

## **SYSC 4602 Assignment 4**

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## Part 3: 802.11 Physical Layer

### 1

The channel frequency is 2462 Hz.

### 2

The rates used are as follows in Mbps:

- 1.0
- 6.0
- 12.0
- 24.0
- 24.0
- 36.0
- 48.0
- 54.0

### 3

The strongest RSSI is -44 dBm

The weak RSSI is -69 dBm

The difference is  $-44dBm - -69dBm = 25dBm$ .

## Part 4: 802.11 Link Layer

### 1

BSS ID: (Cisco-Li-e3:e9:8d) 00:16:b6:e3:e9:8d

### 2

There are 1783 data frames in the trace. In other words 47.8% of the frames are data frames.

The most common subtype of data frame is subtype 0, which make up 1743 frames.

### 3

There are 557 management frames in the trace. In other words 14.9% of the frames are management frames.

The most common subtype of management frame is subtype 8, which make up 458 frames.

### 4

There are 1391 control frames in the trace. In other words 37.3% of the frames are control frames.

The most common subtype of control frame is subtype 13, which make up 1385 frames.

### 5

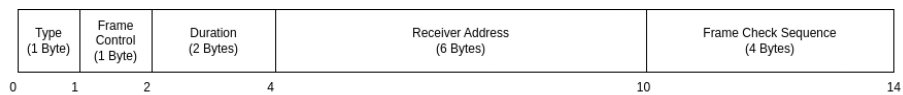


Figure 1: Acknowledgement Frame Structure

### 6

Retransmitted frames: 1 frame Total frames: 3731 frames

Retransmission rate:  $1/3731 = 0.03\%$  Therefore 0.03%, or 1 out of 3731 frames that are retransmitted

### 7

Power down frames: 16 frame Total frames: 3731 frames

Percentage of frames sent:  $16/3731 = 0.4\%$  Therefore 0.4%, or 16 out of 3731 frames that are sent signal that the client is powering down.

## Part 5: 802.11 Management

### 1

BSS ID of main AP is Cisco\_Li\_e3:e9:8d

### 2

Beacon frames are sent every 0.1022 seconds approximately

### 3

The main AP supports the following data rates:  
1, 2, 5.5, 11, 18, 24, 36, 54 [Mbit/sec]

### 4

The Beacon frame transmission is sent at a rate of 1.0 Mb/s

### 5

- The association response frame has a type/subtype value of 0x0001
- The association request frame has a type/subtype value of 0x0000

### 6

- The probe response frame has a type/subtype value of 0x0005
- The probe request frame has a type/subtype value of 0x0004