In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

In [2]:
```
%matplotlib inline
```

In [18]:
```
df = pd.read_csv("C:\\Users\\Shay\\Documents\\Yari\\Data analysis Python\\Data\\Original f
```

In [4]:
```
#XYP=pd.read_csv("C:\\Users\\Shay\\Documents\Yari\\Python\\XYPlot.csv")
```

In [5]:
```
#XYP
```

Out[5]:

| | BAND | MCW_nm |
|---|---|---|
| **0** | 0 | 58.733654 |
| **1** | 1 | 55.678649 |
| **2** | 2 | 57.542610 |

In [5]:
```
df
```

Out[5]:

| | HDDSNENDDATE | HDDSN | ENDDATE | PROCID | DRIVEMODEL | PFCODE | TESTCODE | TESTCC |
|---|---|---|---|---|---|---|---|---|
| **0** | 2FA056NA20210117124423 | 2FA056NA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |
| **1** | 2FA056NA20210117124423 | 2FA056NA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |
| **2** | 2FA056NA20210117124423 | 2FA056NA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |
| **3** | 2FA056NA20210117124423 | 2FA056NA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |
| **4** | 2FA056NA20210117124423 | 2FA056NA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |
| **...** | ... | ... | ... | ... | ... | ... | ... | |
| **3115** | 2FA059LA20210117124210 | 2FA059LA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |
| **3116** | 2FA059LA20210117124210 | 2FA059LA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |
| **3117** | 2FA059LA20210117124210 | 2FA059LA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |
| **3118** | 2FA059LA20210117124210 | 2FA059LA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |
| **3119** | 2FA059LA20210117124210 | 2FA059LA | 2.021010e+13 | 6400 | 2F | 0 | PDQC3E8M | PDQ |

3120 rows × 78 columns

In [19]:
```
df = df[["HDDSN","PROCID","TESTCODEC","PFCODE","MFGID","HDDTRIAL","QUALIFIER","LHD","PHD",
```

In [8]:
```
df
```

Out[8]:

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | DataTP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 0 | 0 | 0 | 1188 | 1 |
| **1** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 0 | 0 | 1 | 1188 | 1 |
| **2** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 0 | 0 | 2 | 1188 | 1 |
| **3** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 1 | 1 | 0 | 1188 | 1 |
| **4** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 1 | 1 | 1 | 1188 | 1 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 2300 | 7 | 17 | 2 | 986 | |

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | DataTP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **956** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 2300 | 7 | 17 | 3 | 987 |
| **957** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 2300 | 7 | 17 | 4 | 986 |
| **958** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 2300 | 7 | 17 | 5 | 986 |
| **959** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 2300 | 7 | 17 | 6 | 987 |

960 rows × 12 columns

In [20]:
```
df['MCW_nm'] = (df['MCW']/100)*(1000/580)*(25.4)*(df['DataTP']/1024.0)
```

In [21]:
```
df
```

Out[21]:

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | DataTP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 0 | 2 | 0 | 1188 |
| **1** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 0 | 2 | 1 | 1188 |
| **2** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 0 | 2 | 2 | 1188 |
| **3** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 1 | 3 | 0 | 1188 |
| **4** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 1 | 3 | 1 | 1188 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **3115** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 6 | 14 | 1 | 1255 |
| **3116** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 6 | 14 | 2 | 1310 |
| **3117** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 7 | 15 | 0 | 1139 |
| **3118** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 7 | 15 | 1 | 1144 |
| **3119** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 7 | 15 | 2 | 1149 |

3120 rows × 13 columns

In [22]:
```
df.drop(['MCW','DataTP'], axis = 1, inplace=True)
```

In [23]:
```
df
```

Out[23]:

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | MCW_nm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 0 | 2 | 0 | 62.863545 |
| **1** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 0 | 2 | 1 | 59.005896 |
| **2** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 0 | 2 | 2 | 64.476066 |
| **3** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 1 | 3 | 0 | 61.685163 |
| **4** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 1 | 3 | 1 | 58.819836 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **3115** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 6 | 14 | 1 | 57.695007 |
| **3116** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 6 | 14 | 2 | 59.676360 |
| **3117** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 7 | 15 | 0 | 53.135247 |
| **3118** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 7 | 15 | 1 | 53.105720 |
| **3119** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 7 | 15 | 2 | 54.573497 |

3120 rows × 13 columns

In [13]:
```
df.to_csv("C:\\Users\\Shay\\Documents\\Yari\\Data analysis Python\\Data\\CCB_CI_MCW (1-28)
```

In [24]:
```
def RADIUS (row):
   if row['BAND'] == 0 :
      return 'OD'
   if row['BAND'] == 1:
      return 'MD'
   if row['BAND'] == 2 :
      return 'ID'
```

In [25]:
```
df['RADIUS'] = df.apply (lambda row: RADIUS(row), axis=1)
```

In [26]:
```
df
```

Out[26]:

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | MCW_nm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 0 | 2 | 0 | 62.863545 |
| **1** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 0 | 2 | 1 | 59.005896 |
| **2** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 0 | 2 | 2 | 64.476066 |
| **3** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 1 | 3 | 0 | 61.685163 |
| **4** | 2FA056NA | 6400 | PDQC3E8 | 0 | KKBT01 | MW11 | 10N0 | 1 | 3 | 1 | 58.819836 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **3115** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 6 | 14 | 1 | 57.695007 |
| **3116** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 6 | 14 | 2 | 59.676360 |
| **3117** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 7 | 15 | 0 | 53.135247 |
| **3118** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 7 | 15 | 1 | 53.105720 |
| **3119** | 2FA059LA | 6400 | PDQC3E8 | 0 | KKBT01 | MW13 | X010 | 7 | 15 | 2 | 54.573497 |

3120 rows × 12 columns

In [27]:
```
df.to_csv("C:\\Users\\Shay\\Documents\\Yari\\Data analysis Python\\Data\\CCB_CI_MCW (1-28)
```

In [28]:
```
pd.value_counts(df['QUALIFIER'])
```

Out[28]:
```
X000    456
10N0    456
C0N0    456
A0N0    456
X080    432
X070    432
X010    432
Name: QUALIFIER, dtype: int64
```

In [11]:
```
new_table = df[df['MCW'] > 0]
```

In [12]:
```
new_table
```

Out[12]:

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | DataTP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 0 | 0 | 0 | 1188 | 1 |
| **1** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 0 | 0 | 1 | 1188 | 1 |
| **2** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 0 | 0 | 2 | 1188 | 1 |
| | | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 1 | 1 | 0 | 1188 | 1 |

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | DataTP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **4** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 1 | 1 | 1 | 1188 | 1 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| **899** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 6 | 16 | 1 | 1188 | 1 |
| **900** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 6 | 16 | 2 | 1188 | 1 |
| **901** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 7 | 17 | 0 | 1188 | 1 |
| **902** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 7 | 17 | 1 | 1188 | 1 |
| **903** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 7 | 17 | 2 | 1188 | 1 |

288 rows × 13 columns

In [13]:
```
new_table.to_csv('C:\\Users\\Shay\\Documents\\Yari\\Python\\new.csv')
```

In [14]:
```
BAND0 = new_table[new_table['BAND'] == 0]
```

In [15]:
```
BAND0
```

Out[15]:

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | DataTP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **0** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 0 | 0 | 0 | 1188 | 1 |
| **3** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 1 | 1 | 0 | 1188 | 1 |
| **6** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 2 | 8 | 0 | 1188 | 1 |
| **9** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 3 | 9 | 0 | 1188 | 1 |
| **12** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 4 | 10 | 0 | 1188 | 1 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| **889** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 3 | 9 | 0 | 1188 | 1 |
| **892** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 4 | 10 | 0 | 1188 | 1 |
| **895** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 5 | 11 | 0 | 1188 | 1 |
| **898** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 6 | 16 | 0 | 1188 | 1 |
| **901** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 7 | 17 | 0 | 1188 | 1 |

96 rows × 13 columns

In [16]:
```
BAND1 = new_table[new_table['BAND'] == 1]
```

In [17]:
```
BAND1
```

Out[17]:

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | DataTP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 0 | 0 | 1 | 1188 | 1 |
| **4** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 1 | 1 | 1 | 1188 | 1 |
| **7** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 2 | 8 | 1 | 1188 | 1 |
| **10** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 3 | 9 | 1 | 1188 | 1 |
| **13** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 4 | 10 | 1 | 1188 | 1 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| **890** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 3 | 9 | 1 | 1188 | 1 |

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | DataTP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **893** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 4 | 10 | 1 | 1188 | 1 |
| **896** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 5 | 11 | 1 | 1188 | 1 |
| **899** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 6 | 16 | 1 | 1188 | 1 |
| **902** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 7 | 17 | 1 | 1188 | 1 |

96 rows × 13 columns

In [18]:
```
BAND2 = new_table[new_table['BAND'] == 2]
```

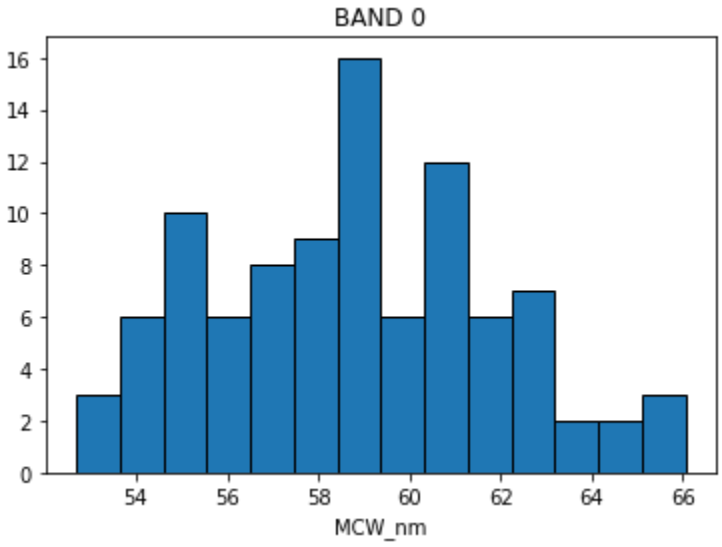
In [19]:
```
BAND2
```

Out[19]:

| | HDDSN | PROCID | TESTCODEC | PFCODE | MFGID | HDDTRIAL | QUALIFIER | LHD | PHD | BAND | DataTP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 0 | 0 | 2 | 1188 | 1 |
| **5** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 1 | 1 | 2 | 1188 | 1 |
| **8** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 2 | 8 | 2 | 1188 | 1 |
| **11** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 3 | 9 | 2 | 1188 | 1 |
| **14** | 2FA0491A | 6400 | PDQC3CX | 2525 | KQBT03 | AQ0N | 10N0 | 4 | 10 | 2 | 1188 | 1 |
| **...** | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **891** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 3 | 9 | 2 | 1188 | 1 |
| **894** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 4 | 10 | 2 | 1188 | 1 |
| **897** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 5 | 11 | 2 | 1188 | 1 |
| **900** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 6 | 16 | 2 | 1188 | 1 |
| **903** | 2FA049GA | 6400 | PDQC3CX | 2521 | KQBT03 | AQ0N | 10N0 | 7 | 17 | 2 | 1188 | 1 |

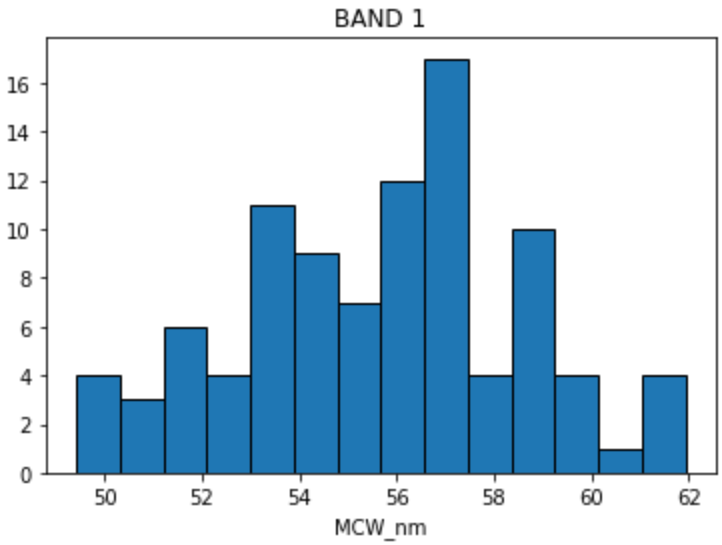
96 rows × 13 columns

In [20]:
```
plt.hist(BAND0['MCW_nm'], bins=14, edgecolor='black')
plt.xlabel('MCW_nm')
plt.title('BAND 0')
plt.show()
```

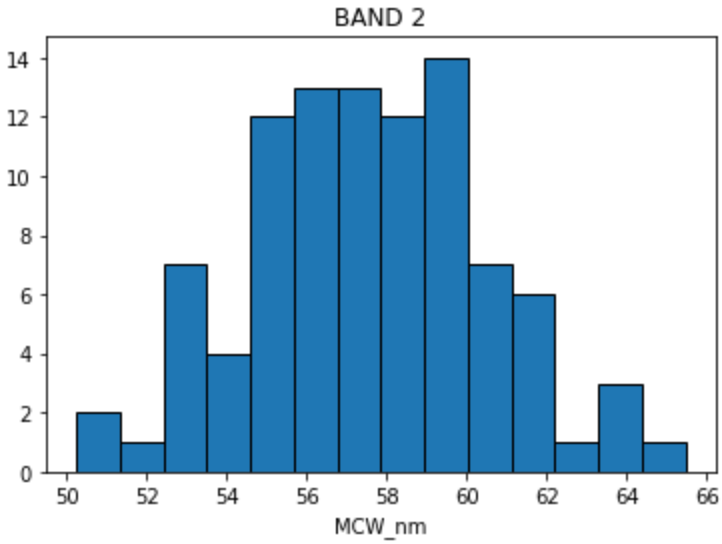



In [21]:
```
plt.hist(BAND1['MCW_nm'], bins=14, edgecolor='black')
CW_nm')
```

```
plt.title('BAND 1')
plt.show()
```




In [22]:
```
plt.hist(BAND2['MCW_nm'], bins=14, edgecolor='black')
plt.xlabel('MCW_nm')
plt.title('BAND 2')
plt.show()
```




In [23]:
```
new_table.describe()
```

Out[23]:

| | PROCID | LHD | PHD | BAND | DataTP | MCW | MCW_nm |
|---|---|---|---|---|---|---|---|
| **count** | 288.0 | 288.000000 | 288.000000 | 288.000000 | 288.0 | 288.000000 | 288.000000 |
| **mean** | 6400.0 | 3.500000 | 9.000000 | 1.000000 | 1188.0 | 112.816111 | 57.318304 |
| **std** | 0.0 | 2.295276 | 5.754562 | 0.817918 | 0.0 | 6.353221 | 3.227871 |
| **min** | 6400.0 | 0.000000 | 0.000000 | 0.000000 | 1188.0 | 97.265625 | 49.417593 |
| **25%** | 6400.0 | 1.750000 | 6.250000 | 0.000000 | 1188.0 | 108.734131 | 55.244379 |
| **50%** | 6400.0 | 3.500000 | 9.500000 | 1.000000 | 1188.0 | 112.390137 | 57.101880 |
| **75%** | 6400.0 | 5.250000 | 12.250000 | 2.000000 | 1188.0 | 116.857910 | 59.371815 |
| **max** | 6400.0 | 7.000000 | 17.000000 | 2.000000 | 1188.0 | 130.004883 | 66.051376 |

In [24]:
```
new_table['MCW_nm'].mean()
```

Out[24]: 57.3183041537222

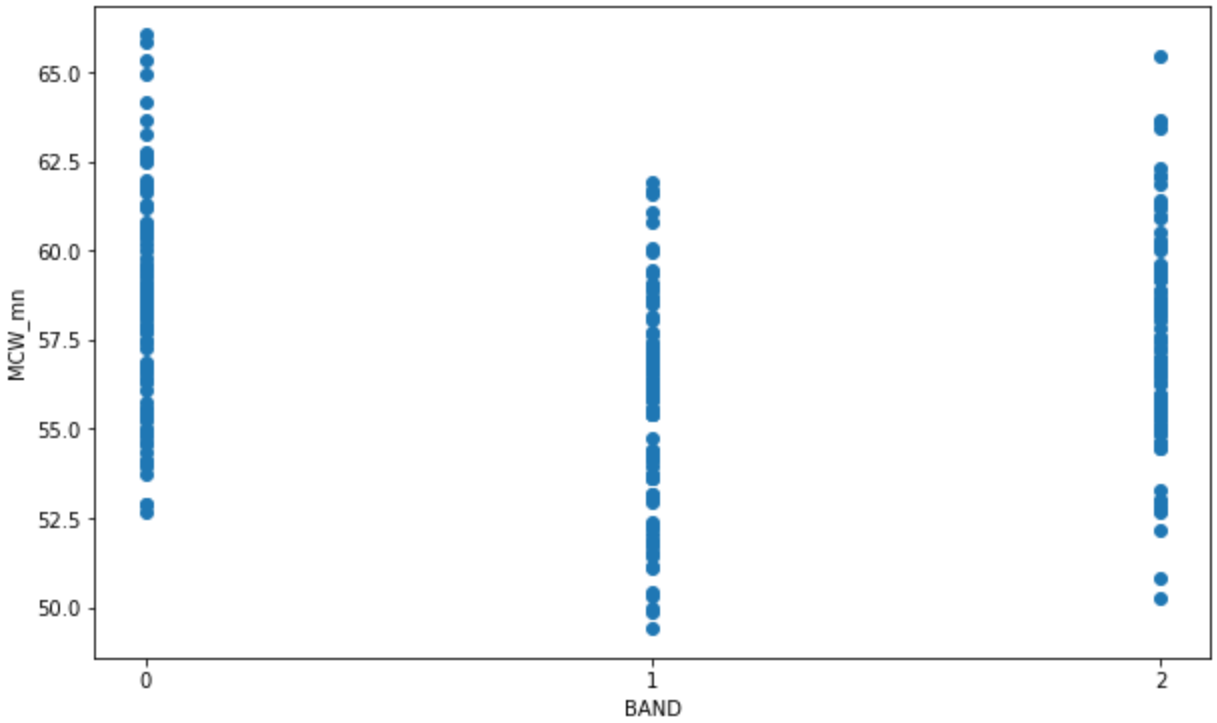
In [25]:
```
new_table['BAND'].mean()
```

Out[25]: 1.0

In [50]:
```
x = new_table['BAND']
y = new_table['MCW_nm']
```

In [51]:
```
plt.figure(figsize=(10,6))
plt.scatter(x,y)
plt.xlabel("BAND")
plt.ylabel("MCW_mn")
plt.xticks([0,1,2])
```

Out[51]:
```
([<matplotlib.axis.XTick at 0x1e256103160>,
  <matplotlib.axis.XTick at 0x1e2561036a0>,
  <matplotlib.axis.XTick at 0x1e2563b48e0>],
 [Text(0, 0, ''), Text(0, 0, ''), Text(0, 0, '')])
```




In [25]:
```
BAND0['MCW_nm'].mean()
```

Out[25]: 58.73365387064688

In [29]:
```
BAND1['MCW_nm'].mean()
```

Out[29]: 55.678648509776366

In [30]:
```
BAND2['MCW_nm'].mean()
```

Out[30]: 57.54261008074344

In [70]:
```
x = XYP['BAND']
y = XYP['MCW_nm']
x = new_table['BAND']
y = new_table['MCW_nm']
```

In [71]:
```
plt.figure(figsize=(10,6))
,y)
```

```
plt.plot(x,y,color='r',alpha=0.25)
plt.xlabel("BAND")
plt.ylabel("MCW_mn")

plt.xticks([0,1,2])

plt.legend(["MCW_nm","BAND"])

plt.grid(b=True)
plt.show()
```