

```

%_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_pkconc2.sas;
%put NOTE: Purpose              : Figure of plasma nicotine
concentrations Group-2;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADPC;
%put NOTE: Output               : f_15_1_2_1_2(pkconc);
%put NOTE: Macros Called        : _MPRINTTO;
%put NOTE: ;
%put NOTE: Programmed by        : cvn_jhardman;
%put NOTE: Creation Date        : 2014-06-05;
%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)  Removed BLQ line because there are
2 BLQs;
%put NOTE: 05Jun2014   JMH       2)  Amended so GMEAN isnt plotted for
BLQ values;
%put NOTE: 11Aug2014   JMH       3)  Amended to be in line with PK-02
format;
%put NOTE: 13Aug2014   JMH       4)  Amended title;
%put NOTE: 13Aug2014   JMH       5)  Amended legend;
%put NOTE: 22Sep14     CK        6)  add excel output;
%put NOTE: 22Sep14     CK        7)  move title & footnotes outside graph;
%put NOTE:
=====;
options notes source source2 nofullstimer validvarname=upcase missing='
';
ods _all_ close;
ods listing;

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

/* 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_01_02(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-2" 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 gmean;
    set adpc;
    statval=aval;
    if statval>0 then ln_statval=log(statval);
    ELSE IF STATVAL=0 THEN FLAG=1; /* 2) JMH 05Jun2014 */
run;

proc sort data=gmean;
    by param avalu trtan trta pnomtime;
run;

```

```

/* 2) start JMH 05Jun2014 */
PROC MEANS DATA=GMEAN(WHERE=(FLAG=1)) NOPRINT;
  OUTPUT OUT=GMEAN1A(KEEP=PARAM AVALU TRTAN TRTA PNOMTIME FLAG)
MEAN=MEAN;
  VAR LN_STATVAL;
  BY PARAM AVALU TRTAN TRTA PNOMTIME FLAG;
RUN;
/* 2) end JMH 05Jun2014 */

proc means data=gmean alpha=0.05 noprint;
  output out=gmean1b mean=mean std=std1 lclm=lci1 uclm=uci1 nmiss=miss;
  var ln_statval;
  by param avalu trtan trta pnomtime;
run;

data gmean1c;
  /*set*/MERGE GMEAN1A gmean1b; /* 2) JMH 05Jun2014 */
  by param avalu trtan trta pnomtime ;
run;

data gmean2;
  set gmean1c;
  IF FLAG NE 1 THEN DO; /* 2) JMH 05Jun2014 */
    gmean=exp(mean);
    lclm=exp(lci1);
    uclm=exp(uci1);
  END;
  keep param avalu trtan trta gmean lclm uclm pnomtime miss;
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=gmean2;
  by param;
  var uclm;
  output out =axis1 max=max1;
run;

data maxaxis1;
  set axis1;
  max2=(ceil(max1));

  /*Use mod 2 to ensure axis limit is an even number so the increment
can be 2*/
  if mod(max2,2)=0 then max=max2;
  else if mod(max2,2)=1 then max=max2+1;

  keep param max;
run;

data pc01;
  merge gmean2 maxaxis1;
  by param;

```

```

        timeh=pnomtime/60;
run;

/* 6) START CK 22Sep2014 */
PROC SQL;
CREATE TABLE PC02 AS
SELECT PARAM, TRTA, TIMEH, GMEAN, LCLM, UCLM
FROM PC01;
QUIT;

PROC EXPORT
DATA=PC02
DBMS=XLSX
OUTFILE="/cvn/projects/prj/data/000000106326/TFL/&TFL_Part./&tflno..xlsx"
REPLACE;
SHEET=Sheet1;
/* 6) END CK 22Sep2014 */

title;
footnote;

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

        set pc01 end=last;
        page = 1;
        if last then call symput("maxpage", compress(page));

run;

%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("max1",max);
        run;

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

                        begingraph /;
                                /* 7) CK 22Sept14 */
/*                                entrytitle halign=left "Figure 15.1.2.1.2 Nicotine
Plasma Concentration (&unit) Profiles Geometric Mean ("&unicode "00B1"x}"
95% CI) - Group-2 PK Population" /;*/

```

```

/*          ENTRYTITLE HALIGN=LEFT "Figure 15.1.2.1.2 Nicotine
Plasma Concentration (&unit) Profiles Geometric Mean and 95% CI - Group-2
PK Population" ; */ /* 4) JMH 13Aug2014 */
/* footnotes work using the same option as the entrytitle
statement */
/*          entryfootnote halign=left " "; */
/*          entryfootnote halign=left "Note: [1] Nicotine Plasma
Concentration (ng/mL)"; */ /* 3) JMH 11Aug2014 */
/*          entryfootnote halign=left "Note: NRT gum = Nicotine
replacement therapy gum; THS = Tobacco Heating System."; */
/*          ENTRYFOOTNOTE HALIGN=LEFT
"----- Lower limit of quantification (0.2 ng/mL)"; */ /* 3) JMH
11Aug2014 */
/*          ENTRYFOOTNOTE HALIGN=LEFT "Note: NRT gum = Nicotine
Replacement Therapy gum; THS = Tobacco Heating System."; */ /* 3) JMH
11Aug2014 */
/*          entryfootnote halign=left " "; */
/*          entryfootnote halign=left "Appendix 15.2.4.6,
15.3.3.2"; */
/*          ENTRYFOOTNOTE HALIGN=LEFT "Appendix 15.2.4.6"; /* 3)
JMH 11Aug2014 */
/*          entryfootnote halign=left "Path: &TFLpath."
halign=right "(Page &i of &maxpage)"; */
/*          entryfootnote halign=left "Program Run: &sysdate
&sysuserid   Program Status: &status"; */

        layout lattice / columns=1 rows=2 columngutter=2px
columnndatarange=union rowndatarange=union;

        cell;
        layout overlay / border=false
xaxisopts=(linearopts=(tickvaluefitpolicy=rotate
tickvaluesequence=(start=0 end=24 increment=4)) label="Time post-product
(h)");

        yaxisopts=(TICKVALUEATTRS=(SIZE=9PT)
linearopts=(tickvaluesequence=(start=0 end=&max1 increment=2) viewmin=0
viewmax=&max1) label="Nicotine (&unit)" /*"Concentration (&unit) 1" */
labelattrs=(size=/*9*/10pt) cycleattrs=false; /* 3) JMH 11Aug2014 */
seriesplot x= timeh y=gmean / index=trtan
primary=true group=trta display=(markers) legendlabel="mean"
name=/*"series"*/ "SERIES1"; /* 5) JMH 13Aug2014 */
/*referenceline y=0.2 / ;*/ /*This is the BLOQ
value*/ /* 1) JMH 05Jun2014 */

                                REFERENCELINE
Y=0.2 / LINEATTRS=(PATTERN=SHORTDASH) ; /* 3) JMH 11Aug2014 */
scatterplot x= timeh y=gmean / index=trtan group=trta
yerrorlower=lclm yerrorupper=uclm
legendlabel="mean" name="scatter" ;
endlayout;
endcell;
cell;
cellheader;
entry halign=left " ";

```

```

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

    xaxisopts=(linearopts=(tickvaluefitpolicy=rotate

    tickvaluesequence=(start=0 end=24 increment=4))

    label="Time
post-product (h)")

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

    tickvalueattrs=(size=/*8*/9pt)) /* 3) JMH 11Aug2014 */

    cycleattrs=false;

    REFERENCELINE
Y=0.2 / LINEATTRS=(PATTERN=SHORTDASH) ; /* 3) JMH 11Aug2014 */
    seriesplot x= timeh y=gmean / index=trtan primary=true
group=trta display=(markers) legendlabel="mean" name="series";
    scatterplot x=timeh y=gmean / index=trtan
primary=true group=trta legendlabel="mean" name="series";
    endlayout;
    endcell;
    endlayout;

    layout globallegend / type=column title=" " border=false;
    discretelegend /*"series"*/ "SERIES1"; /* 5) JMH 13Aug2014
*/
    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 15.1.2.1.2 Nicotine Plasma
Concentration (&unit) Profiles Geometric Mean and 95% CI - Group-2 PK
Population";
/* 7) END CK 22Sep2014 */

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

/* 7) START CK 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: NRT gum = Nicotine
Replacement Therapy gum; 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'";
ODS RTF TEXT="^S={outputwidth=100% just=l font_size=9pt background=white
foreground=black font_face=arial}^R/RTF'\QL' Appendix 15.2.4.6";
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 CK 22Sep2014 */
%end;
%mend graph;
%graph;

PROC PRINTTO; RUN; /* 3) JMH 11Aug2014 */

ods exclude all;
ods _all_ close;
ods graphics / reset;

```