.32/1
Upper Inner	30	0.808mm	1.53/1
Outer	36	0.648mm	1.8/1

Mechanical Data

coil	pos	cable	Mean Thick (mm)	Mean Width (mm)	Mean Keyst. (deg)
DCAI-1001	IU	SSC-3-I-00047	1.456	12.387	1.133
DCAI-1002	IL	SSC-3-I-00101	1.459	12.336	1.151
DCAO-1001	OU	SSC-4-S-00043	1.157	11.705	1.014
DCAO-1002	OL	SSC-4-S-00042	1.157	11.705	1.014

Electrical Data

cable_spool	mag_field	cb_ic	cb_jc	cb_r295	cb_r10	cb_rrr
SSC-3-I-00101						
SSC-3-I-00047	5.00	18446	3037	19.40	0.49	40
	5.60	16142	2657	19.40	0.49	40
	6.00	14605	2404	19.40	0.49	40
	7.00	10764	1772	19.40	0.49	40
SSC-4-S-00042	5.60	10010	2359	23.40	0.58	40
SSC-4-S-00043	5.60	10169	2387	23.50	0.60	39

End of Report

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Jun 7 1993 Cable Properties

Magnet : DCA102

Cable Parameters

	Strands	Strand dia.	Cu/Sc
Inner	30	0.808mm	1.32/1
Outer	36	0.648mm	1.8/1

Mechanical Data

coil	pos	cable	Mean Thick (mm)	Mean Width (mm)	Mean Keyst (deg)
DCAI-1003	IU	SSC-3-I-OPR4	1.458	12.363	1.217

DCAI-1004	IL	SSC-3-I-OPR4	1.458	12.363	1.217
DCAO-1004	OU	SSC-4-K-00101	1.155	11.707	1.017
DCAO-1005	OL	SSC-4-K-00104	1.155	11.707	1.017

Electrical Data

cable_spool	mag_field	cb_ic	cb_jc	cb_r295	cb_r10	cb_rrr
SSC-3-I-OPR4						
SSC-4-K-00104						
SSC-4-K-00101						

End of Report