Observation flux NMEA

Première observation d’un flux NMEA, en provenance d’un GPS Garmin 152H et des instruments NKE Topline (non simultanément).

# Provenances :

Pour partie d’un GPS Garmin 152h observé à travers des instruments NKE Topline.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 🡪 |  | 🡪 |  |

Puis, du même GPS, observé seul.

|  |  |  |
| --- | --- | --- |
|  | 🡪 |  |

L’observation de l’horodatage incite à réaliser une nouvelle collecte, en s’assurant des informations de date du GPS au préalable.

# Echantillons

## GPS Garmin 152H

with garmin152(lNum, NmeaID, NmeaVal) as (

select FileLineNum, NmeaID, NmeaVal from nmeaValues where FileId = 5

)

select \* from garmin152

;

$GPRMC 193428,A,4729.9205,N,00222.6770,W,0.0,143.5,200917,2.9,W,D\*1C

$GPRMB A,,,,,,,,,,,,V,D\*19

$GPGGA 193428,4729.9205,N,00222.6770,W,2,11,1.0,-0.4,M,48.9,M,,\*79

$GPGSA A,3,05,07,08,13,15,20,21,24,28,30,37,,1.6,1.0,1.2\*31

$GPGSV 3,1,11,05,54,193,00,07,13,057,00,08,04,031,00,13,71,311,00\*7A

$GPGLL 4729.9205,N,00222.6770,W,193428,A,D\*57

$GPBOD ,T,,M,,\*47

$GPVTG 143.5,T,146.4,M,0.0,N,0.0,K\*4A

$GPRTE 1,1,c,\*37

…/…

## Echantillon via NKE Topline et interface NMEA filaire

with nke(lNum, NmeaID, NmeaVal) as (

select FileLineNum, NmeaID, NmeaVal from nmeaValues where FileId = 3

)

select \* from nke where lNum > 984 and lNum < 1001 order by NmeaID;

$IIDBT 0017.8,f,0005.4,M,,\*76

$IIDPT 0005.4,,\*73

$IIGLL 4728.429,N,00247.311,W,125410,A,A\*45

$IIHDG 275.,,,,\*79

$IIHDM 274.,M\*13

$IIMTA 20.5,C\*02

$IIMTW 18.5,C\*1F

$IIMWD ,,214.,M,05.3,N,02.7,M\*0A

$IIMWV 319,R,07.1,N,A\*1E

$IIVHW ,,275.,M,02.76,N,05.11,K\*19

$IIVLW 0093.0,N,093.88,N\*4D

$IIVTG 285.,T,,M,03.1,N,05.8,K,A\*2A

$IIVWR 041.,L,07.1,N,03.7,M,013.1,K\*63

$IIVWT 061.,L,05.3,N,02.7,M,009.8,K\*64

$IIZDA 125410,07,07,2017,,\*58

…/…

# Premières observations

Seules les phrases NMEA GLL et VTG sont propagées directement par l’interface NMEA filaire NKE. L’interface les manipulent pour

Les coordonnées latitude/longitude GLL sont arrondies à la 3éme décimales 🡪 Rappel : 1 seconde d’arc représente à peu près une trentaine de mètres sur l’équateur, 22 mètres à 45° (Bordeaux)

Le cap calculé de VTG est arrondi à la valeur entière (suppression des décimales)

Le cap calculé avec la déclinaison magnétique de VTG est supprimé. (Il était faux, 0.8° en réalité à cet endroit, les éphémérides du GPS ne sont probablement pas à jour)

La phrase ZDA, qui est une horodatage comporte une date fausse !  
L’enregistrement à été réalisé le 22 septembre, l’horodatage reflète le 7 juillet !  
$IIZDA 125410,**07,07**,2017,,\*58

Le doute est sur l’origine de cette défaillance : Le GPS génère-t-il une date fausse (pb d’éphémérides pas à jour) , ou bien l’interface NKE n’est pas (plus) capable de gérer –en 2017- une date correctement ?

## Format latitude/longitude

Rappelons que le format des latitudes et longitudes en NMEA peut être abrégé en (d)ddmm.mmmm

Soit :

* (d)dd, les degrés sur 2 ou 3 chiffres
* mm.mmmm les minutes, en représentation décimales

4728.429,N 🡪 47° 28.429 minutes

00247.313,W 🡪 2° 47.313 minutes

## 3 ou 4 décimales ?

* La valeur 0.001 représente 3.6 secondes, soit 60/65 mètres sur l’équateur.
* La donnée en provenance du GPS, avec 4 décimales en représente le dixième, soit 6 / 7 mètres.

# Le NMEA généré par NKE

Pour l’interface *filaire* NMEA output (ref. 90-60-357)

#### Vitesse surface et cap compas :

**$IIVHW,x .x,T,x.x,M,x.x,N,x.x,K\*hh ✓**

I I I I I I I\_\_I\_Vitesse surface en km/hr

I I I I I\_\_I\_Vitesse surface en noeuds

I I I\_\_I\_Cap compas magnétique

I\_\_I\_Cap compas vrai

$IIVHW ,,271.,M,01.32,N,02.45,K\*18

#### Loch total et Loch journalier :

**$IIVLW,x.x,N,x.x,N\*hh ✓**

I I I\_\_I\_Loch journalier en milles

I\_\_I\_Loch total en milles

$IIVLW 0093.0,N,093.96,N\*42

#### Profondeur :

**$IIDPT,x.x,x.x,,\*hh ✓**

~~I I\_Offset sondeur, >0 = distance transducteur surface, >0 = distance transducteur quille.~~

I\_Distance transducteur fond

**$IIDBT,x.x,f,x.x,M,,\*hh ✓**

I I I\_\_I\_Profondeur en mètres

I\_ I\_Profondeur en pieds

$IIDPT 0007.8,,\*7D

$IIDBT 0102.2,f,0031.2,M,,\*78

#### Température de l’eau :

**$IIMTW,x.x,C\*hh ✓**

I\_\_I\_Température en degrés C

$IIMTW 19.7,C\*1C

#### Angle et vitesse vent apparent :

**$IIVWR,x.x,a,x.x,N,x.x,M,x.x,K\*hh ✓**

I I I I I I I\_\_I\_Vitesse vent en km/h

I I I I I\_\_I\_Vitesse vent en m/s

I I I\_\_I\_Vitesse vent en noeuds

I\_\_I\_Angle de vent apparent de 0° à 180°, L= bâbord, R=Tribord

$IIVWR 179.,R,01.6,N,00.8,M,003.0,K\*7A

$IIVWR 179.,L,04.0,N,02.1,M,007.4,K\*6C

#### Direction et vitesse vent réel :

**$IIMWD,x.x,T,x.x,M,x.x,N,x.x,M\*hh ✓**

I I I I I I I\_\_I\_Vitesse vent en m/s

I I I I I\_\_I\_ Vitesse vent en noeuds

I I I\_\_I\_Direction du vent de 0° à 359° magnétique

I\_\_I\_Direction du vent de 0° à 359° vrai

$IIMWD ,,214.,M,02.6,N,01.3,M\*0F

$IIMWD ,,213.,M,3276.6,N,1685.5,M\*07

$IIMWD ,,213.,M,06.4,N,03.3,M\*0C

#### Angle et vitesse vent réel :

**$IIVWT,x.x,a,x.x,N,x.x,M,x.x,K\*hh ✓**

I I I I I I I\_\_I\_Vitesse du vent en km/h

I I I I I\_\_I\_Vitesse du vent en m/s

I I I\_ I\_Vitesse du vent en noeuds

I\_\_I\_Angle du vent réel de 0° à 180° , L= bâbord, R= tribord

$IIVWT 180.,R,01.7,N,00.9,M,003.1,K\*7B

$IIVWT 104.,L,05.8,N,03.0,M,010.7,K\*6C

#### Température de l’air :

**$IIMTA,x.x,C\*hh ✓**

I\_\_I\_Température en degrés C

$IIMTA 27.4,C\*04

#### Compas magnétique:

**$IIHDG,x.x,,,,\*hh ✓**

I\_Compas magnétique

**$IIHDM,x.x,M\*hh ✓**

I\_\_I\_Compas magnétique

$IIHDG 359.,,,,\*76

$IIHDM 069.,M\*1D

#### Compas vrai :

**$IIHDT,x.x,T\*hh 🗷**

I\_\_I\_Compas vrai

#### Baromètre :

**$IIMMB,x.x,I,x.x,B\*hh 🗷**

I I I\_\_I\_Pression atmosphérique en bars

I\_ I\_Pression atmosphérique en pouces de mercure

#### Angle de mât :

**$IIXDR,A,x.x,D,mastangle,\*hh 🗷**

I\_Mesure de l’angle de mât en degrés

#### Heure et date UTC :

**$IIZDA,hhmmss.ss,xx,xx,xxxx,,\*hh ✓**

I I I I\_Année

I I I\_Mois

I I\_jour

I\_Heure

$IIZDA 194020,20,09,2017,,\*5E

$IIZDA 152520,07,07,2017,,\*5A

#### Position géographique, latitude et longitude :

**$IIGLL,IIII.II,a,yyyyy.yy,a,hhmmss.ss,A,A\*hh** ✓

I I I I I I\_Status, A= data valide, V= data non valide

I I I I I\_heure UTC

I I I\_\_\_ I\_Longitude, E/W

I\_\_I\_Latidude, N :S

$IIGLL 4732.541,N,00253.770,W,151436,A,A\*40

# Le NMEA Garmin

select NmeaID, count(\*)

from nmeaValues

where NmeaID like '$GP%'

group by 1 order by 1

|  |  |
| --- | --- |
| **NmeaID** | **Nbr** |
| $GPBOD | 20 |
| $GPGBS | 6114 |
| $GPGGA | 110 |
| $GPGLL | 21 |
| $GPGSA | 20 |
| $GPGSV | 20 |
| $GPRMB | 21 |
| $GPRMC | 6225 |
| $GPRTE | 20 |
| $GPTXT | 2 |
| $GPVTG | 20 |

#### BOD Bearing – Waypoint to Waypoint

1 2 3 4 5 6 7

| | | | | | |

**$--BOD,x.x,T,x.x,M,c--c,c--c\*hh**

1) Bearing Degrees, TRUE

2) T = True

3) Bearing Degrees, Magnetic

4) M = Magnetic

5) TO Waypoint

6) FROM Waypoint

7) Checksum

|  |  |
| --- | --- |
| $GPBOD | ,T,,M,,\*47 |

#### GBS GPS Satellite Fault Detection

Format unknown

|  |  |
| --- | --- |
| $GPGBS | 072659.00,4.6,3.0,9.2,,,,\*44 |
| $GPGBS | 072703.00,4.5,2.8,9.3,,,,\*41 |

#### GGA Global Positioning System Fix Data. Time, Position and fix related data for a GPS receiver

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

| | | | | | | | | | | | | | |

**$--GGA,hhmmss.ss,llll.ll,a,yyyyy.yy,a,x,xx,x.x,x.x,M,x.x,M,x.x,xxxx\*hh**

1) Time (UTC)

2) Latitude

3) N or S (North or South)

4) Longitude

5) E or W (East or West)

6) GPS Quality Indicator,

0 - fix not available,

1 - GPS fix,

2 - Differential GPS fix

7) Number of satellites in view, 00 - 12

8) Horizontal Dilution of precision

9) Antenna Altitude above/below mean-sea-level (geoid)

10) Units of antenna altitude, meters

11) Geoidal separation, the difference between the WGS-84 earth

ellipsoid and mean-sea-level (geoid), "-" means mean-sea-level below ellipsoid

12) Units of geoidal separation, meters

13) Age of differential GPS data, time in seconds since last SC104

type 1 or 9 update, null field when DGPS is not used

14) Differentia

|  |  |
| --- | --- |
| $GPGGA | 063438.000,4715,3480,N,130,5860,W,1,,,33,0,M,,,,\*0A |
| $GPGGA | 055427.000,4714,3377,N,131,5168,W,1,,,46,0,M,,,,\*0D |
| $GPGGA | 124701.000,4715,3361,N,130,5389,W,1,,,34,0,M,,,,\*02 |
| $GPGGA | 193428,4729.9205,N,00222.6770,W,2,11,1.0,-0.4,M,48.9,M,,\*79 |

#### GLL Geographic Position – Latitude/Longitude

1 2 3 4 5 6 7

| | | | | | |

**$--GLL,llll.ll,a,yyyyy.yy,a,hhmmss.ss,A\*hh**

1) Latitude

2) N or S (North or South)

3) Longitude

4) E or W (East or West)

5) Time (UTC)

6) Status A - Data Valid, V - Data Invalid

7) Checksum

|  |  |
| --- | --- |
| $GPGLL | 4727.916,N,00237.357,W,105236,A,A\*4E |
| $GPGLL | 4729.9205,N,00222.6770,W,193428,A,D\*57 |

#### GSA GPS DOP and active satellites

1 2 3 14 15 16 17 18

| | | | | | | |

**$--GSA,a,a,x,x,x,x,x,x,x,x,x,x,x,x,x,x,x.x,x.x,x.x\*hh**

1) Selection mode

2) Mode

3) ID of 1st satellite used for fix

4) ID of 2nd satellite used for fix

...

14) ID of 12th satellite used for fix

15) PDOP in meters

16) HDOP in meters

17) VDOP in meters

18) Checksum

|  |  |
| --- | --- |
| $GPGSA | A,3,05,07,08,13,15,20,21,24,28,30,37,,1.6,1.0,1.2\*31 |
| $GPGSA | A,3,05,07,08,13,15,18,20,21,24,28,30,37,1.6,1.0,1.2\*38 |

#### GSV Satellites in view

1 2 3 4 5 6 7 n

| | | | | | | |

**$--GSV,x,x,x,x,x,x,x,...\*hh**

1) total number of messages

2) message number

3) satellites in view

4) satellite number

5) elevation in degrees

6) azimuth in degrees to true

7) SNR in dB

more satellite infos like 4)-7)

n) Checksum

|  |  |
| --- | --- |
| $GPGSV | 3,3,12,24,06,241,00,28,48,098,00,30,42,058,00,37,35,176,00\*70 |
| $GPGSV | 3,1,12,05,54,193,00,07,13,057,00,08,04,030,00,13,71,312,00\*7B |

#### RMB Recommended Minimum Navigation Information

1 2 3 4 5 6 7 8 9 10 11 12 13|

| | | | | | | | | | | | | |

**$--RMB,A,x.x,a,c--c,c--c,llll.ll,a,yyyyy.yy,a,x.x,x.x,x.x,A\*hh**

1) Status, V = Navigation receiver warning

2) Cross Track error - nautical miles

3) Direction to Steer, Left or Right

4) TO Waypoint ID

5) FROM Waypoint ID

6) Destination Waypoint Latitude

7) N or S

8) Destination Waypoint Longitude

9) E or W

10) Range to destination in nautical miles

11) Bearing to destination in degrees True

12) Destination closing velocity in knots

13) Arrival Status, A = Arrival Circle Entered

14) Checksum

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| $GPRMB | | A,,,,,,,,,,,,V,D\*19 | | | |
| $ECRMB | A | | 0.083 | R | 01\_Bas | | 02\_Gou | 4725.709 | N | 00304.877 | W | 3.109 | 134.611 | 3.683 | V\*1E |

#### RMC Recommended Minimum Navigation Information

**$GPRMC,193428,A,4729.9205,N,00222.6770,W,0.0,143.5,200917,2.9,W,D\*1C**

1 2 3 4 5 6 7 8 9 10 11|

| | | | | | | | | | | |

$--RMC,hhmmss.ss,A,llll.ll,a,yyyyy.yy,a,x.x,x.x,xxxx,x.x,a\*hh

1) Time (UTC)

2) Status, V = Navigation receiver warning

3) Latitude

4) N or S

5) Longitude

6) E or W

7) Speed over ground, knots

8) Track made good, degrees true

9) Date, ddmmyy

10) Magnetic Variation, degrees

11) E or W

12) Checksum

|  |  |
| --- | --- |
| $GPRMC | 055827.000,A,4715,0596,N,131,7996,W,23,3,356,0,261115,,,N\*43 |
| $GPRMC | 055927.000,A,4715,3027,N,131,7799,W,13,6,5,0,261115,,,N\*4C |
| $GPRMC | 060027.000,A,4715,4093,N,132,4979,W,35,0,280,0,261115,,,N\*46 |
| $GPRMC | 060127.000,A,4715,5943,N,133,4050,W,36,9,344,0,261115,,,N\*42 |

#### RTE Routes

1 2 3 4 5 x n

| | | | | | |

$--RTE,x.x,x.x,a,c--c,c--c, ..... c--c\*hh

1) Total number of messages being transmitted

2) Message Number

3) Message mode

c = complete route, all waypoints

w = working route, the waypoint you just left, the waypoint you're heading to,

then all the rest

4) Waypoint ID

x) More Waypoints

n) Checksum

|  |  |
| --- | --- |
| $GPRTE | 1,1,c,\*37 |

#### TXT ?

|  |  |
| --- | --- |
| $GPTXT | 01,01,02,ANTSTATUS=OK\*3B |

#### VTG Track Made Good and Ground Speed

1 2 3 4 5 6 7 8 9

| | | | | | | | |

$--VTG,x.x,T,x.x,M,x.x,N,x.x,K\*hh

1) Track Degrees

2) T = True

3) Track Degrees

4) M = Magnetic

5) Speed Knots

6) N = Knots

7) Speed Kilometers Per Hour

8) K = Kilometres Per Hour

9) Checksum

|  |  |
| --- | --- |
| $GPVTG | 143.5,T,146.4,M,0.0,N,0.0,K\*4A |

# Le NMEA OpenCPN

#### RMB Recommended Minimum Navigation Information

14

1 2 3 4 5 6 7 8 9 10 11 12 13|

| | | | | | | | | | | | | |

$--RMB,A,x.x,a,c--c,c--c,llll.ll,a,yyyyy.yy,a,x.x,x.x,x.x,A\*hh

1) Status, V = Navigation receiver warning

2) Cross Track error - nautical miles

3) Direction to Steer, Left or Right

4) TO Waypoint ID

5) FROM Waypoint ID

6) Destination Waypoint Latitude

7) N or S

8) Destination Waypoint Longitude

9) E or W

10) Range to destination in nautical miles

11) Bearing to destination in degrees True

12) Destination closing velocity in knots

13) Arrival Status, A = Arrival Circle Entered

14) Checksum

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Status | Cross Track error in Nm | Direction to Steer, Left or Right | To WP | From WP | Dest. WP Lat. |  | Dest. WP Lon. |  | Range to dest. | Bearing to dest. | Destination closing velocity | A = Arrival Circle Entered |
| $ECRMB | A | 0.074 | R | 00\_Dep | 01\_Bas | 4727.807 | N | 00308.195 | W | 0.090 | 199.494 | 3.500 | V\*10 |
| $ECRMB | A | 0.074 | R | 00\_Dep | 01\_Bas | 4727.807 | N | 00308.195 | W | 0.090 | 199.494 | 3.500 | V\*10 |
| $ECRMB | A | 0.075 | R | 00\_Dep | 01\_Bas | 4727.807 | N | 00308.195 | W | 0.089 | 200.527 | 3.511 | A\*04 |
| $ECRMB | A | 0.083 | R | 01\_Bas | 02\_Gou | 4725.709 | N | 00304.877 | W | 3.114 | 134.602 | 3.500 | V\*18 |
| $ECRMB | A | 0.082 | R | 01\_Bas | 02\_Gou | 4725.709 | N | 00304.877 | W | 3.112 | 134.593 | 3.400 | V\*15 |
| $ECRMB | A | 0.083 | R | 01\_Bas | 02\_Gou | 4725.709 | N | 00304.877 | W | 3.110 | 134.606 | 3.500 | V\*18 |
| $ECRMB | A | 0.083 | R | 01\_Bas | 02\_Gou | 4725.709 | N | 00304.877 | W | 3.109 | 134.611 | 3.683 | V\*1E |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $ECRMB | A | 0.009 | L | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.241 | 58.334 | 2.100 | V\*33 |
| $ECRMB | A | 0.000 | L | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.225 | 58.563 | 1.938 | V\*3C |
| $ECRMB | A | 0.000 | R | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.225 | 58.568 | 1.900 | V\*22 |
| $ECRMB | A | 0.002 | L | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.229 | 58.505 | 1.700 | V\*37 |
| $ECRMB | A | 0.001 | R | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.224 | 58.581 | 1.900 | V\*25 |
| $ECRMB | A | 0.001 | R | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.224 | 58.587 | 1.950 | V\*26 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $ECRMB | A | 0.009 | L | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.241 | 58.334 | 2.100 | V\*33 |
| $ECRMB | A | 0.000 | L | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.225 | 58.563 | 1.938 | V\*3C |
| $ECRMB | A | 0.000 | R | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.225 | 58.568 | 1.900 | V\*22 |
| $ECRMB | A | 0.002 | L | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.229 | 58.505 | 1.700 | V\*37 |
| $ECRMB | A | 0.001 | R | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.224 | 58.581 | 1.900 | V\*25 |
| $ECRMB | A | 0.001 | R | 02\_Gou | 03\_Bas | 4726.938 | N | 00301.902 | W | 2.224 | 58.587 | 1.950 | V\*26 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $ECRMB | A | 0.039 | R | 2 | 3 | 4728.046 | N | 00247.518 | W | 2.533 | 110.468 | 3.700 | V\*1F |

|  |
| --- |
| $ECRMB,A,0.074,R,00\_Dep,01\_Bas,4727.807,N,00308.195,W,0.090,199.494,3.500,V\*10 |
| $ECRMB,A,0.009,L,02\_Gou,03\_Bas,4726.938,N,00301.902,W,2.241,58.334,2.100,V\*33 |
| $ECRMB,A,0.001,R,02\_Gou,03\_Bas,4726.938,N,00301.902,W,2.224,58.587,1.950,V\*26 |
| $ECRMB,A,0.039,R,002,003,4728.046,N,00247.518,W,2.533,110.468,3.700,V\*1F |

# Le NMEA propriétaire NKE

Les afficheurs NKE retranscrivent certaine phrase NMEA, spécifiques.

TL25, Performance, GyroGraphic, …

Voir la doc des processeur HR (et Regata)

$PNKEP,01 Vitesse cible  
$PNKEP,02 Cap au prochain bord  
$PNKEP,03 Angle optimum, rendement au près et au portant  
$PNKEP,04 Angles pour optimiser le VMG et le CMG  
$PNKEP,05 Vitesse et direction du courant fournies par l'atlas

### Canaux NMEA affichés par l’afficheur « Performance »

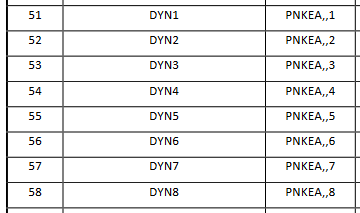
* Vitesse cible
* Cap sur l’autre bord
* Angle optimum vent
* Angle optimum VMG
* Angle optimum CMG
* Rendement au près
* Rendement polaire

### Canaux affichés par l’afficheur GyroGraphic

* Vitesse cible
* Cap sur l’autre bord
* Angle optimum vent
* Angle optimum VMG
* Angle optimum CMG
* Rendement au près
* Rendement polaire
* + Vitesse fond et cap fond
* + Ecart de route

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| N° canal | Lbel | NMEA 1 | NMEA 2 | NMEA 3 |
| 28 | V\_WP | WCV | -- | -- |
| 29 | VIT\_CIBLE | KEP | -- | -- |
| 30 | CAP\_AUTRE\_BORD | KEP | -- | -- |
| 31 | ANGLE\_OPT\_VENT | KEP | -- | -- |
| 32 | REND\_PRES | KEP | -- | -- |
| 33 | REND\_POLAIRE | KEP | -- | -- |
| 34 | ANGLE\_OPT\_CMG | KEP | -- | -- |
| 35 | ANGLE\_OPT\_VMG | KEP | -- | -- |
| 36 | GAIN\_ROUTE\_CMG | KEP | -- | -- |
| 37 | GAIN\_ROUTE\_VMG | KEP | -- | -- |
| 38 | DIREC\_COURANT | KEP | VDR | -- |
| 39 | VITES\_COURANT | KEP | VDR | -- |
| 40 | PRESS\_ATMOS | MMB | XDR | -- |

### D’après la documentation de la box NKE



### D’après le plugin « Tactics » d’OpenCPN

C:\Users\eth0589\Downloads\src\performance.h (4 hits)

Line 301: class NKEPerformanceData

Line 304: NKEPerformanceData(void);

Line 305: ~NKEPerformanceData(void);

Line 308: void createPNKEP\_NMEA(int sentence, double data1, double data2, double data3, double data4);

C:\Users\eth0589\Downloads\src\tactics\_pi.cpp (60 hits)

Line 4989: First shot of an export routine for the NMEA $PNKEP (NKE style) performance data

Line 4989: First shot of an export routine for the NMEA $PNKEP (NKE style) performance data

Line 4995: createPNKEP\_NMEA(1, mPolarTargetSpeed, mPolarTargetSpeed \* 1.852, 0, 0);

Line 4999: createPNKEP\_NMEA(2, mPredictedCoG, 0, 0, 0); // course (CoG) on other tack

Line 5003: createPNKEP\_NMEA(3, tvmg.TargetAngle, mPercentTargetVMGupwind, mPercentTargetVMGdownwind, 0);

Line 5007: createPNKEP\_NMEA(4, mCMGoptAngle, mCMGGain, mVMGoptAngle, mVMGGain);

Line 5010: createPNKEP\_NMEA(5, m\_CurrentDirection, m\_ExpSmoothCurrSpd, m\_ExpSmoothCurrSpd \* 1.852, 0);

Line 5041: Creation of the specific NKE style performance data NMEA-records.

Line 5042: These records are visible in the NKE instruments !

Line 5043: You need to define an outbound interface and filter for $PNKEP

Line 5045: Speed and performance target (code PNKEP01)

Line 5046: By definition of NKE this is the theoretically best VMG (Target-VMG),

Line 5048: And Target-VMG % is available in $PNKEP03 and $PNKEP04

Line 5048: And Target-VMG % is available in $PNKEP03 and $PNKEP04

Line 5049: The Channel in the NKE instruments is called "Target Speed"

Line 5050: $PNKEP,01,x.x,N,x.x,K\*hh<CR><LF>

Line 5053: course on next tack (code PNKEP02)

Line 5054: $PNKEP,02,x.x\*hh<CR><LF>

Line 5056: Opt. VMG angle and performance up and downwind (code PNKEP03)

Line 5057: $PNKEP,03,x.x,x.x,x.x\*hh<CR><LF>

Line 5061: Angles pour optimiser le CMG et VMG et gain correspondant (code PNKEP04)

Line 5062: $PNKEP,04,x.x,x.x,x.x,x.x\*hh<CR><LF>

Line 5067: Direction and speed of sea current (code PNKEP05)

Line 5068: $PNKEP,05,x.x,x.x,N,x.x,K\*hh<CR><LF>

Line 5077: sortie NMEA, à l’aide d’une trame propriétaire nke.

Line 5078: $PNKEP,06,-0.988,-0.096,12.0\*5D

Line 5081: Detail of the NMEA Interface NKE/NMEA this single sentence frames has been

Line 5083: $PNKEA,AA,N,FF,XXXXX,TTTTTTTTTT,UUUUUUU \*hh<CR><LF>

Line 5098: $PNKEA,TL,1,11,135,Tps Ligne,Min Sec\*hh

Line 5099: $PNKEA,DL,5,40,111,Dist Ligne,Long.,\*hh

Line 5100: $PNKEA,PV,2,34,84,Pcent VMG,Bord 1,\*hh

Line 5101: $PNKEA,TB,3,11,201,Tps Bouee,Min Sec,\*hh

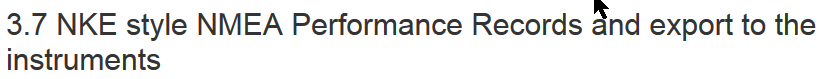
Line 5102: $PNKEA,DB,7,40,60,Dist Bouee,Long,\*hh

Line 5103: $PNKEA,TR,4,5,40,Ang Target,Pres,\*hh

Line 5104: $PNKEA,TO,8,5,205,Ang Target,Portant,\*hh

## Informations NKE via la documentation du plugin OpenCPN / Tactics

<https://opencpn.org/wiki/dokuwiki/doku.php?id=opencpn:opencpn_user_manual:plugins:sailing:tactics>



NKE supports the upload of specific performance data to their instrument bus, which can be shown in their displays then. These records are polar based and unless you’re using their (quite expensive) regatta processor, this gives us an easy way to display e.g. the “Target Polar Speed” outside in the cockpit on the standard instrument displays.

* Due to the lack of information on other manufacturers capabilities, I implemented this for the NKE system right now.
* Be aware that OpenCPN can only import/export NMEA183 right now, but not NMEA2000 or SeaTalk.

The following 5 records are implemented :

**Speed and performance target**

$PNKEP,01,x.x,N,x.x,K\*hh<CR><LF>

| \ target speed in km/h

\ target speed in knots

**Course on next tack**

$PNKEP,02,x.x\*hh<CR><LF>

\ Course (COG) on other tack from 0 to 359°

**Opt. VMG angle and performance up and downwind**

$PNKEP,03,x.x,x.x,x.x\*hh<CR><LF>

| | \ performance downwind from 0 to 99%

\ \ performance upwind from 0 to 99%

\ opt. VMG angle 0 à 359°

**Angles to optimise CMG and VMG and corresponding gain (available but to be verified)**

$PNKEP,04,x.x,x.x,x.x,x.x\*hh<CR><LF>

| | | \ Gain VMG from 0 to 999%

\ \ \ Angle to optimise VMG from 0 to 359°

\ \ Gain CMG from 0 to 999%

\ Angle to optimise CMG from 0 to 359°

**Direction and speed of sea current**

$PNKEP,05,x.x,x.x,N,x.x,K\*hh<CR><LF>

| \ \current speed in km/h

\ \ current speed in knots

\ current direction from 0 à 359°