RTTOV-8: Test Plan and resources used

This documentation was developed within the context of the EUMETSAT Satellite Application Facility on Numerical Weather Prediction (NWP SAF), under the Cooperation Agreement dated 25 November 1998, between EUMETSAT and the Met Office, UK, by one or more partners within the NWP SAF. The partners in the NWP SAF are the Met Office, ECMWF, KNMI and Météo France.

Change record			
Version	Date	Author / changed by	Remarks
1.0	11.1.04	R.W.Saunders	Version submitted to DFR
1.1	10.5.04	R.W.Saunders	Version submitted to DRI
1.2	1.6.04	R.W.Saunders	Additional tests included in response to DRI
1.3	19.8.04	R.W.Saunders	Resources (CPU etc) page added in response to DRI
1.4	8.10.04	R.W.Saunders	Updated RTTOV-8 to 8_5
1.5	2.11.04	R.W.Saunders	Updated resource table to reflect actual deliverable

RTTOV_8_5 TSTRAD tests for full gradient

Test number	Platform	Instrument	Satellite id	Pred-ictors	IR/MW	Emissivity calc.		Profile			Angle (deg)	Surface type	Overcast radiances
						IR	Fastem	Tropical	Artic	CLW			
1	noaa	hirs	15	7	IR	e = 1	-	-	x	-	45	sea	-
2	noaa	hirs	15	7	IR	ISEM	-	x	-	-	0	sea	-
3	noaa	hirs	15	8	IR	e = 1	-	-	x	-	45	sea	-
4	noaa	hirs	15	8	IR	ISEM	-	x	-	-	0	sea	-
5	noaa	hirs	15	7	IR	ISEM	-	-	x	-	60	sea	-
6	noaa	hirs	15	7	IR	ISEM	-	-	x	-	45	land	-
7	noaa	hirs	15	7	IR	ISEM	-	-	x	-	45	sea-ice	-
8	noaa	amsua	15	7	MW	-	e = 0.6	x		-	45	sea	-
9	noaa	amsua	15	7	MW	-	2	-	x	-	0	sea	-
10	noaa	amsua	15	7	MW	-	3	-	x	-	0	sea	-
11	noaa	amsua	15	7	MW	-	2	-	x	-	45	land	-
12	noaa	amsua	15	7	MW	-	3	-	x	-	45	land	-
13	noaa	amsua	15	7	MW	-	2	x		x	45	sea	-
14	noaa	msu	14	7	MW	-	3	x		-	45	sea	-
15	dmsp	ssmi	15	7	MW	-	3	x		-	55	sea	-
16	dmsp	ssmi	15	7	MW	-	2	x		-	55	sea	-
17	trmm	tmi	1	7	MW	-	2	x		-	55	sea	-
18	meteosat	mviri	7	7	IR	ISEM	-		x	-	60	sea	-
19	noaa	ssu	14	7	IR	-	-	-	x	-	60	sea	-
20	noaa	avhrr	14	7	IR	ISEM	-	-	x	-	60	sea	-
21	goes	imager	11	7	IR	ISEM	-	x		-	30	sea	-
22	goes	sounder	11	7	IR	ISEM	-	x		-	30	sea	-
23	noaa	amsub	15	7	MW	-	2	x		-	0	sea	-
24	noaa	amsub	16	7	MW	-	3	-	x	-	60	sea	-
25	msg	seviri	1	7	IR	ISEM	-	x		-	45	sea	-
26	eos	modis	1	7	IR	ISEM	-	x		-	30	sea	-
27	ers	atsr	2	7	IR	ISEM	-	x		-	55	sea	-
28	noaa	hirs	15	7	IR	e = 0.8	-	x		-	30	sea	y
29	eos	amsr	2	7	MW	-	2		x	-	55	sea	-
30	noaa	hirs	15	7	IR	e=0.8	-	x		-	30	sea	0.6/400[#]
31	noaa	amsua	15	7	MW	-	e = 0.5		x	-	30	sea	y
32	coriolis	windsat	1	7	MW	-	3		x	-	45	sea	-

The following tests are commented out in the script but if you plan to use AIRS you should download coeff file and run these tests													
33	eos	airs	2	7	IR	ISEM	-	x	-	-	30	sea	-
34	eos	airs	2	7	IR	ISEM	-	x	-	-	45	sea	y

Notes: x denotes profile selected - denotes not applicable # cloud cover/top pressure (hPa)

RTTOV-7 and 8 comparisons for computer resources

Resource	RTTOV-7	RTTOV_8_5 ASCII	RTTOV_8_5 BINARY
Disk space req (excl AIRS/IASI coeffs) Mbytes	86	66	66
Memory for AIRS (3 profiles 120 chans) Mbytes	87	17	11
CPU for direct code (3 profs 120 chans) msecs	169	170	141
CPU for K code (3 profs 120 chans) msecs (preprocessing is ignored for this time)	441	378	378

Platform used was SunOS 5.9 Generic sun4u sparc SUNW,Ultra-250
Compiler used: Fujitsu frt -Am -O2 -M .-Ad for Rttov71 in order to make use of double precision, Rttov8.5 is in double precision by use of Kind parameter.