TP3-Turno 1- Grupo 5

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1.

2467 Mhz, channel 12

```
PHY type: 802.11g (ERP) (6)
Short preamble: False
Proprietary mode: None (0)
Data rate: 1.0 Mb/s
Channel: 12
Frequency: 2467MHz
Signal strength (dBm): -59 dBm
Noise level (dBm): -88 dBm
Signal/noise ratio (dB): 29 dB
TSF timestamp: 19800120
[Duration: 2360µs]
```

2.

802.11g (6)

```
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Short preamble: False
Proprietary mode: None (0)
Data rate: 1.0 Mb/s
Channel: 12
Frequency: 2467MHz
Signal strength (dBm): -59 dBm
Noise level (dBm): -88 dBm
Signal/noise ratio (dB): 29 dB
TSF timestamp: 19800120
[Duration: 2360µs]
```
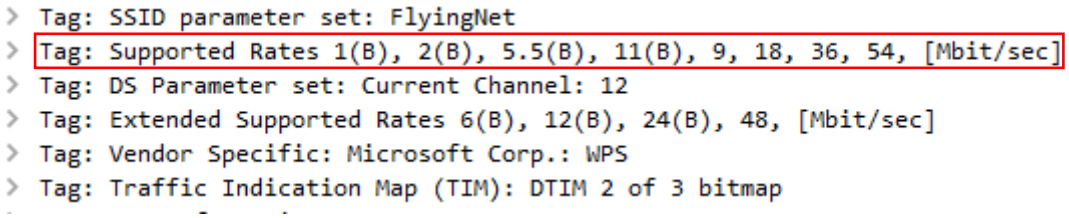

3.

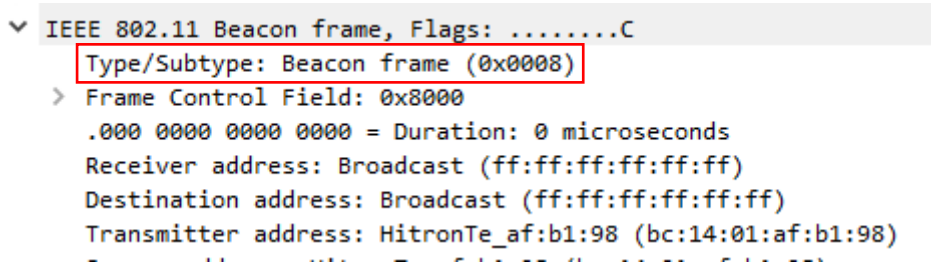
Débito enviado: 1Mb/s débito máximo: 54Mb/s, não porque apenas é usado 1Mb/s e a rede Wi-fi suporta até 54Mb/s.

```
Present flags
MAC timestamp: 19800120
Flags: 0x10
Data Rate: 1.0 Mb/s
Channel frequency: 2467 [BG 12]
Channel flags: 0x0480, 2 GHz spectrum, Dynamic CCK-OFDM
```



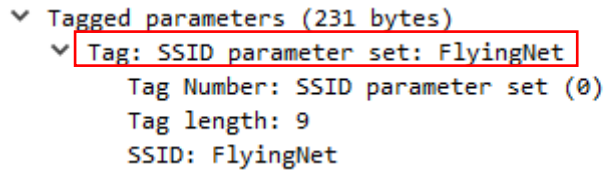
4.

Beacon frame 0x0008.



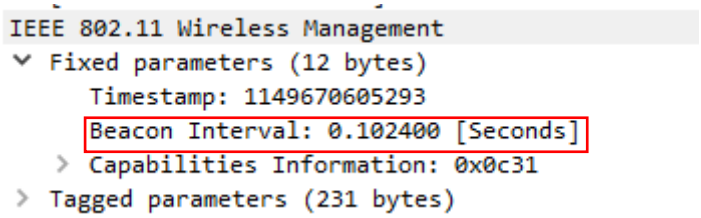
5.

FlyingNet.



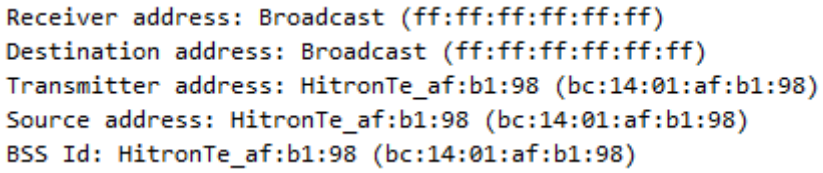
6.

Intervalo de tempo do Beacon: 0.102400 segundos. Não é verificada



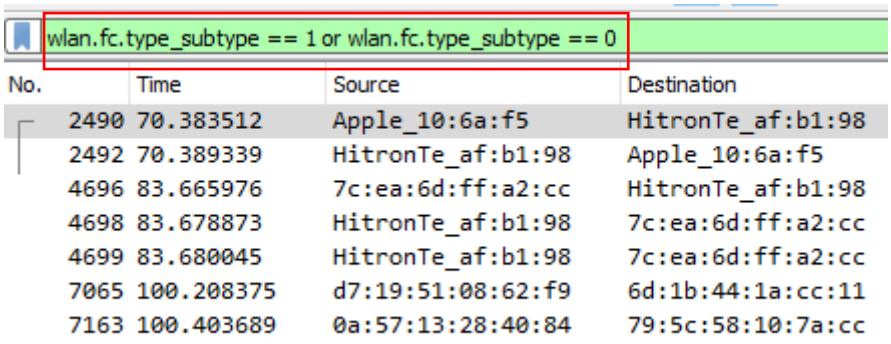
7.

Os endereços estão registados em baixo.



8.

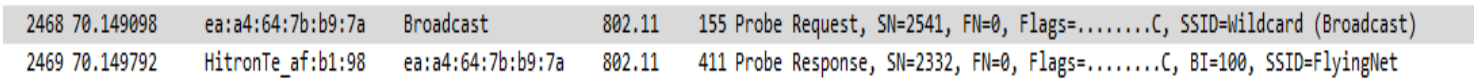
O filtro é: wlan.fc.type_subtype == 1 or wlan.fc.type_subtype == 0.



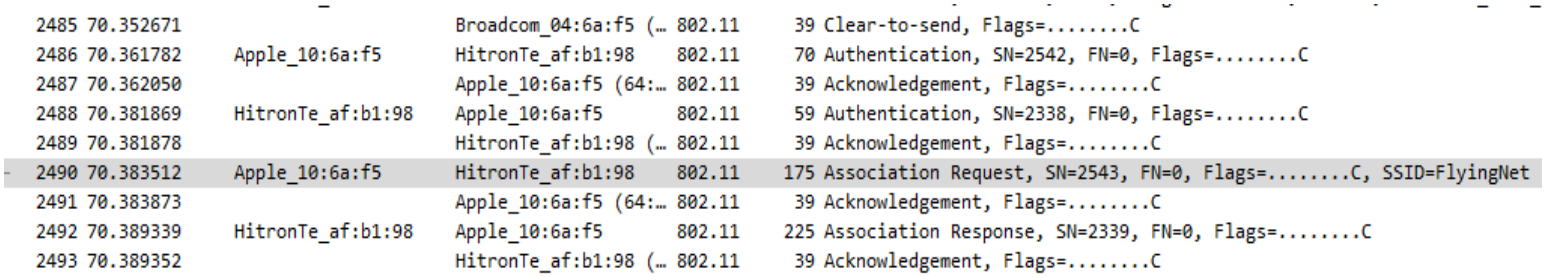
9.

Num *Active Scanning,* as estações vão por cada canal de cada vez, mas em vez de ouvir passivamente os sinais nessa frequência, as estações enviam um *Probe Request Managamente Frame* perguntando qual rede esta livre neste canal.

In Active scanning, stations still go through each channel in turn, but instead of passively listening to the signals on that frequency, station send a Probe Request management frame asking what network is available on that channel.

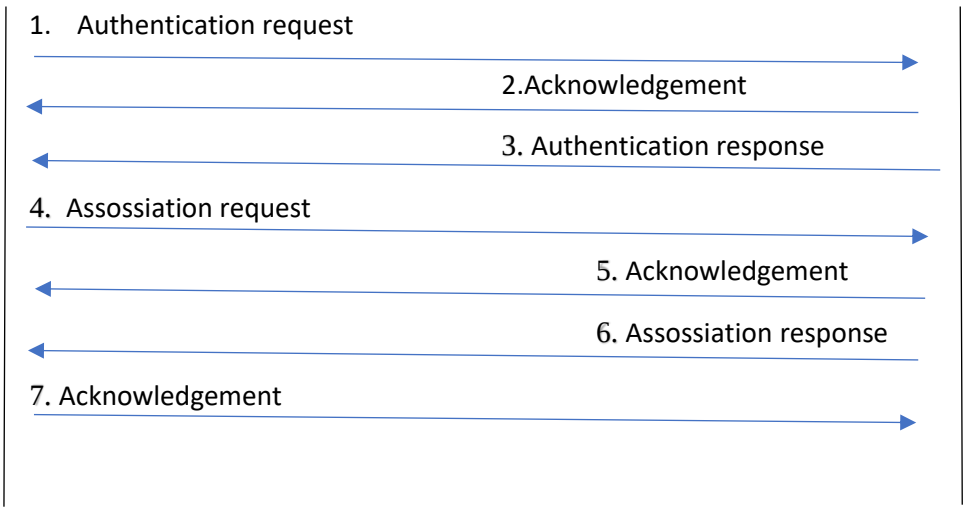


10.



11.

Mobile station access point



12.

Sim, é local WLAN.

```
Flags: 0x42
    .... ..10 = DS status: Frame from DS to a STA via AP(To DS: 0 From DS: 1) (0x2)
    .... .0.. = More Fragments: This is the last fragment
    .... 0... = Retry: Frame is not being retransmitted
    ...0 .... = PWR MGT: STA will stay up
    ..0. .... = More Data: No data buffered
    .1.. .... = Protected flag: Data is protected
    0... .... = Order flag: Not strictly ordered
```

13.

A comunicação está a ser feita entre dois dispositivos da rede, o router e a máquina local.

```
Receiver address: Apple_71:41:a1 (d8:a2:5e:71:41:a1)
Transmitter address: HitronTe_af:b1:98 (bc:14:01:af:b1:98)
Destination address: Apple_71:41:a1 (d8:a2:5e:71:41:a1)
Source address: HitronTe_af:b1:98 (bc:14:01:af:b1:98)
BSS Id: HitronTe_af:b1:98 (bc:14:01:af:b1:98)
STA address: Apple_71:41:a1 (d8:a2:5e:71:41:a1)
```

14.

A comunicação está a ser feita da máquina para o router.

```
Flags: 0x41
    .... ..01 = DS status: Frame from STA to DS via an AP (To DS: 1 From DS: 0) (0x1)
    .... .0.. = More Fragments: This is the last fragment
    .... 0... = Retry: Frame is not being retransmitted
    ...0 .... = PWR MGT: STA will stay up
    ..0. .... = More Data: No data buffered
    .1.. .... = Protected flag: Data is protected
    0... .... = Order flag: Not strictly ordered
```

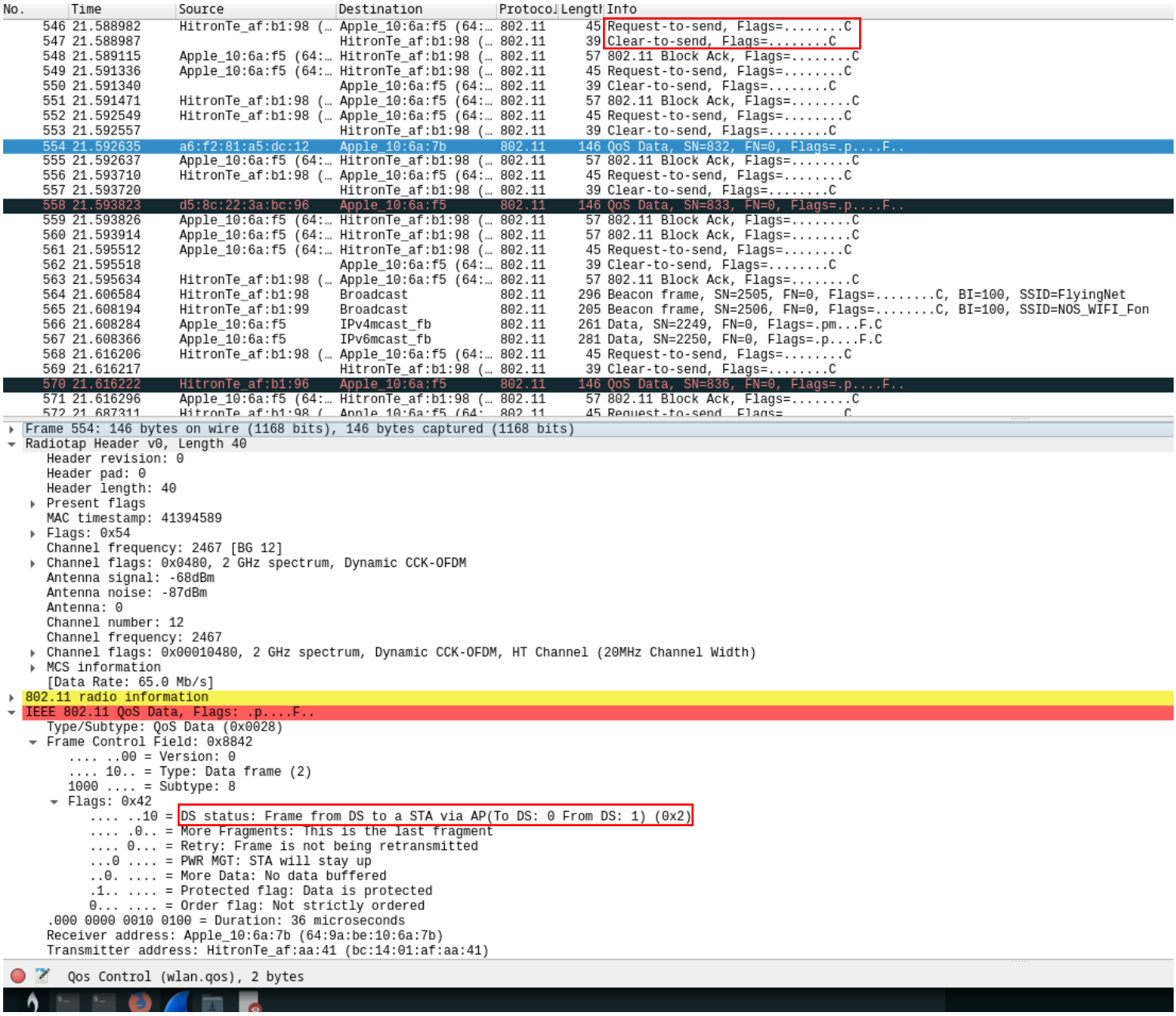
15.

O subtipo das tramas de controlo que são transmitidas ao longo da transferência é 8. As tramas de controlo são auxiliares na transmissão das tramas de dados, gerem o acesso ao meio wireless e motivam a execução de funções ao nível MAC.

```
IEEE 802.11 Beacon frame, Flags: ........C
    Type/Subtype: Beacon frame (0x0008)
  > Frame Control Field: 0x8000
    .000 0000 0000 0000 = Duration: 0 microseconds
    Receiver address: Broadcast (ff:ff:ff:ff:ff:ff)
    Destination address: Broadcast (ff:ff:ff:ff:ff:ff)
    Transmitter address: HitronTe_af:b1:98 (bc:14:01:af:b1:98)
```

16.

Estão a ser ambas as opções Request to Send (RTS) e Clear to Send (CTS) na troca entre a STA e o AP/Router.



CONCLUSÃO:

Este trabalho foi crucial no auxílio á aprendizagem do funcionamento do protocolo 802.11 a cada um dos elementos do grupo.