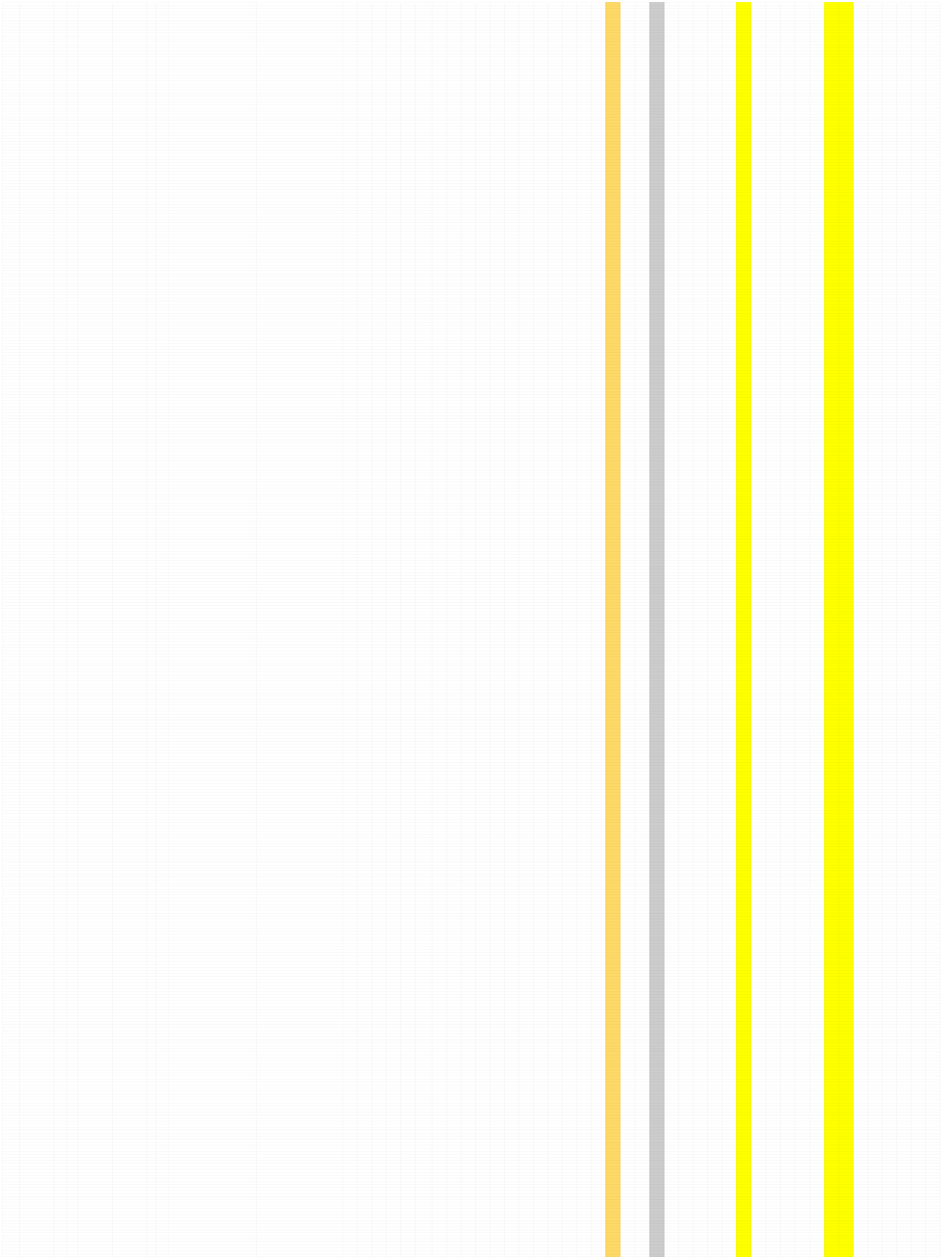
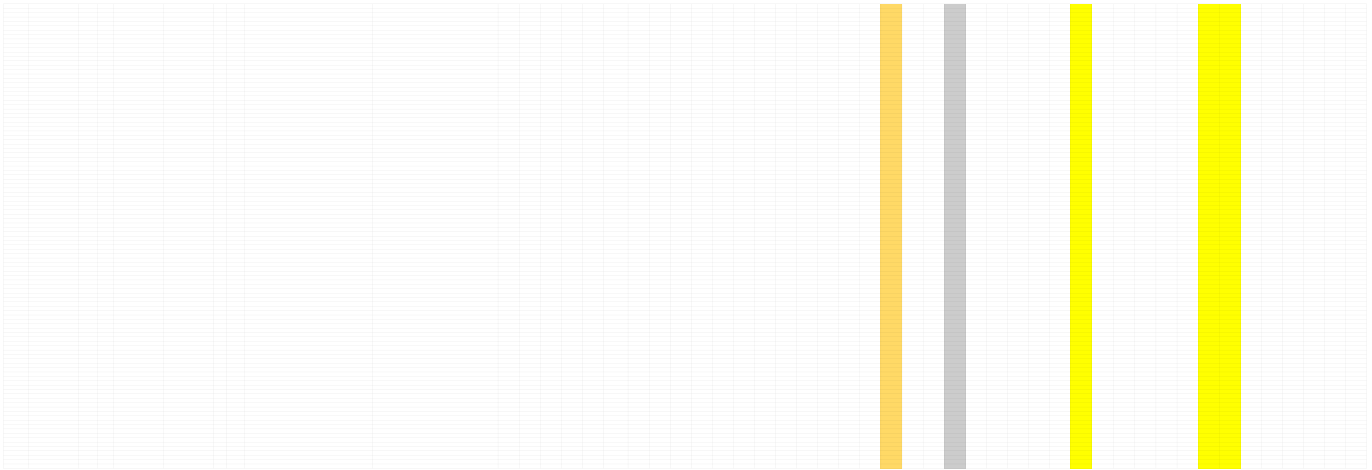


Main Testing Sheet	
Test No.	Test Description
1	Test 1
2	Test 2
3	Test 3
4	Test 4
5	Test 5
6	Test 6
7	Test 7
8	Test 8
9	Test 9
10	Test 10
11	Test 11
12	Test 12
13	Test 13
14	Test 14
15	Test 15
16	Test 16
17	Test 17
18	Test 18
19	Test 19
20	Test 20
21	Test 21
22	Test 22
23	Test 23
24	Test 24
25	Test 25
26	Test 26
27	Test 27
28	Test 28
29	Test 29
30	Test 30
31	Test 31
32	Test 32
33	Test 33
34	Test 34
35	Test 35
36	Test 36
37	Test 37
38	Test 38
39	Test 39
40	Test 40
41	Test 41
42	Test 42
43	Test 43
44	Test 44
45	Test 45
46	Test 46
47	Test 47
48	Test 48
49	Test 49
50	Test 50
51	Test 51
52	Test 52
53	Test 53
54	Test 54
55	Test 55
56	Test 56
57	Test 57
58	Test 58
59	Test 59
60	Test 60
61	Test 61
62	Test 62
63	Test 63
64	Test 64
65	Test 65
66	Test 66
67	Test 67
68	Test 68
69	Test 69
70	Test 70
71	Test 71
72	Test 72
73	Test 73
74	Test 74
75	Test 75
76	Test 76
77	Test 77
78	Test 78
79	Test 79
80	Test 80
81	Test 81
82	Test 82
83	Test 83
84	Test 84
85	Test 85
86	Test 86
87	Test 87
88	Test 88
89	Test 89
90	Test 90
91	Test 91
92	Test 92
93	Test 93
94	Test 94
95	Test 95
96	Test 96
97	Test 97
98	Test 98
99	Test 99
100	Test 100



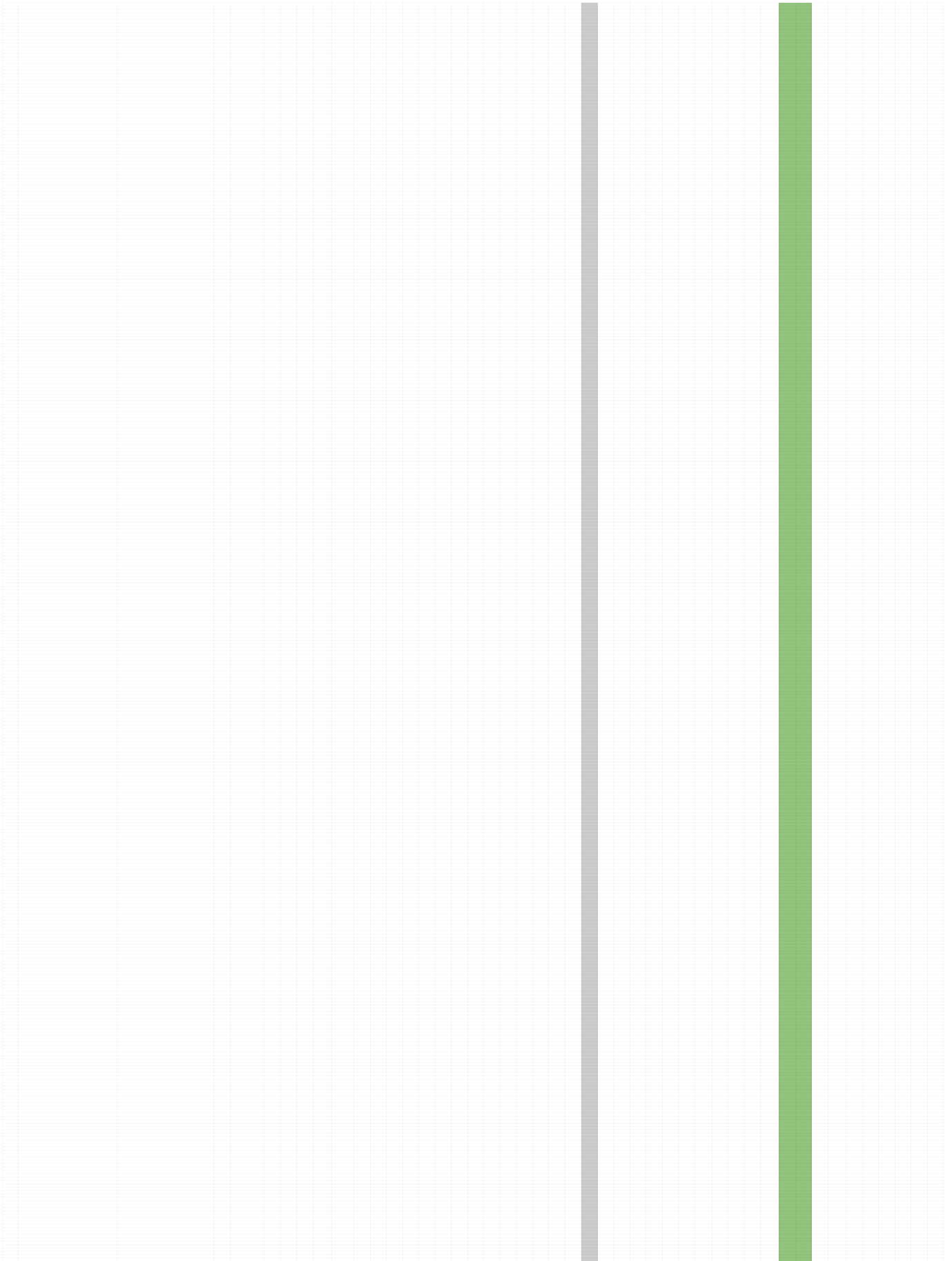


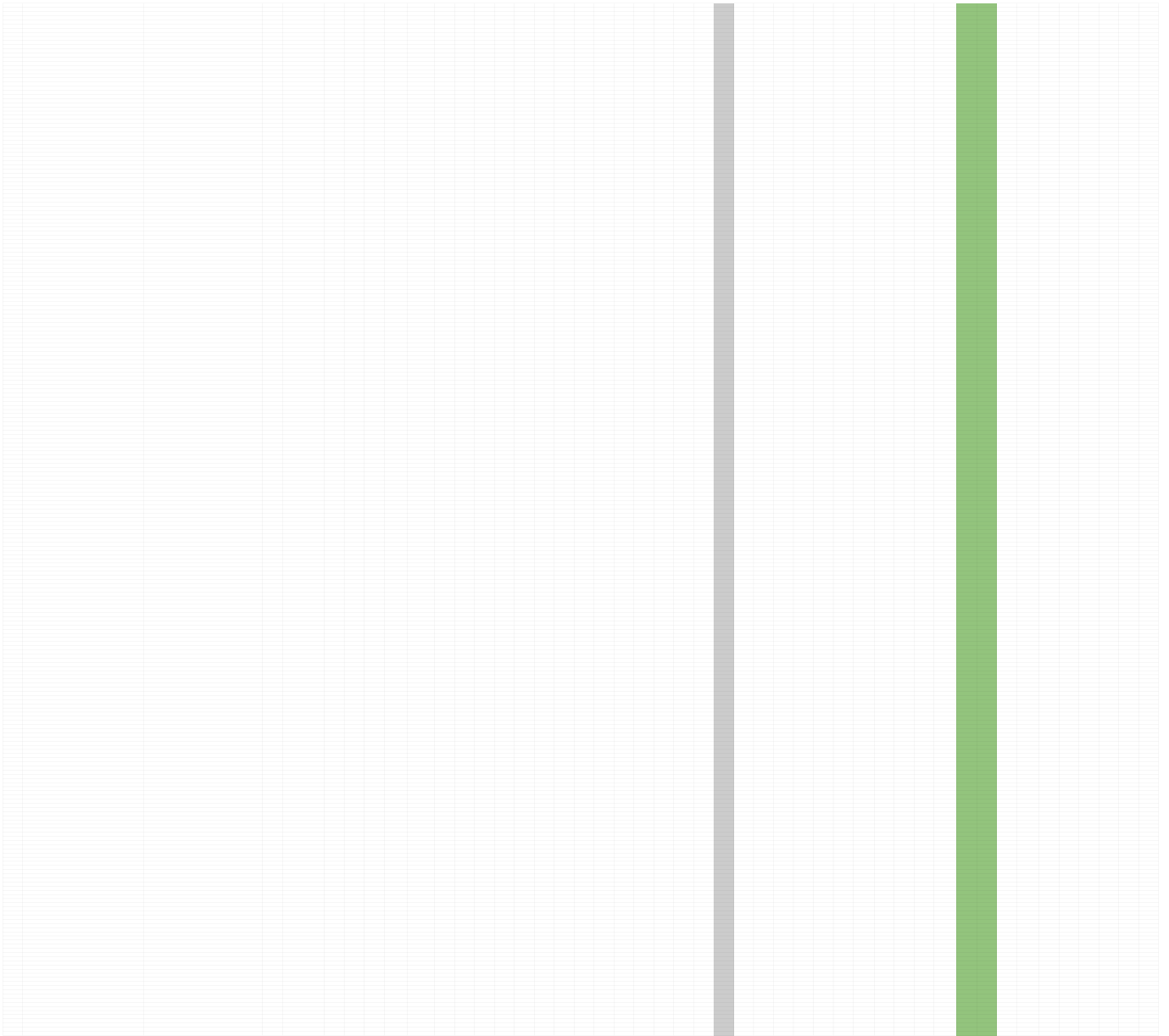
Testing results - Daikin 2

Function	Result	Comments
protocol	incorrect	displays last sent command, not received command
model	incorrect	displays "-"
power	correct	
mode	partial	basic functions OK, fancy modes such as humidity need further work on decoding sheet
use_celsius	unknown	showing ON but I'm not sure where it got it from
temp	correct	hasn't changed for a while
fan_speed	partial	see Test Sheet
swing	partial	see Test Sheet
light	correct	response to controls will vary
eco	correct	powerful not allowed in auto mode
eco_plus	correct	
light	incorrect	doesn't change
filter	incorrect	doesn't change
blow	correct	max power
sleep	incorrect	doesn't change
sleep		not tested as there isn't a corresponding time function

Other static settings:  
 Intelligent Eye hard coded OFF







Single Bytes pasted in cell B5 give the current decoding results

	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted	Decrypted																																																																																																																																																																																																																																												
Decrypted	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F	0x10	0x11	0x12	0x13	0x14	0x15	0x16	0x17	0x18	0x19	0x1A	0x1B	0x1C	0x1D	0x1E	0x1F	0x20	0x21	0x22	0x23	0x24	0x25	0x26	0x27	0x28	0x29	0x2A	0x2B	0x2C	0x2D	0x2E	0x2F	0x30	0x31	0x32	0x33	0x34	0x35	0x36	0x37	0x38	0x39	0x3A	0x3B	0x3C	0x3D	0x3E	0x3F	0x40	0x41	0x42	0x43	0x44	0x45	0x46	0x47	0x48	0x49	0x4A	0x4B	0x4C	0x4D	0x4E	0x4F	0x50	0x51	0x52	0x53	0x54	0x55	0x56	0x57	0x58	0x59	0x5A	0x5B	0x5C	0x5D	0x5E	0x5F	0x60	0x61	0x62	0x63	0x64	0x65	0x66	0x67	0x68	0x69	0x6A	0x6B	0x6C	0x6D	0x6E	0x6F	0x70	0x71	0x72	0x73	0x74	0x75	0x76	0x77	0x78	0x79	0x7A	0x7B	0x7C	0x7D	0x7E	0x7F	0x80	0x81	0x82	0x83	0x84	0x85	0x86	0x87	0x88	0x89	0x8A	0x8B	0x8C	0x8D	0x8E	0x8F	0x90	0x91	0x92	0x93	0x94	0x95	0x96	0x97	0x98	0x99	0x9A	0x9B	0x9C	0x9D	0x9E	0x9F	0xA0	0xA1	0xA2	0xA3	0xA4	0xA5	0xA6	0xA7	0xA8	0xA9	0xAA	0xAB	0xAC	0xAD	0xAE	0xAF	0xB0	0xB1	0xB2	0xB3	0xB4	0xB5	0xB6	0xB7	0xB8	0xB9	0xBA	0xBB	0xBC	0xBD	0xBE	0xBF	0xC0	0xC1	0xC2	0xC3	0xC4	0xC5	0xC6	0xC7	0xC8	0xC9	0xCA	0xCB	0xCC	0xCD	0xCE	0xCF	0xD0	0xD1	0xD2	0xD3	0xD4	0xD5	0xD6	0xD7	0xD8	0xD9	0xDA	0xDB	0xDC	0xDD	0xDE	0xDF	0xE0	0xE1	0xE2	0xE3	0xE4	0xE5	0xE6	0xE7	0xE8	0xE9	0xEA	0xEB	0xEC	0xED	0xEE	0xEF	0xF0	0xF1	0xF2	0xF3	0xF4	0xF5	0xF6	0xF7	0xF8	0xF9	0xFA	0xFB	0xFC	0xFD	0xFE	0xFF
Decrypted	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F	0x10	0x11	0x12	0x13	0x14	0x15	0x16	0x17	0x18	0x19	0x1A	0x1B	0x1C	0x1D	0x1E	0x1F	0x20	0x21	0x22	0x23	0x24	0x25	0x26	0x27	0x28	0x29	0x2A	0x2B	0x2C	0x2D	0x2E	0x2F	0x30	0x31	0x32	0x33	0x34	0x35	0x36	0x37	0x38	0x39	0x3A	0x3B	0x3C	0x3D	0x3E	0x3F	0x40	0x41	0x42	0x43	0x44	0x45	0x46	0x47	0x48	0x49	0x4A	0x4B	0x4C	0x4D	0x4E	0x4F	0x50	0x51	0x52	0x53	0x54	0x55	0x56	0x57	0x58	0x59	0x5A	0x5B	0x5C	0x5D	0x5E	0x5F	0x60	0x61	0x62	0x63	0x64	0x65	0x66	0x67	0x68	0x69	0x6A	0x6B	0x6C	0x6D	0x6E	0x6F	0x70	0x71	0x72	0x73	0x74	0x75	0x76	0x77	0x78	0x79	0x7A	0x7B	0x7C	0x7D	0x7E	0x7F	0x80	0x81	0x82	0x83	0x84	0x85	0x86	0x87	0x88	0x89	0x8A	0x8B	0x8C	0x8D	0x8E	0x8F	0x90	0x91	0x92	0x93	0x94	0x95	0x96	0x97	0x98	0x99	0x9A	0x9B	0x9C	0x9D	0x9E	0x9F	0xA0	0xA1	0xA2	0xA3	0xA4	0xA5	0xA6	0xA7	0xA8	0xA9	0xAA	0xAB	0xAC	0xAD	0xAE	0xAF	0xB0	0xB1	0xB2	0xB3	0xB4	0xB5	0xB6	0xB7	0xB8	0xB9	0xBA	0xBB	0xBC	0xBD	0xBE	0xBF	0xC0	0xC1	0xC2	0xC3	0xC4	0xC5	0xC6	0xC7	0xC8	0xC9	0xCA	0xCB	0xCC	0xCD	0xCE	0xCF	0xD0	0xD1	0xD2	0xD3	0xD4	0xD5	0xD6	0xD7	0xD8	0xD9	0xDA	0xDB	0xDC	0xDD	0xDE	0xDF	0xE0	0xE1	0xE2	0xE3	0xE4	0xE5	0xE6	0xE7	0xE8	0xE9	0xEA	0xEB	0xEC	0xED	0xEE	0xEF	0xF0	0xF1	0xF2	0xF3	0xF4	0xF5	0xF6	0xF7	0xF8	0xF9	0xFA	0xFB	0xFC	0xFD	0xFE	0xFF
Decrypted	0x00	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09	0x0A	0x0B	0x0C	0x0D	0x0E	0x0F	0x10	0x11	0x12	0x13	0x14	0x15	0x16	0x17	0x18	0x19	0x1A	0x1B	0x1C	0x1D	0x1E	0x1F	0x20	0x21	0x22	0x23	0x24	0x25	0x26	0x27	0x28	0x29	0x2A	0x2B	0x2C	0x2D	0x2E	0x2F	0x30	0x31	0x32	0x33	0x34	0x35	0x36	0x37	0x38	0x39	0x3A	0x3B	0x3C	0x3D	0x3E	0x3F	0x40	0x41	0x42	0x43	0x44	0x45	0x46	0x47	0x48	0x49	0x4A	0x4B	0x4C	0x4D	0x4E	0x4F	0x50	0x51	0x52	0x53	0x54	0x55	0x56	0x57	0x58	0x59	0x5A	0x5B	0x5C	0x5D	0x5E	0x5F	0x60	0x61	0x62	0x63	0x64	0x65	0x66	0x67	0x68	0x69	0x6A	0x6B	0x6C	0x6D	0x6E	0x6F	0x70	0x71	0x72	0x73	0x74	0x75	0x76	0x77	0x78	0x79	0x7A	0x7B	0x7C	0x7D	0x7E	0x7F	0x80	0x81	0x82	0x83	0x84	0x85	0x86	0x87	0x88	0x89	0x8A	0x8B	0x8C	0x8D	0x8E	0x8F	0x90	0x91	0x92	0x93	0x94	0x95	0x96	0x97	0x98	0x99	0x9A	0x9B	0x9C	0x9D	0x9E	0x9F	0xA0	0xA1	0xA2	0xA3	0xA4	0xA5	0xA6	0xA7	0xA8	0xA9	0xAA	0xAB	0xAC	0xAD	0xAE	0xAF	0xB0	0xB1	0xB2	0xB3	0xB4	0xB5	0xB6	0xB7	0xB8	0xB9	0xBA	0xBB	0xBC	0xBD	0xBE	0xBF	0xC0	0xC1	0xC2	0xC3	0xC4	0xC5	0xC6	0xC7	0xC8	0xC9	0xCA	0xCB	0xCC	0xCD	0xCE	0xCF	0xD0	0xD1	0xD2	0xD3	0xD4	0xD5	0xD6	0xD7	0xD8	0xD9	0xDA	0xDB	0xDC	0xDD	0xDE	0xDF	0xE0	0xE1	0xE2	0xE3	0xE4	0xE5	0xE6	0xE7	0xE8	0xE9	0xEA	0xEB	0xEC	0xED	0xEE	0xEF	0xF0	0xF1	0xF2	0xF3	0xF4	0xF5	0xF6	0xF7	0xF8	0xF9	0xFA	0xFB	0xFC	0xFD	0xFE	0xFF

From: [redacted] To: [redacted]

From: [redacted] To: [redacted]



## Individual Byte meanings

On Message 19 Degrees Auto	11DA2700010C42F0280C8004B016240000BEC57611DA270000092600A0000006600000C18060E8
Byte 0	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
11	DA 27 00 01 0C 42 F0 28 0C 80 04 B0 16 24 00 00 BE C5 76 11 DA 27 00 00 09 26 00 A0 00

### Byte Function

0	Always 11
1	Always DA
2	Always 27
3	Always 00
4	Always 01
5	Minutes past midnight, rolls over into right half of byte 6
6	lower 4 bits are added to byte 5 as the MSB of a 12 bit value of current time past midnight Bit 7 = ON/OFF???? upper 4 bits seem to reflect what the AC should be doing after the command. C = OFF, 4 = ON - not fully tested yet
7	Bits 6 and 7 are Beep Volume, 10 = Loud, 01 = Quiet, 11 = OFF Bits 4 and 5 are LED Brightness on front of unit, 01 = Bright, 10 = Dim, 11 = Off Both OFF = 1111, Both on Full = 1001
8	Individual Bits, Set = ON, Bit 0 = Fresh Air Supply, bit 3 mold proof, bit 5 Auto Filter Clean, bit 7 Fresh Air Supply High
9	tbc
10	tbc
11	Bit 3 = 24 Hour On Timer Set
12	Status Request, used with byte 34, B0 Normal, B7 Status Requested
13	Bit 7 = Intelligent Eye Auto Off set = Enabled
14	tbc
15	tbc
16	tbc
17	Left-Right Airflow BE = Auto, A3 = Left 1/2, AB = Left 1/4, AA = Left to Middle 1/4, AB = Middle 1/4, AC = Right to Middle 1/4, BF = Swing
18	Up-Down Airflow Lower 4 bits are wanted direction 1-8 are fixed positions with 1 being highest position C = Breeze, D = Circulate, E = Auto Bit 4 = something to do with Off Timer??
19	Checksum - 2 digit hex sum of byte 0 thru 18 with top bytes lost
20	Always 11
21	Always DA
22	Always 27
23	Always 00
24	Always 00
25	Mode Upper 4 bits are main mode 0 = Auto Cooling, 1 = Auto, 2 = Dehumidify, 3 = Cooling, 4 = Heating Lower 4 bits - All are active 1, LSB = Power, Bit1 = On Timer Set, Bit 2 = Off Timer Set, bit 3 = tbc
26	Temperature Valid Range - Auto 18-30, Cool 18-32, Dry Cooling 18-32, Heat 10-30, Humid Heating 10-30, Formula is Hex of Selected Temperature x 2, works in 0.5 Deg C. EG 10C = 0x14 20C = 0x28
27	tbc Heat = 0, Humidity = 32
28	upper 4 bits control Fan Speed 3 = FS1, 4 = FS2, 5 = FS3, 6 = FS4, 7 = FS5, A = Auto, B = Quiet
29	tbc
30	Minutes past midnight for Comfort Sleep Timer and ON Timer, Lower 4 bits of byte 31 are MSB of this 12 bit eg byte 30 set to 0xA4, LSB of byte 31 is 0x1, put that together it is 0x184, which in decimal is 420. This means 420 mins past midnight which is 7am
31	MSB is LSB of Off Time Minutes past midnight - see next byte for an example, time is stored in 12 bits, bits 4 thru 7 of byte 31 and all of byte 32 LSB is MSB in a 12 bit number with byte 30, see above
32	Off Time Minutes past midnight, 1st two MSB's eg byte 32 is 0x30 and MSB of byte 31 is 0x1, result of combining the 2 is 0x301, in Decimal is 760, and in time is 12:49PM
33	LSB = Powerful Bit 5 = Outdoor Quiet Only Quiet OR Powerful can be used at the same time, powerful not allowed in auto mode
34	Bit 6 = Status Request, set = requested, ua = powerful
35	tbc
36	Individual bits, set = ON, Bit 1 = Intellieye Position Sensing, Bit 0 = Econo Mode, Bit 4 Flash Streamer Air Purifier, Bit 5 Sleep Comfort Timer
37	tbc
38	Checksum for bytes 20 thru 37, same formula as Byte 19

Key: Green is likely complete byte function,  
 Yellow is likely part byte function, Orange = checksum

### NOTES:

Comfort sleep time set to 0x600 when not in use  
 Off timer set to 0x600 when not in use

Mitsubishi Electric Protocol 71

Commands

Checksums

v  
a  
n  
ON T M e F

v  
a  
n  
ON T M e F

Testing Section	Header	Commands	Fixed Middle	Checksums	Footer
nibble	0 1 2 3 4 5 6 7 8 9	10 11 12 13 14 15	16 17 18 19 20 21	22 23 24 25 26 27	28 29 30 31 32 33
71,23CB26210040C2C7040000BF3D38FBFFFF	2 3 C B 2 6 2 1 0 0 4	0 C 2 C 7 0 4 0 0 0 0	0 B F 3 D 3 8 F B F F F F		
71,23CB26210040C237040000BF3DC8FBFFFF	2 3 C B 2 6 2 1 0 0 4	0 C 2 3 7 0 4 0 0 0 0	0 B F 3 D C 8 F B F F F F		
71,23CB26210040C227040000BF3DD8FBFFFF	2 3 C B 2 6 2 1 0 0 4	0 C 2 2 7 0 4 0 0 0 0	0 B F 3 D D 8 F B F F F F		
71,23CB26210040C217040000BF3DE8FBFFFF	2 3 C B 2 6 2 1 0 0 4	0 C 2 1 7 0 4 0 0 0 0	0 B F 3 D E 8 F B F F F F		
71,23CB26210040C207040000BF3DF8FBFFFF	2 3 C B 2 6 2 1 0 0 4	0 C 2 0 7 0 4 0 0 0 0	0 B F 3 D F 8 F B F F F F		
71,23CB26210040C2C7040000BF3D38FBFFFF	2 3 C B 2 6 2 1 0 0 4	0 C 2 C 7 0 4 0 0 0 0	0 B F 3 D 3 8 F B F F F F		
71,23CB262100408201040000BF7DFEFBFFFF	2 3 C B 2 6 2 1 0 0 4	0 8 2 0 1 0 4 0 0 0 0	0 B F 7 D F E F B F F F F		
71,23CB262100408201040000BF7DFEFBFFFF	2 3 C B 2 6 2 1 0 0 4	0 8 2 0 1 0 4 0 0 0 0	0 B F 7 D F E F B F F F F		

Packet format:

Header:23CB262100

Followed by

Digits measured from Left starting at 0

Nibble

Function

- 10 Power 0 = OFF, 4 = ON
- 11 Always "0"
- 12 Temp 16C + setting, 17C = 1, 18 = 2, etc
- 13 Mode 0 = Fan, 1 = Cool, 2 = Heat, 3 = Auto, 5 = Dry
- 14 Vanes 0 = Down, 1 = Up one notch, 3 = fully up, C = Swing
- 15 Fan 1 = Quiet 3 = Low, 5 = Medium, 7 = High, Ducted system treats Quiet and Low as the same speed

then: 040000

Nibble

Function

- 22 Power Checksum
- 23 Always "F"
- 24 Temp Checksum
- 25 Mode Checksum
- 26 Vanes Checksum
- 27 Fan Checksum

the Footer: FBFFFF

Temperatures vs mode:

Mode	Min	Max
Cooling	19	30
Dry	19	30
Auto	19	28
Fan	n/a	n/a
Heat	17	28

Checksum Values are calculated as F - Original Value.

EG Original = 1, Checksum = E

Original = 3, Checksum = C

Vanes support is untested as its not supported by my unit

Tests with common AC framework																																						
Fujitsu AR-RAC1E			Protocol 33																																			
Function	working	comments																																				
Power	yes																																					
Mode	yes																																					
Temp	yes																																					
Quiet	yes																																					
Fanspeed	yes	min = quiet on																																				
AirClean	n/a	min, low, med, high, auto																																				
Swing	yes																																					
			C O I L  D R Y																																			
			A I R  C L E A N																																			
Fujitsu AR-RY4			Protocol 33																																			
Function	working																																					
Power	yes																																					
Mode	yes																																					
Temp	yes																																					
Quiet	yes																																					
Fanspeed	yes	min = quiet on																																				
AirClean	n/a																																					
Swing	yes																																					
			nibble from left			29	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
33,1463001010FE0930A10000000002807	Air Clean ON		8	1	4	6	3	0	0	1	0	1	0	F	E	0	9	3	0	A	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	0	7
33,1463001010FE0930A00000000002010	Air Clean OFF		0	1	4	6	3	0	0	1	0	1	0	F	E	0	9	3	0	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0
33,1463001010FE0930A008000000002800	Coil Dry, clean ON		8	1	4	6	3	0	0	1	0	1	0	F	E	0	9	3	0	A	0	0	8	0	0	0	0	0	0	0	0	0	0	2	8	0	0	
33,1463001010FE0930A008000000002008	Coil Dry, clean OFF		0	1	4	6	3	0	0	1	0	1	0	F	E	0	9	3	0	A	0	0	8	0	0	0	0	0	0	0	0	0	0	2	0	0	8	
33,1463001010FE0930C1041000000020DB			0	1	4	6	3	0	0	1	0	1	0	F	E	0	9	3	0	C	1	0	4	1	0	0	0	0	0	0	0	0	2	0	D	B		
nibble 29 is Air Clean, 8 = ON, 0 = OFF																																						
Nibble 19 is Coil Dry, 8 is ON, 4 is OFF																																						
Model 5 tests																																						
Received String		Command																																				
33,1463001010FE0930C00010000000028D8	IR Remote	mode:Auto,28, fan:auto, air clean, swing																																				
33,1463001010FE0930C1003000000028B7	IRMQTTServer	mode:Auto,28, fan:auto, air clean, swing, model 5																																				
33,1463001010FE0930C1003000000020BF	IRMQTTServer	mode:Auto,28, fan:auto, air clean, swing, model 1																																				
33,1463001010FE0930C100000000020EF		remote non swing																																				
33,1463001010FE0930C1001000000020DF		remote swing																																				
33,1463001010FE0930C104000000020EB		model 1 non swing																																				
			0			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
			D B B 7 B F E F D F E B																																			