Table G.1 – continued from previous page

Name	Ch.	Fig.	Description
Ch13F13	13	13.13	Position Centre of Gravity
Ch14F01	14	14.1	The Gaia focal plane
Ch14F02	14	14.2	The Gaia BP/RP response
Ch14F04	14	14.4	The Gaia BP/RP dispersion spectra

G.2   The science data

Table G.2. Summary of the catalogue tables. Column 1: File name; column 2: Folder; column 3: Record length; column 4: Number of records; column 5: File length in Kbytes; column 6: Description

1	2	3	4	5	6
MainCat.d	data/Catalogues	278	117 955	32 023	Main astrometric catalogue
MCIndex.d	data/Catalogues	27	117 955	3 111	Index for main catalogue
SevenPCat.d	data/Catalogues	130	1679	214	7-par.supplement
NinePCat.d	data/Catalogues	275	91	25	9-par.supplement
VIMCat.d	data/Catalogues	130	41	6	VIM supplement

G.2.1   The Astrometric Catalogue

The astrometric catalogues are provided in ASCII files of fixed record length. The summary information on these files is given in Table G.2. The astrometric catalogue is presented as a main catalogue with references to supplementary catalogues for complex solutions. These are the 7- and 9-parameter solutions and the VIM solutions. The solution type as implemented is given by $isol_n$. This parameter consists of two parts, as $isol_n = 10 * d + s$. The values for s are 5, 7, and 9 for the astrometric 5, 7 and 9 parameter solutions, 3 for VIM solutions, and 1 for stochastic solutions. A value of $s = 0$ is used when no new solution is available, and the published solution is presented instead. In the case of s equal to 3, 7 or 9, the variable "ic" provides the entry for the supplementary information in the relevant table, and is also found in Table G.4. Only when $s = 1$, the value of "var" will be non-zero, and a measure of the cosmic noise added to the solution. The value for "d" is zero for single stars, and starts with 1 for double stars. If there is a variable star in the system, with amplitude above 0.2 mag., "d" becomes 2. If the astrometry for the double system refers to the photo centre, 4 is added to "d", and if the measurements concern the secondary (fainter) star in a double system, 8 is added to "d". The solution type in the published catalogue is given by $isol_o$, and is equal to 0 for standard 5-parameter solutions, 1 for 7- or 9-parameter solutions, 2 for stochastic solutions, 3 for double and multiple stars, 4 for orbital binaries as resolved in the published catalogue, and 5 for VIM solutions. The upper triangular matrix U and its use in applying weights when combining data is explained in Appendix C. When 7- or 9- parameter solutions were applied, the first 15 elements, as defined in Eq. C.14, are given in the main catalogue file, remaining elements in the supplementary files.

Table G.3. Description of the contents of the astrometric catalogue. Notes: $isol_n$, $isol_o$ see text; ic: entry in the relevant table for supplementary information; VarAnn: 1 for periodic, 2 for unresolved variables, 0 for non-variables

Variable	Start	Type	Units	Notes
HIP	1	I6		Hipparcos identifier
$isol_n$	8	I3		Sol. type new reduction
$isol_o$	12	I1		Sol. type old reduction
ncomp	14	I1		Number of components
α	16	F13.10	rad.	Right Ascension in ICRS
δ	30	F13.10	rad.	Declination in ICRS
ϖ	44	F7.2	mas	Parallax
$\mu_{\alpha,*}$	52	F8.2	mas yr^{-1}	Proper motion in Right Ascension
μ_δ	61	F8.2	mas yr^{-1}	Proper motion in Declination
$\sigma_{\alpha*}$	70	F6.2	mas	Formal error on α
σ_δ	77	F6.2	mas	Formal error on δ
σ_ϖ	84	F6.2	mas	Formal error on ϖ
$\sigma_{\mu_{\alpha,*}}$	91	F6.2	mas yr^{-1}	Formal error on $\mu_{\alpha,*}$
σ_{μ_δ}	98	F6.2	mas yr^{-1}	Formal error on μ_δ
nobs	105	I3		Number of field transits used
gof	109	F5.2		Goodness of fit
prej	115	I2		Percentage rejected data
var	118	F6.1		Cosmic dispersion added
ic	125	I4		Entry in one of the suppl.catalogues
Hp	130	F7.4	mag.	Hp magnitude
ϵ(Hp)	138	F6.4	mag.	Error on mean Hp
σ(Hp)	145	F5.3	mag.	Scatter of Hp
VarAnn	151	I1		Reference to variability annex
V − B	153	F6.3	mag.	Colour index
σ(V − B)	160	F5.3	mag.	Formal error on colour index
V − I	166	F6.3	mag.	Colour index
$U_1 \ldots U_{15}$	172	15(1X,F6.2)		Upper-triangular weight matrix

Table G.4. Index table for the astrometric catalogues, giving record numbers for each Hipparcos entry

Param.	Start	Type	Note
HIP	1	I6	Hipparcos number
CM	8	I6	Main-catalogue entry
iol_n	15	I1	Solution type
ic	17	I4	Supplement-catalogue entry

Table G.5 presents the supplementary data for the 7-parameter solutions, the detection statistic, acceleration terms and formal errors, and the additional elements of the upper-triangular weight matrix U.

Table G.5. Description of the supplementary data provided for 7-parameter solutions.

Variable	Start	Type	Units	Notes
HIP	1	I6		Hipparcos identifier
Fg	8	F5.2		Detection statistic
$\dot{\mu}_{\alpha,*}$	14	F6.2	mas yr^{-2}	Acceleration in Right Ascension
$\dot{\mu}_\delta$	21	F6.2	mas yr^{-2}	Acceleration in Declination
$\sigma_{\dot{\mu}_{\alpha,*}}$	28	F5.2	mas yr^{-2}	Formal error on $\mu_{\alpha,*}$
$\sigma_{\dot{\mu}_\delta}$	34	F5.2	mas yr^{-2}	Formal error on μ_δ
$U_{16}\ldots U_{28}$	39	13(1X,F6.2)		Upper-triangular weight matrix

Table G.6. Description of the supplementary data provided for 9-parameter solutions.

Variable	Start	Type	Units	Notes
HIP	1	I6		Hipparcos identifier
Fg	8	F5.2		Detection statistic
$\dot{\mu}_{\alpha,*}$	14	F6.2	mas yr^{-2}	Acceleration in $\alpha*$
$\dot{\mu}_\delta$	21	F6.2	mas yr^{-2}	Acceleration in δ
$\ddot{\mu}_{\alpha,*}$	28	F6.2	mas yr^{-3}	Change in acceleration in $\alpha*$
$\ddot{\mu}_\delta$	35	F6.2	mas yr^{-3}	Change in acceleration in δ
$\sigma_{\dot{\mu}_{\alpha,*}}$	42	F5.2	mas yr^{-2}	Formal error on $\dot{\mu}_{\alpha,*}$
$\sigma_{\dot{\mu}_\delta}$	48	F5.2	mas yr^{-2}	Formal error on $\dot{\mu}_\delta$
$\sigma_{\ddot{\mu}_{\alpha,*}}$	54	F5.2	mas yr^{-3}	Formal error on $\ddot{\mu}_{\alpha,*}$
$\sigma_{\ddot{\mu}_\delta}$	60	F5.2	mas yr^{-3}	Formal error on $\ddot{\mu}_\delta$
$U_{16}\ldots U_{45}$	65	30(1X,F6.2)		Upper-triangular weight matrix

Table G.7. Description of the supplementary data provided for VIM solutions.

Variable	Start	Type	Units	Notes
HIP	1	I6		Hipparcos identifier
Fg	8	F5.2		Detection statistic
$v_{\alpha,*}$	14	F6.2	mas	Proper motion in Right Ascension
v_δ	21	F6.2	mas	Proper motion in Declination
$\sigma_{v_{\alpha,*}}$	28	F5.2	mas	Formal error on $v_{\alpha,*}$
σ_{v_δ}	34	F5.2	mas	Formal error on v_δ
$U_{16}\ldots U_{28}$	39	13(1X,F6.2)		Upper-triangular weight matrix

G.2.2   The Intermediate Astrometric Data

The intermediate data are stored in the folder *Intermediate data*, which itself contains two folders, *absrec* and *resrec*.

The intermediate astrometric data is presented in two ways. The simple ACSII format gives the basic information as defined by the final catalogue solution (in the *resrec* folder). The full format gives all information that was used to derive the final catalogue, i.e. the one-but-last iteration (number 14) and all the modulation, amplitude and supplementary information for