

Plastic Material UL Report; A765A; Ch-Mei
Used in DBA-SSMA Antenna

Flame Retardant						High Heat		
PA-769	PA-766	PA-765	PA-765A	PA-765B	PA-764	PA-777B	PA-777D	PA-777E
390 (5530)	370 (5250)	390 (5530)	400 (5670)	400 (5670)	370 (5250)	430 (6100)	440 (6240)	440 (6240)
25	30	15	15	25	15	15	15	10
2.1 (3.0)	2.0 (2.8)	2.1 (3.0)	2.3 (3.2)	2.4 (3.4)	2.0 (2.8)	2.4 (3.4)	2.5 (3.5)	2.5 (3.5)
620 (8800)	590 (8360)	620 (8800)	640 (9070)	650 (9200)	590 (8360)	700 (9920)	750 (10630)	750 (10630)
R-98	R-95	R-100	R-100	R-102	R-96	R-112	R-115	R-115
21 (3.8)	23 (4.3)	20 (3.7)	21 (3.8)	24 (4.4)	14 (2.6)	23 (4.3)	17 (3.2)	12 (2.2)
16 (2.9)	21 (3.9)	16 (2.9)	17 (3.1)	20 (3.7)	12 (2.2)	20 (3.7)	14 (2.6)	11 (2.0)
96 (208)	98 (214)	90 (194)	92 (197)	95 (203)	97 (208)	115 (239)	125 (257)	129 (264)
88(190) 78(172)	89(192) 81(178)	83(181) 73(165)	85(185) 76(169)	86(187) 79(174)	92(198) 79(174)	107(225) 97(206)	115(239) 105(221)	120(248) 109(228)
1.19	1.20	1.20	1.17	1.16	1.19	1.03	1.06	1.07
3.2	2.3	5.2	4.8	2.6	3.2	-	-	-
35	25	60	55	28	35	6.7	6.0	5.0
1/8" V-O	1/16" V-O	1/16" V-O 1/10" 5VA	1/12" V-O 1/10" 5VA	1/16" V-2 1/10" V-O 1/8" 5VA	1/16" V-O 1/10" 5VA	1/16" HB	1/16" HB	1/16" HB
F. R. Medium Impact	F. R. Medium Impact	F. R. High Flow	F. R. High Flow	F. R. Medium Impact	F. R. Weather Resistance	High Heat High Impact	Super High Heat	Super High Heat

Plastic Material UL Report; QMF22
 DMS Engineering Material
 Used in DBA-SSMA Antenna



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Melville - March 7, 2002

AIR MAIL

DSM Engineering Plastics
 Mr. M. C. de Vos
 DSM Engineering Plastics
 PO Box 604
 6160 AP Geleen
 The Netherlands

Our Reference: 02ME05192, E47960, QMF22, DO/3016P.

Subject: Component - Plastics; Grades EL550, EM550, EL630 and EM630 designated "Aritel".

NOTICE OF AUTHORIZATION TO APPLY THE UL MARK

We have completed our Engineering Investigation under the above file number and find the products comply with the applicable requirements.

This letter temporarily supplements the UL Follow-Up Services Inspection Procedure and your Component Recognition Listing Information Page. The ratings indicated on the table below are being assigned to the products.

Material Designation	Color	Min. thickness mm	UL94 Flame Class	R.T.I. °C		
				Elec	Mech with Insup	Mech w/o Insup
<i>Thermoplastic Elastomer (TPE), Polyester, designated "Aritel", furnished in the form of pellets</i>						
EL550, EM550	NC, BK	1.5	HB	50	50	50
EL630, EM630	NC, BK	1.5	HB	50	50	50

The material designations shown above will be used in the report and Recognition Card. If these are not accurate, please notify us of the correct material designations as soon as possible so that these documents will reflect the proper nomenclature.

This letter serves as authorization to apply the UL Recognized Marking and/or Recognized Component Mark to the above products which are constructed identically to grades EL550, EM550, EL630 and EM630, which were submitted to UL for this investigation. The UL records covering the materials will be in the Follow-Up Services Inspection Procedure, File E47960, Volume 1.

To provide the manufacturer with the intended authorization to use the UL Mark you, the Applicant, must send a copy of this Notice and all attached material to each manufacturing location covered by a UL Follow-Up Service Procedure.

A 100-year growth organization
 dedicated to public safety and
 committed to quality service



Dow Chemical Taiwan Ltd.

HSINCHU PLANT

EMERGE* 4800-10 Testing Report

Color: Natural

GMID: 170529

Lot No. QI05722508

Property	units	ASTM Test Method	Values
Mechanical			
Tensile Strength	Mpa	D 638	62
Flexural Modulus	Mpa	D 790	2247
Izod Impact Strength			
Notched 23°C, 3.2mm	J/M	D 256	848
Melt Flow Rate			
(300°C/1.2kg)	g/10min	D1238	10.5
Heat Deflection Temperature			
264 psi (3.2mm)	°C	D 648	126
Flame Class Rating	(1.6mm)	UL-94	V-0

Signed

James Chen
P. Chen

*Trademark of Dow Chemical Taiwan Ltd.

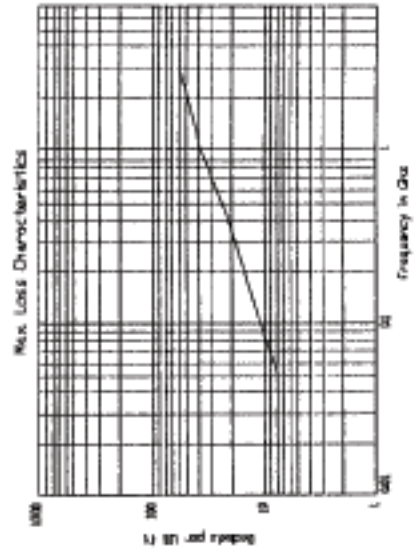
新竹縣湖口鄉新竹工業區仁政路17號.

No.17 Ren Jen Road, Hsinchu Industrial Park, Hukou Hsinchu 303 Taiwan.

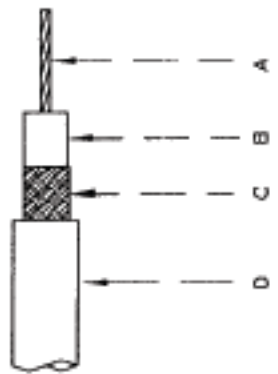
TEL: 886-3-5978599 FAX: 886-3-5985865

Coaxial Cable Assembling Specification: M17/113-RG4316; Harbor 27478

Rev	Change	Date
A	Corrected Cut-off Freq.	11/13/01



.05 GHz	7.5 dB
.1 GHz	11 dB
.4 GHz	21 dB
1 GHz	38 dB
3 GHz	58 dB



Construction:

- A) Center Conductor:
26 7/.0067 SPCW
OD .020" ± .001"
- B) Dielectric:
Extruded PTFE
OD .060" ± .003"
- C) Shield:
38 AWG SPC
OD .081" Max.
- D) Jacket:
FEP - Brown Tint
OD .098" ± .005"

Electricals:

- Impedance: 50 ± 2 Ohms
- Capacitance: 32 pF/ft Max.
- Velocity of Prop.: 59.5% Norm.
- Time Delay: 1.50 ns Max.
- Cut off Frequency: .65 GHz

Physical Properties:

- Weight per 1000 ft: 12.2 lbs max
- Minimum Bend Radius: .5"
- Operating Temperature Range: -55° C to +200° C

Surface Printed: M17/113-RG316 MIL-C-17 27478 HARBOUR INDUSTRIES*

Harbour Industries		Drawn By: Joann McVeigh
		Scale: None
		Approved By:
		Rev: A
Drawing Name: M17/113-RG316		Sheet 1 of 1
Part Number: J1108		Drawing Number: 032096_2

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Physical Characteristics
MIL-C17Type Coaxial Cable, QPL approved

M17 Number	Center Conductor	Dielectric	Dielectric O.D.	Shield	Jacket	Overall O.D.	Operating Temp°C	Weight (lbs./MFT)	Comments
M17/60-RG142	.037" SCCS	PTFE	.116"	SPC (2)	FEP	.195"	-55+200	43.0	
M17/93-RG178	.0120" (7/.004")SCCS	PTFE	.033"	SPC	FEP	.071"	-55+200	6.3	
M17/94-RG179	.0120" (7/.004")SCCS	PTFE	.063"	SPC	FEP	.100"	-55+200	10.8	
M17/110-RG302	.0253" SCCS	PTFE	.14"	SPC	FEP	.202"	-55+200	40.0	
M17/111-RG303	.037" SCCS	PTFE	.116"	SPC	FEP	.170"	-55+200	31.0	
M17/112-RG304	.059" SCCS	PTFE	.185"	SPC (2)	FEP	.280"	-55+200	94.0	QPL Approval Pending
M17/113-RG316	.0201" (7/.0067") SCCS	PTFE	.060"	SPC	FEP	.098"	-55+200	12.2	
M17/127-RG393	.094 (7/.0312")SPC	PTFE	.285"	SPC (2)	FEP	.390"	-55+200	165.0	
M17/128-RG400	.0384"(19/.008")SPC	PTFE	.116"	SPC (2)	FEP	.195"	-55+200	50.0	
M17/131-RG403	.012"(7/.004")SCCS	PTFE	.033"	SPC (2)	FEP (2)	.116"	-55+200	15.0	Triaxial M17/93-RG178
M17/152-0001	.0201"(7/.0067")SCCS	PTFE	.060"	SPC (2)	FEP	.114"	-55+200	18.5	Double Shielded RG316

RG Type Coaxial Cable, Non-QPL

RG174 /U	.0120" (7/.0067")TPC	PE	.060"	TPC	PVC	.110"	-40+85	9.0	
RG213 /U	.089"(7/.0296")BC	PE	.285"	BC	PVC	.405"	-40+85	111.0	
RG214 /U	.089"(7/.0296")SPC	PE	.285"	SPC (2)	PVC	.425"	-40+85	136.4	
RG223 /U	.034" SPC	PE	.117"	SPC (2)	PVC	.212"	-40+85	36.7	
RG178 /U-SF	.0120"(7/.004")TPC	PE irradi.	.033"	TPC	PVC	.017"	-40+85	5.8	
RG178 /U	.0120"(7/.004")SPC	FEP	.033"	SPC	FEP	.071"	-55+200	6.3	
RG179 B/U	.0120"(7/.004")SPC	FEP	.063"	SPC	FEP	.100"	-55+200	10.8	
RG316 /U	.0201"(7/.0067")SPC	FEP	.060"	SPC	FEP	.098"	-55+200	12.2	
RG142 B/U	.037" SPC	FEP	.116"	SPC (2)	FEP	.195"	-55+200	43.0	
RG400 /U	.0384"(19/.008")SPC	FEP	.116"	SPC (2)	FEP	.195"	-55+200	50.0	

Other type RG cables are available upon requested

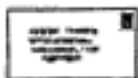
PTFE Tape Wrap Jacketed RG Cables :

RG187 A/U	.0120"(7/.004")SCCS	PTFE	.063"	SPC	PTFE	.100"	-55+250	9.0	250°C rated
RG18 A/U	.0201"(7/.0067")SCCS	PTFE	.060"	SPC	PTFE	.100"	-55+250	12.0	250°C rated
RG196 A/U	.0120"(7/.004")SCCS	PTFE	.034"	SPC	PTFE	.080"	-55+250	8.0	250°C rated

Coaxial Cable Electronic Characteristics For DBA-SSMA-01 Antenna

Electrical Characteristics

Type No.	Impedance (ohms)	Capaci. (pF/ft)	Working Voltage (Volts RMS)	Macimum Attenuation (db/100ft)@						Max Frequency (Ghz)
				100Mhz	400MHz	1Ghz	3Ghz	5Ghz	10Hgz	
M17/60-RG142	50+/- 2	29.4	1900	5.5	11.7	19.0	35.0	48.0	-	12.4
M17/93-RG178	50+/- 2	29.4	1000	16.0	33.0	52.0	4.0	-	-	3.0
M17/94-RG179	75+/- 3	19.4	1000	-	21.0	-	-	-	-	-
M17/110-RG302	75+/- 3	19.4	2300	-	8.0	-	26.0	-	-	-
M17/111-RG303	50+/- 2	29.4	1900	3.9	8.6	15.0	28.0	-	-	-
M17/112-RG304	50+/- 2	29.4	3000	2.7	6.4	11.1	22.0	30.0	37.0	8.0
M17/113-RG316	50+/- 2	29.4	1200	11.0	21.0	38.0	58.0	-	-	3.0
M17/127-RG393	50+/- 2	29.4	2500	2.4	5.0	8.8	18.0	24.6	37.0	11.0
M17/128-RG400	50+/- 2	29.4	1900	4.5	10.5	17.0	38.0	50.0	78.0	12.0
M17/131-RG403	50+/- 2	29.4	1000	-	37.0	-	-	-	-	10.0
M17/152-00001	50+/- 2	29.4	1200	11.5	24.0	40.0	75.0	110.0	170.0	12.0
RG174 /U	50+/- 2	30.8	1200	11.0	21.0	38.0	58.0	-	-	3.0
RG213 /U	50+/- 2	30.8	2500	2.1	5.0	8.8	18.0	-	-	-
RG214 /U	50+/- 2	30.8	2500	2.1	5.0	8.8	16.0	-	-	-
RG223 /U	50+/- 2	30.8	1900	4.9	11.0	18.0	39.5	-	-	-
RG178 / U-SF	50+/- 2	30.8	1000	16.0	33.0	52.0	94.0	-	-	3.0
RG178/U	50+/- 2	29.4	1000	16.0	33.0	52.0	94.0	-	-	3.0
RG179 B/U	75+/- 2	19.4	1000	-	21.0	-	-	-	-	-
RG316 /U	50+/- 2	29.4	1200	11.0	21.0	38.0	58.0	-	-	3.0
RG142 B/U	50+/- 2	29.4	1900	5.5	11.7	19.0	35.0	-	-	-
RG400/U	50+/- 2	29.4	1900	4.5	10.5	17.0	38.0	-	-	-
PTFE Tape Wrap Jacketed RG Cables :										
RG187 A/U	75+/- 3	19.4	1200	-	21.0	-	-	-	-	3.0
RG188 A/U	50+/- 2	29.4	1200	11.0	21.0	38.0	58.0	-	-	3.0
RG196 A/U	50+/- 2	29.4	1000	-	21.0	-	-	-	-	-



Buyers Inquiry

Raison Enterprise Co., Ltd.

1F, No. 2-2 Alley 3, Lane 387, Nei-Hou Rd., Sec. 1, Taipei, Taiwan, R.O.C.

TEL: 886-2-26590060 FAX: 886-2-27973715

(SALES OFFIC& MANUFACTURING FACILITY)

Commate International Co.(Canada)

49 Thatcher's Millway Markham, Ontario, L3P 3T2 FaX : (905) 472-2487