race-report

In [1]:

```python
import pandas as pd
from tabulate import tabulate
```

In [2]:

```python
df = pd.read_csv("data.csv")
```

Frequency as a function of time ($\frac{cycles}{minute}$)¶

In [3]:

```python
import matplotlib.pyplot as plt
```

In [4]:

```python
import os, sys
sys.path.insert(0, os.path.abspath('..'))
from utils import race_report as RR
from utils import plotting

# 25 for SCM, 50 for LCM.
LAP_LEN = 25

fig, ax = plt.subplots(nrows=3, figsize=(13, 17))

# Distance ticks/labels
lap_indices = RR.get_bo_indices(df)
distances = [RR.format_distance((i + 1)*LAP_LEN) for i in range(len(lap_indices))]

# Frequency Dataframe.
df_frequency = df[[RR.COL_MES, RR.COL_TIME]][df[RR.COL_MES] == RR.VAL_CYCLE]
df_frequency.loc[:, RR.COL_Y] = 60 / df[RR.COL_TIME]

# Speed Dataframe.
df_speed = RR.calc_speed(df, lap_indices)
```

```
# DPS.
(stats, df_frequency) = RR.calc_frequency(df_frequency)
display(df_frequency.drop(["interval-time", RR.COL_X, RR.COL_MES], axis=1))
table = tabulate(pd.DataFrame({"std": [stats.std], "mean": [stats.mean]})
                 , tablefmt='text'
                 ,headers=["std", "mean"])
print(table)

# Plotting.

#
# Distances
#
plotting.plot_frequency(df_frequency, ax=ax[0], lap_indices=lap_indices, distances=distances

#
# Speed
#
plotting.plot_speed(df_speed, ax=ax[1])

#
# DPS
#
plotting.plot_dps(df, ax=ax[2])
plt.show()
```

	frequency
1	45.74
2	56.50
3	46.40
4	56.86
5	56.86
7	45.74
8	56.86
9	55.81
10	50.59
11	47.89
12	45.74
13	53.67
14	56.86
16	53.10
17	45.74
18	56.76
19	46.73
20	53.62

	frequency
21	45.74
22	53.72
23	51.19
24	55.66
26	45.74
27	48.82
28	53.96
29	52.13
30	51.15
31	51.28
32	51.41
33	46.84
34	53.76
35	56.86

```
         std      mean
--   -------   -------
 0   5.56273   51.3005
```

Frequency/Distance

Speed/Distance

#Cycles/Lap