

```

%_mprintto;
options notes nosource;
proc datasets lib=work nolist memtype=data kill; quit;
%put NOTE:
=====;
%put NOTE: Covance Study Number : 000000106324;
%put NOTE: Client Protocol ID   : ZRHR-REXC-03-EU;
%put NOTE: Program Name        : t_filter.sas;
%put NOTE: Purpose              : table decriptive stats of of Filter
Analysis from the THS 2.2 Products - FAS ;
%put NOTE: ;
%put NOTE: Input Data           : ADAM.ADXT ADAM.ADDX ADAM.ADSL;
%put NOTE: Output               : t_15_2_4_62(filt);
%put NOTE: Macros Called        : _MPRINTTO;
%put NOTE: ;
%put NOTE: Programmed by        : cvn_jhardman;
%put NOTE: Creation Date        : 2014-07-31;
%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: 22Sep2014  KB         1) Amended product footnote;
%put NOTE: 22Sep2014  KB         2) Amended stats for quartiles to use
floor and ceil;
%put NOTE: 22Sep2014  KB         3) Amended warning in log;
%put NOTE: 22Sep2014  KB         4) Added footnote about cohorts;
%put NOTE: 22Sep2014  KB         5) Amended data presentation;
%put NOTE: 22Sep2014  KB         6) Amended stats;
%put NOTE: 22Sep2014  KB         7) Added ANL02FL to data selection;
%put NOTE: 22Sep2014  KB         8) Added in code to check for if result
is 0;
%put NOTE: 02Oct2014  JMH         9) Updated as per cleint comments;
%put NOTE: 03Oct2014  JMH        10) Updated where statement;
%put NOTE: 17Oct2014  JMH        11) Updated as per client comment;
%put NOTE: ;
%put NOTE:
=====;
options notes source source2 nofullstimer validvarname=upcase missing='
';
ods _all_ close;
ods listing;

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

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%let tflno=T_15_02_04_62(filt);

%let TFL_Part=%scan(&_SASPROGRAMFILE,-3,%str(/));

data _null_;
    tmp="&TFL_Part";
    if tmp not in ("dev" "qc") then call symput("TFL_Part", "prod");
    call symput('TFLpath', compress("&_SASPROGRAMFILE",""));
run;

*****;
* read in data ;
*****;

/*Use ADSL to get N values for column headers*/
data adsl;
    set adam.adsl(where=(fasfl='Y' and trt01a eq 'THS 2.2'));
run;

proc sort data=adsl nodupkey out=adsl1;
    by trt01an trt01a subjid;
run;

proc freq data=adsl1(where=(not missing(trt01an))) noprint;
    table trt01an*trt01a/ out =tot(drop=percent rename=(count=total));
run;

data tot2;
    set tot;
    trtan=trt01an;
    trta=trt01a;
    call symput('trt' || compress(put(trt01an,best.)),
compress(total));
    drop trt01an trt01a;
run;

/*Bring in appropriate data from ADXT*/
data adxt1;
/*    set adam.adxt(where=(fasfl ='Y' and parcat1 in ('Filter Analysis')
and paramcd in('FNMUVABS' 'FNICOF' 'FNICO' 'FABUVTAB')));*/
    set adam.adxt(where=(fasfl ='Y' and parcat1 in ('Filter Analysis')
and index(paramcd,'VOL')=0 AND XTSTAT NE 'NOT DONE'/*ANL02FL='Y'*/)); /*
7) KB 22Sep2014 */ /* 10) JMH 03Oct2014 */
    if trta ne 'THS 2.2' then delete;
run;

data adxt;
    set adxt1;
run;

data adxt_orig;
    set adxt;
    statval=aval;
    type='abs';

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run;

proc sort data=adxt_orig;
  by type paramn param trtan trta avisitn avisit;
run;

proc means data=adxt_orig noprint;
  var statval;
  by type paramn param trtan trta avisitn avisit;
  output out=results02 n=n1 mean=mean1 std=std1 median=median1 min=min1
max=max1 q1=q1 q3=q3 lclm=lci1 uclm=uci1;
run;

data results03;
  set results02;
  attrib meansd length=$30.
          minmax length=$30.
          n      length=$30.
          median length=$30.
          quart  aci length=$30.;

  n = left(compress(put(n1,8.)));
  * data has 4dp;
  if type='abs' then do;
    if not missing(median1) then median =
left(compress(put(round(median1,0.00001),10.5)));
    if not missing(mean1) and not missing(std1) then meansd =
left(compress(put(round(mean1,0.00001),10.5))) || ' (' ||
left(compress(put(0.000001*ceil(*std1/0.000001*/std1*1000000),10.6))) ||
')'; /* 6) KB 22Sep2014 */
    if not missing(min1) and not missing(max1) then minmax =
left(compress(put(round(min1,0.0001),10.4))) || ', ' ||
left(compress(put(round(max1,0.0001),10.4)));
    if not missing(lci1) and not missing(uci1) then aci =
strip(put(0.00001*floor(*lci1/0.00001*/LCI1/100000),10.5)) || ', ' ||
strip(put(0.00001*ceil(*uci1/0.00001*/UCI1*100000),10.5)); /* 6) KB
22Sep2014 */
/*    if not missing(q1) and not missing(q3) then quart =
strip(strip(put(round(q1,0.00001),10.5)) || ', ' ||
strip(put(round(q3,0.00001),10.5)));*/
    IF NOT MISSING(Q1) AND NOT MISSING(Q3) THEN QUART =
STRIP(PUT(0.00001*FLOOR(Q1*100000),10.5)) || ', ' ||
STRIP(PUT(0.00001*CEIL(Q3*100000),10.5)); /* 2) KB 22Sep2014 */
  end;

  drop n1 mean1 std1 median1 min1 max1 q1 q3 uci1 lci1 ;
run;

/*Obtain the geometric mean*/

data gmean;
  set adxt_orig(where=(type='abs'));
  statvall=statval;

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        if aval > 0 then ln_statvall=log(statvall);
        ELSE IF STATVAL=0 THEN GFLAG=1;    /* 8) KB 22Sep2014 */
run;

proc means data=gmean noprint;
    output out=gmean1 mean=mean std=std1 lclm=lci1 uclm=uci1 nmiss=miss;
    var ln_statvall;
    by paramn param trtan trta type avisitn avisit;
run;

/* 8) START KB 22Sep2014 */
PROC MEANS DATA=GMEAN(WHERE=(GFLAG=1)) NOPRINT;
    OUTPUT OUT=GMEAN1B MEAN=MEAN;
    VAR LN_STATVAL1;
    BY PARAMN PARAM TRTAN TRTA TYPE AVISITN AVISIT GFLAG;
RUN;

DATA GMEAN1C;
    MERGE GMEAN1 GMEAN1B;
    BY PARAMN PARAM TRTAN TRTA TYPE AVISITN AVISIT ;
RUN;
/* 8) END KB 22Sep2014 */

data gmean2;
    set /*gmean1*/GMEAN1C; /* 8) KB 22Sep2014 */
    IF GFLAG NE 1 THEN DO;    /* 8) KB 22Sep2014 */
        gmean1=exp(mean);
        gmean=left(compress(put(round(gmean1,0.00001),10.5)));
        gcv=compress(put(0.01*ceil((sqrt(exp(std1*std1)-
1)*100)/0.01),10.2));
        glci=exp(lci1);
        guci=exp(uci1);
        END; /* 8) KB 22Sep2014 */
    keep type paramn param trtan trta avisitn avisit gmean gcv glci guci
std1;
run;

/*Combine the Gmean and BLQ with other stats*/
proc sort data=results03;
    by paramn param trtan trta type avisitn avisit;
run;

data results04;
    merge results03 gmean2;
    attrib gmeancv length=$30.;
    by paramn param trtan trta type avisitn avisit;
    if not missing(gcv) then gmeancv=left(trim(gmean)) || ' (' ||
left(trim(gcv))||'%)';
    else gmeancv=left(trim(gmean));
/*    if not missing(glci) and not missing(guci) then ci =
strip(strip(put(0.00001*floor(glci/0.00001),10.5)) || ', ' ||
strip(put(0.00001*ceil(guci/0.00001),10.5))); */

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        IF NOT MISSING(GLCI) AND NOT MISSING(GUCI) THEN CI =
        STRIP(STRIP(PUT(0.00001*FLOOR(GLCI*100000),10.5)) || ', ' ||
        STRIP(PUT(0.00001*CEIL(GUCI*100000),10.5))); /* 6) KB 22Sep2014 */
run;

proc sort data=results04;
    by paramn trtan trta type avisitn avisit ;
run;

data results05;
    set results04;
    by paramn trtan trta type avisitn avisit;
run;

proc sort data=results05;
    by type paramn avisitn avisit ;
run;

proc transpose data=results05(where=(type='abs')) out=results06 prefix=r
name=varname;
    by paramn param avisitn avisit;
    var n median minmax quart gmeancv ci;
    id trtan;
    idlabel trta;
run;

proc sort data=results06; by paramn avisitn avisit varname; run;

data results07/* (WHERE=(INDEX(UPCASE(PARAM),'TOTAL OVER VISIT')))*/* /*
5) KB 22Sep2014 */ /* 9) JMH 02Oct2014 */
    set results06;
    by paramn avisitn avisit varname;
    attrib stat variable var2 length = $100.;
    varname=upcase(varname);

    variable=compbl(avisit);
        var2=param;

    if varname='N' then do;
        statord=1;
        stat='n (filters analysed)';
    end;
    else if varname='GMEANCV' then do;
        statord=3;
        stat='Geometric Mean (CV%)';
    end;
    else if varname='CI' then do;
        statord=4;
        stat='95% CI';
    end;
    else if varname='MEDIAN' then do;
        statord=5;
        stat='Median';
    end;

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else if varname='QUART' then do;
    statord=6;
    stat='Q25, Q75';
end;
else if varname='MINMAX' then do;
    statord=7;
    stat='Min, Max';
end;
drop varname;

/* 9) start JMH 02Oct2014 */
/*IF INDEX(UPCASE(PARAM),'TOTAL OVER VISIT') AND STATORD=1 THEN
DELETE;*/ /* 5) KB 22Sep2014 */
/*IF STATORD=1 THEN PARAM=STRIP(PARAM)||' '||STRIP('(total over
visit)');*/ /* 5) KB 22Sep2014 */
/* 9) end JMH 02Oct2014 */

IF PARAMN > 60 THEN PARAMN=PARAMN-34; /* 5) KB 22Sep2014 */
IF STATORD=1 THEN DO;
    R1N=INPUT(R1,BEST.); /* 9) JMH 02Oct2014 */
/*
    R1='';*/ /* 11) JMH 17Oct2014 */
END;
run;

/* 9) start JMH 02Oct2014 */
DATA RESULTS07_A;
SET RESULTS07(WHERE=(STATORD=1));

IF INDEX(UPCASE(PARAM),'TOTAL OVER VISIT') THEN DELETE;
PARAM=STRIP(PARAM)||' '||STRIP('(total over visit)');
T1N=R1N;
DROP R1;;
RUN;

PROC SORT DATA=RESULTS07; BY PARAMN PARAM AVISITN AVISIT STATORD STAT;
RUN;
PROC SORT DATA=RESULTS07_A; BY PARAMN PARAM AVISITN AVISIT STATORD STAT;
RUN;

DATA RESULTS07_B;
MERGE RESULTS07(WHERE=(INDEX(UPCASE(PARAM),'TOTAL OVER VISIT')))
IN=A) RESULTS07_A;
BY PARAMN PARAM AVISITN AVISIT STATORD STAT;
IF A;

/* 11) START JMH 17Oct2014 */

IF STATORD=1 THEN DO;
/*
    FILTS=T1N/R1N;*/
/*
    R1=STRIP(PUT(ROUND(FILTS,0.1),8.1));*/
R1=STRIP(PUT(T1N,BEST.)); /* 11) JMH 17Oct2014 */
END;

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/*      KEEP SUBS PARAM: AVISIT: VARIABLE VAR2;*/
/* 11) END JMH 17Oct2014 */
RUN;

/* 11) START JMH 17Oct2014 */
DATA RESULTS07_C;
    SET RESULTS07_B(WHERE=(STATORD=1));
    STATORD=2;
    STAT= 'n (subjects)';
    R1=STRIP(PUT(R1N,BEST.));
RUN;

DATA RESULTS07_D;
    SET RESULTS07_B RESULTS07_C;
RUN;
/* 11) END JMH 17Oct2014 */
/* 9) end JMH 02Oct2014 */

/*Bring in ADDX to get the number of products smoked*/
data addx;
    set adam.addx;
    where paramtyp='DERIVED' and avisitn gt 98;
    keep subjid: avisitn avisit aval;
run;

proc sort data=addx; by avisitn avisit; run;

proc means data=addx noprint;
    output out=addx1 sum=sum;
    var aval;
    by avisitn avisit;
run;

data prodsmoked;
    set addx1;
    attrib stat length = $100.
           r1 length = $30.
           AVISIT2 LENGTH=$10.; /* 3) KB 22Sep2014 */
    statord=0;
    stat='n (THS 2.2 product smoked)';
    r1=strip(put(sum,best.));
    AVISIT2=AVISIT; /* 3) KB 22Sep2014 */
    RENAME AVISIT2=AVISIT; /* 3) KB 22Sep2014 */
    DROP AVISIT; /* 3) KB 22Sep2014 */
    keep stat: avisit: r1;
run;

/*The number of product smoked variable needs creating for each visit for
every param*/
proc sort data=prodsmoked; by avisitn avisit; run;

proc sort data=/*results07*//*RESULTS07_B*/RESULTS07_D nodupkey
out=allparams(keep=paramn param avisitn avisit variable var2); /* 9) JMH
02Oct2014 */ /* 11) JMH 17Oct2014 */

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        by avisitn avisit paramn param ;
run;

data prodsmoked1;
    merge prodsmoked allparams;
    by avisitn avisit;
run;

/*Merge the number of products smoked back on to data by param and
visit*/
proc sort data=prodsmoked1; by paramn avisitn avisit; run;
proc sort data=/*results07*/*RESULTS07_B*/RESULTS07_D; by paramn
avisitn avisit statord; run; /* 9) JMH 02Oct2014 */ /* 11) JMH 17Oct2014
*/

data results08;
    merge /*results07*/*RESULTS07_B*/RESULTS07_D prodsmoked1; /* 9) JMH
02Oct2014 */ /* 11) JMH 17Oct2014 */
        by paramn avisitn avisit statord;
    if stat='n (filters analysed)' then do;
        * havent set changes to missing as not expected ;
        if missing(r1) then r1='0';
    end;
        flag=1;
run;

proc sort data=results08; by paramn avisitn statord; run;

proc sql noprint;
    create table table.T_15_02_04_62 as
    select param, avisit, stat, r1
    from results08
    order by paramn, avisitn, statord;
quit;

proc sort data=results08;
    by paramn avisitn statord;
run;

%macro outrtf(blankn=, halfblnk=);

%if &halfblnk=N %then %let halfblnk=;
%else %if &halfblnk=Y %then %let halfblnk=~;

data paging;
    set results08;
        by paramn avisitn statord;
    if first.avisitn and ln gt 8 then ln=1; /*Amend to look presentable,
and avoid page overflows*/
    else ln+1;

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        if ln=1 then page+1;
        call symput("page",compress(put(page,best.)));
run;

options number nodate orientation=landscape papersize=&p_pgsz missing='
';
ods escapechar='$';
%let linetop = \brdrt\brdrs\brdrw30; * needs to be 1.5pt so calculated
in twips (1/20 pt) ;
%let linebot = \brdrb\brdrs\brdrw30;

ods path stdlib.tl06324 (read) ;
ods results off;
ods rtf toc_data
file="/cvn/projects/prj/data/000000106324/TFL/&TFL_Part./&tflno..rtf"
style=tl06324 startpage=yes headery=1440 footery=1440 ;
ods noproctitle;

%do i=1 %to &page;

title ;
footnote;
%let wd=0;

data comp;
    set paging end=eof;
    where page=&i;

    /* Amend title as needed */
    _firtitl="Table 15.2.4.62 Descriptive Statistics of Filter Analysis
from the THS 2.2 Products - FAS";
    _upcas=(length("Path: &TFLpath.")-
length(compress("Path:&TFLpath.",'ABCDEFGHIJKLMNOPQRSTUVWXYZ')))/2;
    len=&blankn.-length("(page &i of &page)");
    if eof then do;
        call symput('_FSRTITL', trim(left(_firtitl)));
        call symput('_blankn', compress(put(len,best.)));
    end;

    drop _firtitl _upcas len;
run;

ods proclabel = ' ';
ods listing close;

* most set up in template others below;
* title arial 12pt bold with 12pt paragraph space below;
* all headers to be arial 11pt bold;
* data arial 10pt;
* headers to be central, text values left aligned and numeric centered
around decimal point;

```

```

proc report data = comp missing headline headskip missing nowd split =
'$' %if &i=1 %then %do; contents=' ' %end; %else %do; contents='' %end;;
    column flag page paramn ("Variable$(units)" param) avisitn
("Timepoint" avisit) statord ("Statistic" stat) ("THS 2.2$(N=&trtl)" r1)
;

    define flag          / order order = internal noprint;
    define page          / order order = internal noprint;
    define paramn        / order order = internal noprint;
    define avisitn       / order order = internal noprint;
    define statord       / order order = internal noprint;
    define param         / group style={just=left cellwidth=4cm}
style(header)={just=center} "" flow;
    define avisit        / group style={just=left cellwidth=1.5cm}
style(header)={just=center} "";
    define stat          / group style={just=left cellwidth=2.5cm}
style(header)={just=center} "";
    define r1            / display style={just=c cellwidth=2.5cm}
style(header)={just=center} "";

    break before flag / page %if &i=1 %then %do;
    contents="&_fsrtitl" %end; %else %do; contents='' %end;;

    break after page / page;

    compute after avisitn;
        line " ";
    endcomp;

    compute before page / style={protectspecialchars=off};
        line "&linetop";
    endcomp;

    compute before _page_ / style={just=left protectspecialchars=off};
        line "\b\fs24\sa24&_FSRTITL." ; * \b = bold, \fs24 is font
size 12pt, \sa24 is space after 12pt;
        line "&linebot";
    endcomp;

    compute after _page_ / style={just=left protectspecialchars=off
pretext="&linetop."};
/*          line 'Note: CC = Conventional cigarettes; SA = Smoking
abstinence; THS = Tobacco Heating System.'; */
        LINE 'Note: THS = Tobacco Heating System.'; /* 1) KB
22Sep2014 */
        line 'Note: Geometric: mean, CV% and 95% confidence interval
(CI) are reported.';
        LINE "Note: Cohorts 1 (subjects 1 - 64) and 2 (subjects 66 - 123)
had the full filter analyzed, the remaining subjects had the mouthpiece
analyzed."; /* 4) KB 22Sep2014 */
        line ' ';
        line 'Appendix 15.3.6.17';
        line "Path: &TFLpath." &_blankn.*"\~\~" "(Page &i of &page)";

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        line "Program Run: &sysdate   &sysuserid   Program Status:
&status";
        endcomp;
run;
%end;
ods rtf close;
ods results on;
ods path sashelp.tmplmst (read);

%mend ;

%outrtf(blankn=70, halfblnk=N);
ods listing;
proc printto print = "&table./T_15_02_04_62.lst" new;
run;

proc contents data = table.T_15_02_04_62 varnum;
run;
ods listing close;
proc printto ; run;
*=====;
* END OF PROGRAM CODE                               ;
*=====;

```