



RADIALL high Reliability SPACE QUALIFIED attenuators have been designed and are built to satisfy the stringent demands of space environment via intensive manufacturing and quality procedures, such as European Space Agency ESA / SCC.





1 - 2 WATTS DC - 22 GHz range :

This range of attenuators can be delivered :

- 1) ESA qualified products (ESA certificate N° 178). They can be supplied to different levels of tracability (B or C) and Lot Acceptance Tests (LAT 1, 2 or 3) according to ESA generic specification ESCC3403 and detail specification ESCC3403005.

Cross references RADIALL / ESA

RADIALL P/N	ESCC P/N LEVEL B	Attenuation value (dB)
R413 600 000	340300501B	0
R413 601 000	340300502B	0,5
R413 602 000	340300503B	1
R413 603 000	340300504B	1,5
R413 604 000	340300505B	2
R413 605 000	340300506B	2,5
R413 606 000	340300507B	3
R413 607 000	340300508B	3,5
R413 608 000	340300509B	4
R413 609 000	340300510B	4,5
R413 610 000	340300511B	5
R413 611 000	340300512B	5,5
R413 612 000	340300513B	6
R413 613 000	340300514B	6,5
R413 614 000	340300515B	7
R413 615 000	340300516B	7,5
R413 616 000	340300517B	8
R413 617 000	340300518B	8,5
R413 618 000	340300519B	9
R413 619 000	340300520B	9,5
R413 620 000	340300521B	10
R413 622 000	340300522B	11
R413 624 000	340300523B	12
R413 626 000	340300524B	13
R413 628 000	340300525B	14
R413 630 000	340300526B	15
R413 632 000	340300527B	16
R413 640 000	340300528B	17
R413 636 000	340300529B	18
R413 638 000	340300530B	19
R413 640 000	340300531B	20

RADIALL P/N	ESCC P/N LEVEL C	Attenuation value (dB)
R413 600 650	340300501C	0
R413 601 650	304300502C	0,5
R413 602 650	340300503C	1
R413 603 650	340300504C	1,5
R413 604 650	340300505C	2
R413 605 650	340300506C	2,5
R413 606 650	340300507C	3
R413 607 650	340300508C	3,5
R413 608 650	340300509C	4
R413 609 650	340300510C	4,5
R413 610 650	340300511C	5
R413 611 650	340300512C	5,5
R413 612 650	340300513C	6
R413 613 650	340300514C	6,5
R413 614 650	340300515C	7
R413 615 650	340300516C	7,5
R413 616 650	340300517C	8
R413 617 650	340300518C	8,5
R413 618 650	340300519C	9
R413 619 650	340300520C	9,5
R413 620 650	340300521C	10
R413 622 650	340300522C	11
R413 624 650	340300523C	12
R413 626 650	340300524C	13
R413 628 650	340300525C	14
R413 630 650	340300526C	15
R413 632 650	340300527C	16
R413 634 650	340300528C	17
R413 636 650	340300529C	18
R413 638 650	340300530C	19
R413 640 650	340300531C	20



2) RADIALL qualified products as High Reliability products according to RADIALL specification RAD-GEN-ATCH-001.

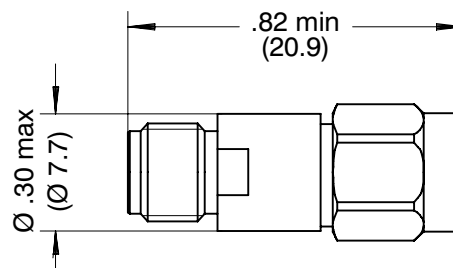
RADIALL P/N	RADIALL Specification	Attenuation value (dB)
R413 800 650	RAD-GEN-ATCH-001	0
R413 801 650	RAD-GEN-ATCH-001	0,5
R413 802 650	RAD-GEN-ATCH-001	1
R413 803 650	RAD-GEN-ATCH-001	1,5
R413 804 650	RAD-GEN-ATCH-001	2
R413 805 650	RAD-GEN-ATCH-001	2,5
R413 806 650	RAD-GEN-ATCH-001	3
R413 807 650	RAD-GEN-ATCH-001	3,5
R413 808 650	RAD-GEN-ATCH-001	4
R413 809 650	RAD-GEN-ATCH-001	4,5
R413 810 650	RAD-GEN-ATCH-001	5
R413 811 650	RAD-GEN-ATCH-001	5,5
R413 812 650	RAD-GEN-ATCH-001	6
R413 813 650	RAD-GEN-ATCH-001	6,5
R413 814 650	RAD-GEN-ATCH-001	7

RADIALL P/N	RADIALL Specification	Attenuation value (dB)
R413 815 650	RAD-GEN-ATCH-001	7,5
R413 816 650	RAD-GEN-ATCH-001	8
R413 817 650	RAD-GEN-ATCH-001	8,5
R413 818 650	RAD-GEN-ATCH-001	9
R413 819 650	RAD-GEN-ATCH-001	9,5
R413 820 650	RAD-GEN-ATCH-001	10
R413 822 650	RAD-GEN-ATCH-001	11
R413 824 650	RAD-GEN-ATCH-001	12
R413 826 650	RAD-GEN-ATCH-001	13
R413 828 650	RAD-GEN-ATCH-001	14
R413 830 650	RAD-GEN-ATCH-001	15
R413 832 650	RAD-GEN-ATCH-001	16
R413 834 650	RAD-GEN-ATCH-001	17
R413 836 650	RAD-GEN-ATCH-001	18
R413 838 650	RAD-GEN-ATCH-001	19
R413 840 650	RAD-GEN-ATCH-001	20

Microwave performances :

Same for all DC-22 GHz attenuators

Nominal Attenuation	Power (W)	Attenuation (dB)			VSWR max				
		DC	DC-18 GHz	18-22 GHz	DC-4GHz	4-8 GHz	8-12.4 GHz	12,4-18 GHz	18-22 GHz
0 to 6.5 dB / 0.5 dB step	2	+/- 0.15	+/- 0.30	+/- 0.40	1.15	1.20	1.25	1.35	1.50
7 to 10 dB / 0.5 dB step	2	+/- 0.20	+/- 0.40	+/- 0.50	1.15	1.20	1.25	1.35	1.50
11 to 14 / 1 dB step	1	+/- 0.20	+/- 0.40	+/- 0.50	1.15	1.20	1.25	1.35	1.50
15 to 20 dB / 1 dB step	1	+/-0.30	+/- 0.50	+/- 0.60	1.15	1.20	1.25	1.35	1.50



Weight : 5 g max.



1 WATT, DC - 40 GHz range :

This range of attenuators can be delivered :

- 1) ESA specification. They can be supplied with 3 levels of Lot Acceptance Tests (LAT 1, 2 or 3) according to ESA generic specification ESCC3403 and detail specification ESCC3403008.

Cross references RADIALL / ESA

RADIALL P/N	ESCC P/N LEVEL B	Attenuation value (dB)
R413 300 000	3403000801B	0
R413 301 000	3403000802B	0,5
R413 302 000	3403000803B	1
R413 303 000	3403000804B	1,5
R413 304 000	3403000805B	2
R413 305 000	3403000806B	2,5
R413 306 000	3403000807B	3
R413 307 000	3403000808B	3,5
R413 308 000	3403000809B	4
R413 309 000	3403000810B	4,5
R413 310 000	3403000811B	5

RADIALL P/N	ESCC P/N LEVEL B	Attenuation value (dB)
R413 311 600	3403000812B	5,5
R413 312 600	3403000812B	6
R413 313 600	3403000812B	6,5
R413 314 600	3403000812B	7
R413 315 600	3403000812B	7,5
R413 316 600	3403000812B	8
R413 317 600	3403000812B	8,5
R413 318 600	3403000812B	9
R413 319 600	3403000812B	9,5
R413 320 600	3403000812B	10

- 2) RADIALL qualified products as High Reliability products according to RADIALL specification RAD-GEN-ATCH-001

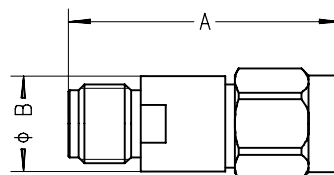
RADIALL P/N	RADIALL Specification	Attenuation value (dB)
R413 300 650	RAD-GEN-ATCH-001	0
R413 301 650	RAD-GEN-ATCH-001	0,5
R413 302 650	RAD-GEN-ATCH-001	1
R413 303 650	RAD-GEN-ATCH-001	1,5
R413 304 650	RAD-GEN-ATCH-001	2
R413 305 650	RAD-GEN-ATCH-001	2,5
R413 306 650	RAD-GEN-ATCH-001	3
R413 307 650	RAD-GEN-ATCH-001	3,5
R413 308 650	RAD-GEN-ATCH-001	4
R413 309 650	RAD-GEN-ATCH-001	4,5
R413 310 650	RAD-GEN-ATCH-001	5

RADIALL P/N	RADIALL Specification	Attenuation value (dB)
R413 311 650	RAD-GEN-ATCH-001	5.5
R413 312 650	RAD-GEN-ATCH-001	6
R413 313 650	RAD-GEN-ATCH-001	6.5
R413 314 650	RAD-GEN-ATCH-001	7
R413 315 650	RAD-GEN-ATCH-001	7.5
R413 316 650	RAD-GEN-ATCH-001	8
R413 317 650	RAD-GEN-ATCH-001	8.5
R413 318 650	RAD-GEN-ATCH-001	9
R413 319 650	RAD-GEN-ATCH-001	9.5
R413 320 650	RAD-GEN-ATCH-001	10

Microwave performances :

Same for all DC-40 GHz attenuators

Nominal Attenuation	Attenuation (dB)		VSWR max	
	DC-17.5 GHz	17.5-31.5 GHz	DC-17.5 GHz	17.5-31.5 GHz
0 to 10 dB / 0.5 dB step	+/- 0.80	+/- 0.50	1.50	1.50




A inch (mm)	B inch (mm)	Weight (g)
1.02" (25.9)	.28" (7.1)	7

PREFERRED PRODUCTS LIST MICROWAVE COMPONENTS :

Förderverein Für Elektrotechnische Normung eV
Cenelec Electronic Components Committee
Military Usage And Harmonisation
Advisory Group

CECC MUAHAG



TOME
VOLUME **12**
BAND

LISTE PREFERENTIELLE
DE
COMPOSANTS
ELECTRONIQUES

COMPOSANTS

Fixed attenuators (coaxial) - 2x50 Ω

Specification	Ident./ Generic Style	Manufacturer		Cat/ Qual.	Characteristics			Att. (dB)	Connector	Climate Category	Observations
		Country/Code	Part No.		F (GHz)	FEM					
						C.M.	Peak				
MCO315		FR/RAV	R41440X	S/WO	0-8	2-3		3-6-10-20-30-40	BNC w/f	55/125/21	
			R41450X	S/WO	0-12,4	1,3		3-6-10-20	TNC w/f	55/125/21	
			R41470X	S/WO	0-12,4	2-3		3-6-10-20-30-40	W w/f	55/125/21	
			R41440X	S/WO	0-2	2-3		3-6-10-20-30-40	BNC w/f	55/125/21	
			R41270X	S/WO	0-2	2-3		3-6-10-20-30	W w/f	55/125/21	
			R41100X119	S/WO	0-8	2-3,5		3-6-10-20	DNA w/f	55/125/21	
			R41100X	S/WO	0-15	2-3,5		3-6-10-20	DNA w/f	55/125/21	
			R41100X121	S/WO	0-10	2-3,5		3-6-10-20	DNA w/f	55/125/21	
			R41300X	S/WO	0-10	2		0...20	SW w/f	55/125/21	
			R41300X121	S/WO	0-20,5	2		3-6-10-20	W w/f	55/125/21	
			R41470X161	S/WO	0-10	2		3-6-10-20	TNC w/f	55/125/21	
			R41450X161	S/WO	0-10	2		3-6-10-20	DNA w/f	55/125/21	
			R41500X	S/WO	0-8	10-15		3-6-10-20	TNC w/f	55/125/21	
			R41600X	S/WO	0-10	10-15		3-6-10-20	W w/f	55/125/21	
			FR/RAV	R418035	S/WO	0-4		0-5	W w/f	55/125	10dB steps
		R418040	S/WO	0-4		0-25	W w/f	55/125	5dB steps		
		R418045	S/WO	0-4		0-50	W w/f	55/125	10dB steps		
		R418505	S/WO	0-12,4		0-5	W w/f	55/125	10dB steps		
		R418525	S/WO	0-12,4		0-25	W w/f	55/125	5dB steps		
		R418550	S/WO	0-12,4		0-50	W w/f	55/125	10dB steps		
		R419133	S/WO	2-12,4		0-20	DNA F	55/125	cont. linear		
		R419157	S/WO	2-12,4		0-40	W F	55/125	cont. linear		
		R419213	S/WO	7-10		0-20	DNA F	55/125	cont. linear		

MANUFACTURERS CODE NUMBERS

RADIALL, manufacturer code **F0503** and **F6507**, is a military qualified supplier of attenuators, as well as other microwave components, to various governmental agencies. RADIALL Quality Assurance is fully approved by NATO (AQAP4). The following is a partial listing of national stock numbers which RADIALL has provided to the French Ministry of Defence.

PART NUMBER	NATO CODE	PART NUMBER	NATO CODE	PART NUMBER	NATO CODE
R410 206 121	6625 14 362 7995	R411 808 121	5985 14 430 3219	R413 806 000	5905 14 331 9514
R410 210 121	5985 14 352 5879	R411 809 121	5985 14 430 3228	R413 810 000	5905 14 313 1341
R411 801 000	5985 14 358 7807	R411 810 000	5985 14 359 7617	R413 820 000	5905 14 313 1340
R411 801 121	5985 14 430 3220	R411 810 119	5985 14 402 9686	R414 420 000	5905 14 349 4471
R411 802 121	5985 14 430 3221	R411 820 119	5985 14 393 0810	R414 510 000	5905 14 294 1008
R411 803 000	5985 14 358 7809	R411 840 000	5985 14 397 9952	R414 520 000	5905 14 294 1009
R411 803 119	5905 14 448 7459	R412 403 000	6625 14 355 5454	R414 703 000	5905 14 296 7618
R411 803 121	5985 14 411 9628	R412 406 000	5905 14 342 1905	R414 705 000	5905 14 426 0687
R411 805 000	5985 14 397 2651	R412 410 000	5905 14 352 2604	R414 706 000	5905 14 300 2506
R411 805 121	5985 14 412 7040	R412 703 000	5905 14 356 2486	R414 710 000	5905 14 293 2779
R411 806 000	5985 14 369 5745	R412 706 000	5905 14 356 2487	R414 720 000	5905 14 290 5672
R411 806 119	5985 14 412 7044	R412 710 000	5905 14 334 7742	R414 730 000	5905 14 302 6074
R411 807 000	5985 14 452 1930	R412 720 000	5905 14 356 2488	R414 740 000	5905 14 300 2507
R411 807 121	5985 14 430 3222	R413 803 000	5905 14 341 4222	R418 045 000	5905 14 308 2807