

```

%_mprintto;
options notes nosource;
proc datasets lib=work nolist memtype=data kill; quit;
%put NOTE:
=====;
%put NOTE: Covance Study Number : 000000106326;
%put NOTE: Client Protocol ID   : ZRHM-PK-05-JP;
%put NOTE: Program Name        : f_pkconc3.sas;
%put NOTE: Purpose              : Figure of plasma nicotine
concentrations Group-1;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADPC;
%put NOTE: Output               : f_15_1_2_2_1(pkconc);
%put NOTE: Macros Called        : _MPRINTTO;
%put NOTE: ;
%put NOTE: Programmed by        : cvn_jhardman;
%put NOTE: Creation Date        : 2014-06-06;
%put NOTE: SAS Version          : 9.3;
%put NOTE: ;
%put NOTE: == Latest Run
=====;
%put NOTE: Run by                : &sysuserid;
%put NOTE: Date/Time             :
%sysfunc(putn(%sysfunc(date()),e8601da.))T%sysfunc(putn(%sysfunc(time()),
e86011z.));
%put NOTE: ;
%put NOTE: == Modification History
=====;
%put NOTE: Date      Initials   No. Reason;
%put NOTE: 05Jun2014   JMH       1) Remove BLQ line as there are 2 BLQ
values;
%put NOTE: 05Jun2014   JMH       2) Amended so GMEAN isnt plotted for
BLQ values before 1st quantifiable value;
%put NOTE: 11Aug2014   JMH       3) Amended in line with formatting
updates to match PK-02;
%put NOTE: 13Aug2014   JMH       4) Added footnote and amended headers;
%put NOTE: 13Aug2014   JMH       5) Removed code which amended aval for
BLQ values;
%put NOTE: 22Sept14    CK        6) output excel files;
%put NOTE: 22Sept14    CK        7) move titles and footnotes aotside
graph area;
%put NOTE: 22Sep14     CK        8) use PACTTIME;
%put NOTE:
=====;
options notes source source2 nofullstimer validvarname=upcase missing='
';
ods _all_ close;
ods listing;

*=====;
* START OF PROGRAM CODE ;
*=====;

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/* Standard - just change the number to match the listing you're working
on. Also change the letters in the*/
/* bracket, eg ccb = current cigarette brands. Make sure to do this at
the top of the code too. */
%let tflno=F_15_01_02_02_01(pkconc);

/* Standard - leave this */
%let TFL_Part=%scan(&_SASPROGRAMFILE,-3,%str(/));

/* Standard - leave this */
data _null_;
    tmp="%TFL_Part";
    if tmp not in ("dev" "qc") then call symput("TFL_Part", "prod");
    call symput('TFLpath', compress("&_SASPROGRAMFILE",""));
run;

/* Example of basic GTL syntax */
ods _all_ close;
%let temp=/cvn/projects/prj/development/000000106326/dev/macro/;

/* Ensure ODS listing, html etc is turned off to prevent */
/* temporary or junk image files being produced */
options notes source source2 nofullstimer validvarname=upcase
nonumber nodate orientation=portrait papersize=&p_pgsz missing=' ';
ods graphics on; /* As we are effectively using ODS graphics we need to
ensure that it is turned on */
ods graphics / height=18cm width=18cm noborder noscale; /* Removes border
around the image */
ods path reset;
/* please include styles template */
%include "&temp.figtmpplt.sas";

ods rtf toc_data
file="/cvn/projects/prj/data/000000106326/TFL/&TFL_Part/&tflno..rtf"
style=t106326_g startpage=yes headery=1440 footery=1440 ;

ods exclude all;

proc sort data = adam.adpc(where=(analgr1 = "Group-1" and paramcd='NIC'
and pprotfl ='Y' and pcstat ne 'NOT DONE' and anl01fl='Y')) out = adpc;
    by param avalu trtan trta atptn atpt;
run;

data adpc1;
    set adpc;
    timeh=/*pnomtime*/ PACTIME/60; /* 8) CK 22Sept14 */
    if /*aval>0*/ DTYPE NE 'BLQZERO' and not missing(aval) then
logaval=aval; /* 5) JMH 13Aug2014 */
/* if avalc='BLQ' then logaval=.; */ /* 5) JMH 13Aug2014 */
/* IF AVALC='BLQ' AND ATPTN IN (1 20) THEN AVAL=.; */ /* 2) JMH
05Jun2014 */ /* 5) JMH 13Aug2014 */

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        IF TIMEH LT 0 THEN TIMEH=0; /* 8) CK 22Sep2014 */

run;

/*Use a proc summary to find the maximum value of the Y axis which needs
to be presented for the first plot*/
proc summary data=adpc1;
    by trtan trta;
    var aval;
    output out =axis1  max=max1;
run;

data maxaxis1;
    set axis1;
    max2=(ceil(max1))+5;
    max=round(max2,10.);

    keep trtan trta max max2 max1;
run;

data adpc2;
    merge adpc1 maxaxis1;
    by trtan trta;
run;

/* 6) START CK 22Sep2014 */
PROC SQL;
CREATE TABLE ADPC2A AS
SELECT USUBJID, PARAM, TRTA, TIMEH, AVAL, LOGAVAL
FROM ADPC1 ORDER BY TRTAN, USUBJID, TIMEH;
QUIT;

PROC EXPORT
DATA=ADPC2A
DBMS=XLSX
OUTFILE="/cvn/projects/prj/data/000000106326/TFL/&TFL_Part./&tflno..xlsx"
REPLACE;
SHEET=Sheet1;
/* 6) END CK 22Sep2014 */

title;
footnote;

proc sort data=adpc2; by trtan trta; run;

data paging; /* paging is derived normally as with RTF type TFL */

    set adpc2 end=last;
        by trtan trta;
    if first.trtan then ln=1;
    else ln+1;
    if ln=1 then page+1;
    if last then call symput("maxpage", compress(page));
    flag=1;

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run;
ods escapechar='|';

%macro graph();

%do i=1 %to &maxpage; /* paging can either be done through a do loop or
multiple macro calls */

    data plot;
        set paging;
        where page = &i;
        call symput("unit",strip(avalu));
                                call symput("prod",strip(trta));
                                call symput("max1",max);
    run;

proc template;
define statgraph splot /store = work.templat;

    begingraph / border=false ;
        /* 7) CK 22Sep14 */
/*      entrytitle halign=left "Figure 15.1.2.2.1 Nicotine Plasma
Concentration (ng/mL) Profiles for All Subjects - Group-1 PK Population";
*/
/*          entrytitle halign=left " "; */
/*          entrytitle halign=left "Product: &prod";*/ /* 4) JMH
13Aug2014 */

/*          entryfootnote halign=left " "; */
/*          entryfootnote halign=left "----- Lower limit of
quantification";*/ /* 1) JMH 05Jun2014 */

/*          entryfootnote halign=left "Note: mCC = Menthol conventional
cigarettes; THS = Tobacco Heating System.";*/ /* 3) JMH 11Aug2014 */
/*          entryfootnote halign=left "Note: [1] Nicotine
Plasma Concentration (&unit)"; */ /* 3) JMH 11Aug2014 */
/*          ENTRYFOOTNOTE HALIGN=LEFT "----- Lower
limit of quantification (0.2 ng/mL)"; */ /* 3) JMH 11Aug2014 */
/*          entryfootnote halign=left "Note: mCC = menthol conventional
cigarettes; THS = Tobacco Heating System."; */ /* 3) JMH 11Aug2014 */
/*          ENTRYFOOTNOTE HALIGN=LEFT "BLQ values at the end
of the profile have been set to missing"; */ /* 4) JMH 13Aug2014 */
/*          entryfootnote halign=left " "; */
/*          entryfootnote halign=left "Appendix 15.2.4.6, 15.3.3.2";*/
/*          ENTRYFOOTNOTE HALIGN=LEFT "Appendix 15.3.3.2"; */ /* 3) JMH
11Aug2014 */
/*          entryfootnote halign=left "Path: &TFLpath." halign=right "(Page
&i of &maxpage)"; */
/*          entryfootnote halign=left "Program Run: &sysdate  &sysuserid
Program Status: &status"; */

/* needs to be wrapped by an extra layout lattice to be able to set plots
side by side or one on top of the other */

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layout lattice / columns=1 rows=2 columngutter=2px
columnratarange=union rowdatarange=union;

cell;
/* 4) start JMH 13Aug2014 */
    CELLHEADER;
        ENTRY HALIGN=LEFT " ";
        ENTRY HALIGN=LEFT "Product: &prod.";
        ENTRY HALIGN=LEFT " ";
    ENDCELLHEADER;
/* 4) end JMH 13Aug2014 */
    layout overlay /

axisopts=(linearopts=(tickvaluesequence=(start=0 end=24
increment=4))                                label="Time post-
product (h)")
axisopts=(TICKVALUEATTRS=(SIZE=9PT)
linearopts=(tickvaluesequence=(start=0 end=60/*&max1*/ increment=10) /*
3) JMH 11Aug2014 */
viewmin=0
viewmax=60/*&max1*/) /* 3) JMH 11Aug2014 */
label="Nicotine
(&unit)" /*"Concentration (&unit) 1"/) /* 3) JMH 11Aug2014 */
cycleattrs=false;

/*                referenceline y=0.2 / lineattrs=(color=grey
pattern=shortdash) ;*/ /* 1) JMH 05Jun2014 */
REFERENCELINE
Y=0.2 / LINEATTRS=(PATTERN=SHORTDASH) ; /* 3) JMH 11Aug2014 */
/* Er-ror bars only available on scatterplot, overlay scatterplot
and seriesplot to get SE bars */
seriesplot x=timeh y=aval / primary=true
group=subjid lineattrs=(color=black pattern=solid);

endlayout;
endcell;

cell;
cellheader;
entry halign=left " ";
entry halign=left "Semi-logarithmic scale";
entry halign=left " ";
endcellheader;
layout overlay /

axisopts=(linearopts=(tickvaluefitpolicy=rotate
tickvaluesequence=(start=0 end=24 increment=4))
label="Time post-
product (h)")
```

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                                yaxisopts=(type=log logopts=(base=10
viewmin=0.1 viewmax=100 tickintervalstyle=logexpand)
                                label="Nicotine
(&unit)" /*"Concentration (&unit) 1"*/ TICKVALUEATTRS=(SIZE=9PT)) /* 3)
JMH 11Aug2014 */

                                cycleattrs=false;

/*                                referenceline y=0.2 / lineattrs=(color=grey
pattern=shortdash) ;*/ /* 1) JMH 05Jun2014 */

                                REFERENCELINE
Y=0.2 / LINEATTRS=(PATTERN=SHORTDASH) ; /* 3) JMH 11Aug2014 */
/* Er-ror bars only available on scatterplot, overlay scatterplot
and seriesplot to get SE bars */
                                seriesplot x=timeh y=logaval /primary=true
group=subjid lineattrs=(color=black pattern=solid);

                                endlayout;
                                endcell;
                                endlayout;

                                layout globalLegend / type=column title=" " border=false;
/*                                discretelegend "series"; */
                                endlayout;

                                endgraph;
                                end;
run;

ods select all;

/* 7) START CK 22Sep2014 */
ODS ESCAPECHAR='^';
ODS RTF PREPAGE="^S={outputwidth=100% just=l font_size=12pt
font_weight=bold background=white foreground=black
font_face=arial}^R/RTF'\QL' Figure 15.1.2.2.1 Nicotine Plasma
Concentration (ng/mL) Profiles for All Subjects - Group-1 PK Population";
/* 7) END CK 22Sep2014 */

proc sgrender data=plot template=splot; /* applies the above
template to the specified data */
run;

/* 7) START KB 22Sep2014 */
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL'";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL'----- Lower limit of
quantification (0.2 ng/mL)";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Note: mCC = menthol
conventional cigarettes; THS = Tobacco Heating System.";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' BLQ values at the end of the
profile have been set to missing";

```

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ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL'";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Appendix 15.3.3.2";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Path: &TFLpath.
(Page &i of &maxpage)";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Program Run: &sysdate
&sysuserid Program Status: &status";
/* 7) END KB 22Sep2014 */

ods exclude all;

%end;

%mend graph;

%graph;

proc printto;
run;

ods rtf close;
ods listing;
ods select all;

*=====;
* END OF PROGRAM CODE ;
*=====;

```