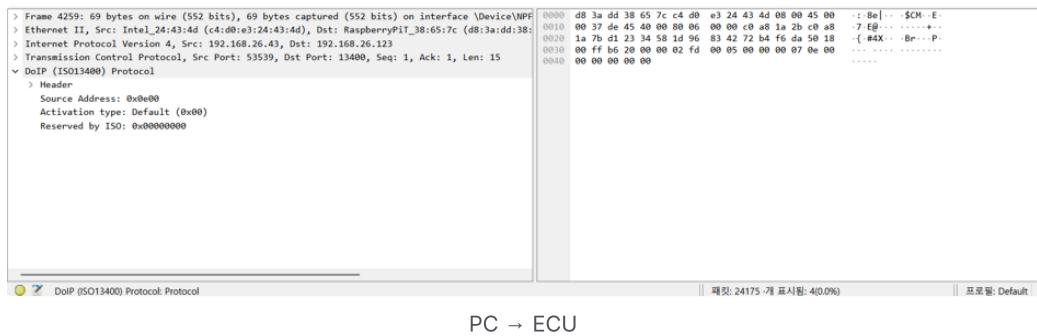


## DoIP 통합 테스트

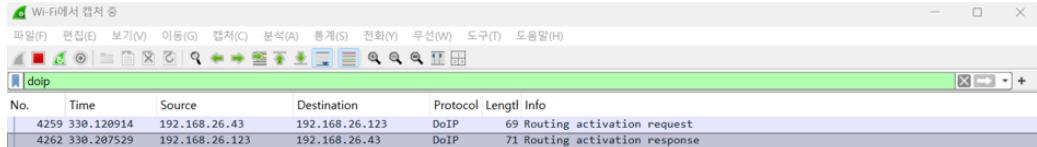
### Wireshark를 이용해서 모든 UDS를 테스트한다

- Wireshark는 WIFI 통신(RP4 게이트웨이 - PC 진단기)에서 발생하는 DoIP 통신을 볼 수 있다
  - ECU에서 전달받은 UDS 메시지를 PC 진단기로 전달하기 때문에 ECU에서 PC까지의 DoIP 통신을 확인할 수 있으며 프로토콜 규격을 검토할 수 있다

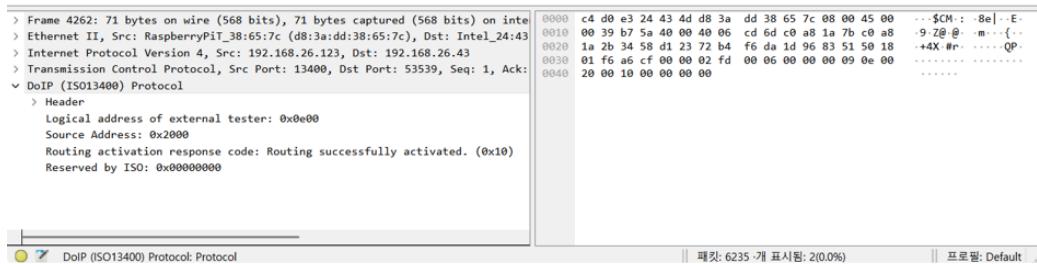
## 1. Routing Activation



PC → ECU

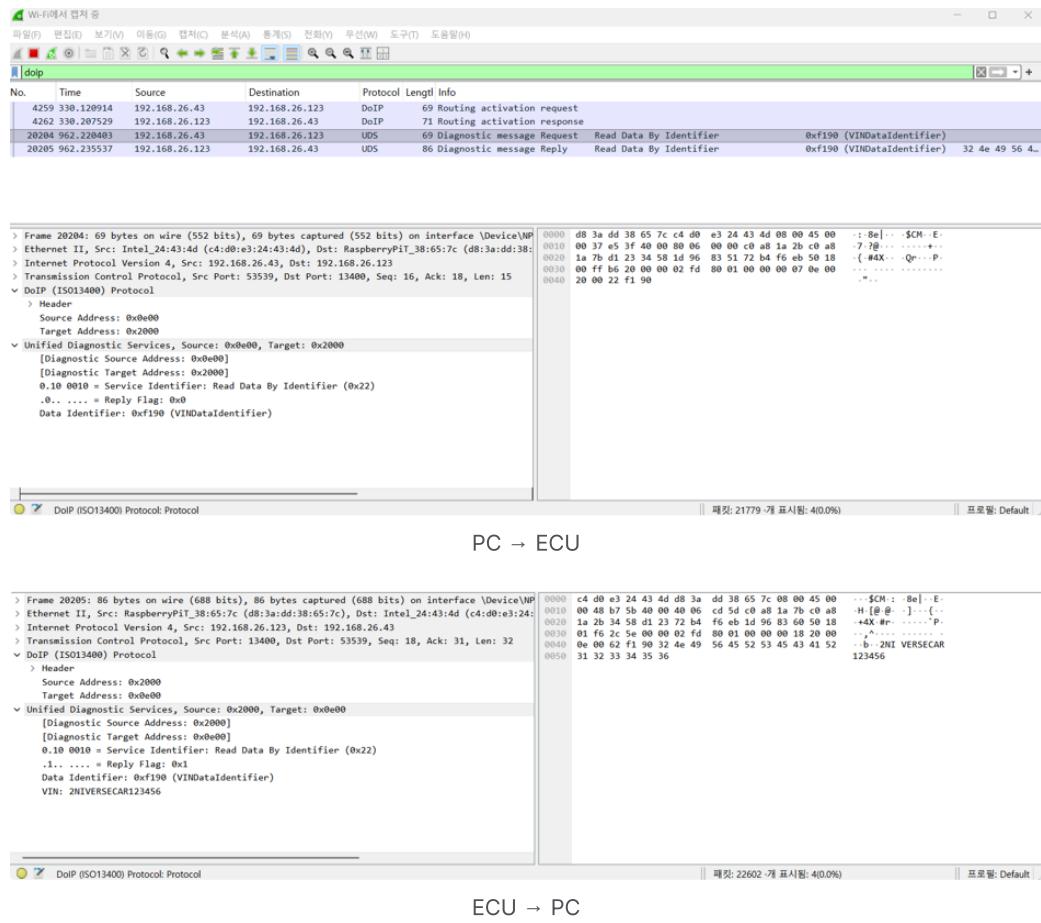


10 of 10 | Page | [Home](#) | [About Us](#) | [Contact Us](#) | [Feedback](#) | [Help](#)

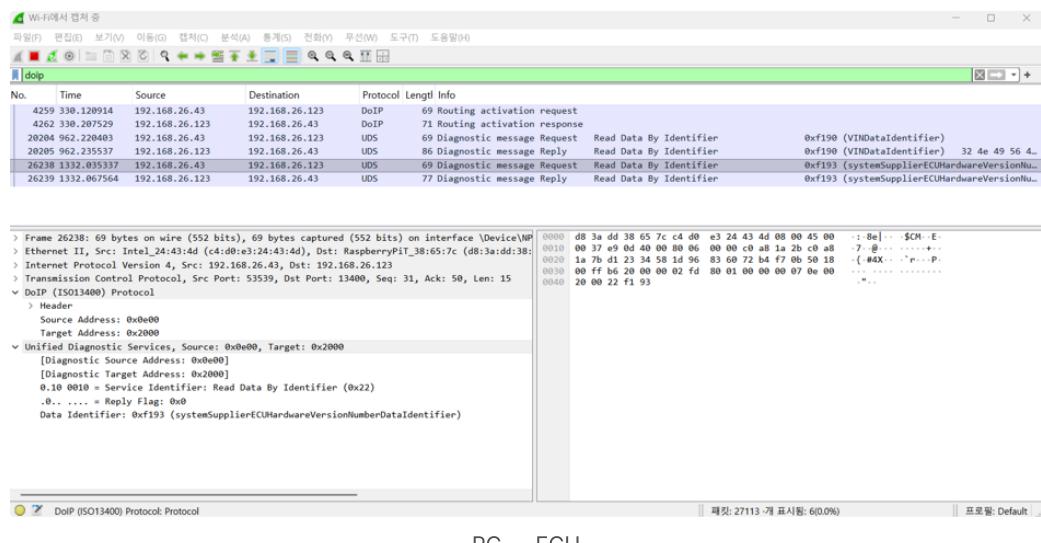


ECU → PC

## 2. Read VIN



### 3. Read ECU HW



```

Frame 26239: 77 bytes on wire (616 bits), 77 bytes captured (616 bits) on interface \Device\NPF_Ethernet II, Src: PythonP1T_38:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d)
Internet Protocol Version 4, Src: 192.168.26.123, Dst: 192.168.26.43
Transmission Control Protocol, Src Port: 13400, Dst Port: 55399, Seq: 50, Ack: 46, Len: 23
DoIP (ISO13400) Protocol
  > Header
    Source Address: 0x2000
    Target Address: 0x0e00
  Unified Diagnostic Services, Source: 0x2000, Target: 0x0e00
    [Unified Diagnostic Source Address: 0x2000]
    [Diagnostic Target Address: 0x0e00]
    0.10 0010 = Service Identifier: Read Data By Identifier (0x22)
    .1. .... = Reply Flag: 0x1
    Data Identifier: 0x0f93 (systemSupplierECUHardwareVersionNumberDataIdentifier)
    Data Value: 48575f56312e3032

0000  c4 d0 e3 24 43 4d dd 3a 3d 38 65 7c 08 00 45 00 .. $CH = :8e|..E:
0010  00 3f b7 5c 40 00 40 06 cd 65 c9 a8 1b 7b c9 a8 .. ?@ @-e-{|..{
0020  00 1b 2b 34 58 d1 23 72 fd f7 0b 1d 96 83 6f 50 18 .. -4X#R=.....OP-
0030  00 f1 f6 32 7e 00 02 fd 80 01 00 00 00 00 0f 20 00 .. -2-|..V1.02
0040  0e 00 62 f1 93 48 57 5f 56 31 2e 30 32 .. -b-|..V1.02

```

ECU → PC

#### **4. Read ECU SW**

No.	Time	Source	Destination	Protocol	Length	Info
4259	330.120914	192.168.26.43	192.168.26.123	DoIP	69	Routing activation request
4262	330.207529	192.168.26.123	192.168.26.43	DoIP	71	Routing activation response
2028	562.220493	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request
2028	562.225537	192.168.26.123	192.168.26.43	UDS	68	Diagnostic message Reply
2628	1332.035337	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request
2629	1332.067564	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply
28620	1502.361994	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request
28621	1502.375718	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply

DolP (ISO13400) Protocol: Protocol | 패킷: 28720 - 7월 표시율: 8(0.0%) | 프로필: Default

```

> Frame 28621: 77 bytes on wire (616 bits), 77 bytes captured (616 bits) on interface \Device\NP
  EtherType II, Src: Raspberry Pi1_38:65:c7 (d8:3a:0d:38:65:c7), Dst: Intel:1e:24:43:d4 (c4:d0:e3:24:1e:24)
    Internet Protocol Version 4, Src: 192.168.26.123, Dst: 192.168.26.43
    Transmission Control Protocol, Src Port: 13400, Dst Port: 53593, Seq: 73, Ack: 61, Len: 23
  > DIP (ISO13400) Protocol
    > Header
      Source Address: 0x2000
      Target Address: 0xe000
  ✓ Unified Diagnostic Services, Source: 0x2000, Target: 0x0e00
    [Diagnostic Source Address: 0x2000]
    [Diagnostic Target Address: 0x0e00]
    0.10 0010 = Service Identifier: Read Data By Identifier (0x22)
    .1. .... = Reply Flag: 0x1
    Data Identifier: 0xf195 (systemSupplierECUSoftwareVersionNumberDataIdentifier)
    Data Record: 53575f56322e3033

```

DolP (ISO13400) Protocol: Protocol 페킷: 29163 개 블리핑: 8(0.0%) 프로필: Default

### 5. Read ECU NUM

No.	Time	Source	Destination	Protocol	Length	Info
20204	962.220403	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request Read Data By Identifier 0xf190 (VINDataIdentifier)
20205	962.235537	192.168.26.123	192.168.26.43	UDS	86	Diagnostic message Reply Read Data By Identifier 0xf190 (VINDataIdentifier) 32 4e 49 56 4..
26238	1332.035337	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request Read Data By Identifier 0xf193 (systemSupplierECUHardwareVersionNu..
26239	1332.067564	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply Read Data By Identifier 0xf193 (systemSupplierECUHardwareVersionNu..
28620	1502.361094	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request Read Data By Identifier 0xf195 (systemSupplierECUSoftwareVersionNu..
28621	1502.375718	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply Read Data By Identifier 0xf195 (systemSupplierECUSoftwareVersionNu..
34709	1817.959192	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request Read Data By Identifier 0xf18c (ECUSerialNumberDataIdentifier)
34711	1818.001583	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply Read Data By Identifier 0xf18c (ECUSerialNumberDataIdentifier) 4..

```
> Frame 34709: 69 bytes on wire (552 bits), 69 bytes captured (552 bits) on interface '\Device\NPF_{...}' at 00:00:00:00:00:00 [eth0]
> Ethernet II, Src: Intel_24:43:4d (08:00:e3:24:43:4d), Dst: RaspberryPi_3B:65:7c (08:0a:dd:38:6:7c)
> Internet Protocol Version 4, Src: 192.168.26.43, Dst: 192.168.26.123
> Transmission Control Protocol, Src Port: 53539, Dst Port: 13400, Seq: 61, Ack: 96, Len: 15
< DoIP (ISO13400) Protocol
  > Header
    Source Address: 0x0e00
    Target Address: 0x2000
  < Unified Diagnostic Services, Source: 0x0e00, Target: 0x2000
    [Diagnostic Source Address: 0x0e00]
    [Diagnostic Target Address: 0x2000]
    0..10 0010 = Service Identifier: Read Data By Identifier (0x22)
    .. . . . = Reply Flag: 0x0
    Data Identifier: 0xf18c (ECUSerialNumberDataIdentifier)
```

PC → ECU

No.	Time	Source	Destination	Protocol	Length	Info
34711	1818.001583	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply Read Data By Identifier 0xf18c (ECUSerialNumberDataIdentifier) 4..

```
> Frame 34711: 77 bytes on wire (616 bits), 77 bytes captured (616 bits) on interface '\Device\NPF_{...}' at 00:00:00:00:00:00 [eth0]
> Ethernet II, Src: RaspberryPi_3B:65:7c (08:0a:dd:38:6:7c), Dst: Intel_24:43:4d (08:00:e3:24:43:4d)
> Internet Protocol Version 4, Src: 192.168.26.123, Dst: 192.168.26.43
> Transmission Control Protocol, Src Port: 13400, Dst Port: 53539, Seq: 96, Ack: 76, Len: 23
< DoIP (ISO13400) Protocol
  > Header
    Source Address: 0x2000
    Target Address: 0x0e00
  < Unified Diagnostic Services, Source: 0x2000, Target: 0x0e00
    [Diagnostic Source Address: 0x2000]
    [Diagnostic Target Address: 0x0e00]
    0..10 0010 = Service Identifier: Read Data By Identifier (0x22)
    .. . . . = Reply Flag: 0x1
    Data Identifier: 0xf18c (ECUSerialNumberDataIdentifier)
    Data Record: 494e465443333735
```

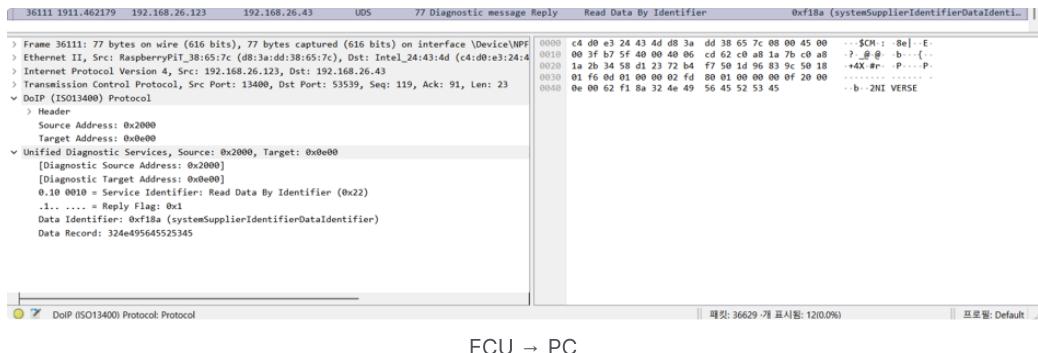
ECU → PC

## 6. Read System ID

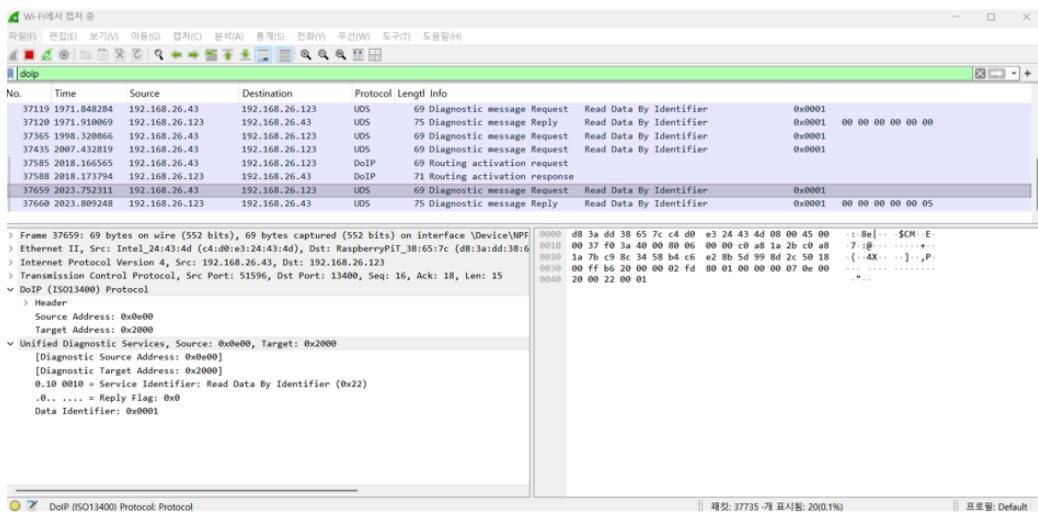
No.	Time	Source	Destination	Protocol	Length	Info
26238	1332.035337	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request Read Data By Identifier 0xf193 (systemSupplierECUHardwareVersionNu..
26239	1332.067564	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply Read Data By Identifier 0xf193 (systemSupplierECUHardwareVersionNu..
28620	1502.361094	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request Read Data By Identifier 0xf195 (systemSupplierECUSoftwareVersionNu..
28621	1502.375718	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply Read Data By Identifier 0xf195 (systemSupplierECUSoftwareVersionNu..
34709	1817.959192	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request Read Data By Identifier 0xf18c (ECUSerialNumberDataIdentifier)
34711	1818.001583	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply Read Data By Identifier 0xf18c (ECUSerialNumberDataIdentifier) 4..
36110	1911.440771	192.168.26.43	192.168.26.123	UDS	69	Diagnostic message Request Read Data By Identifier 0xf18a (systemSupplierIdentifierDataIdentifier)
36111	1911.622179	192.168.26.123	192.168.26.43	UDS	77	Diagnostic message Reply Read Data By Identifier 0xf18a (systemSupplierIdentifierDataIdentifier)

```
> Frame 36110: 69 bytes on wire (552 bits), 69 bytes captured (552 bits) on interface '\Device\NPF_{...}' at 00:00:00:00:00:00 [eth0]
> Ethernet II, Src: Intel_24:43:4d (08:00:e3:24:43:4d), Dst: RaspberryPi_3B:65:7c (08:0a:dd:38:6:7c)
> Internet Protocol Version 4, Src: 192.168.26.43, Dst: 192.168.26.123
> Transmission Control Protocol, Src Port: 13400, Dst Port: 53539, Seq: 76, Ack: 119, Len: 15
< DoIP (ISO13400) Protocol
  > Header
    Source Address: 0x0e00
    Target Address: 0x2000
  < Unified Diagnostic Services, Source: 0x0e00, Target: 0x2000
    [Diagnostic Source Address: 0x0e00]
    [Diagnostic Target Address: 0x2000]
    0..10 0010 = Service Identifier: Read Data By Identifier (0x22)
    .. . . . = Reply Flag: 0x0
    Data Identifier: 0xf18a (systemSupplierIdentifierDataIdentifier)
```

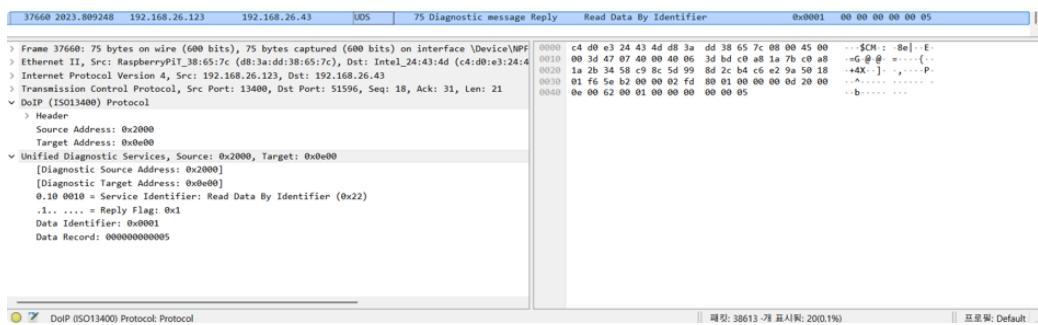
PC → ECU



## 7. Read Ultrasound

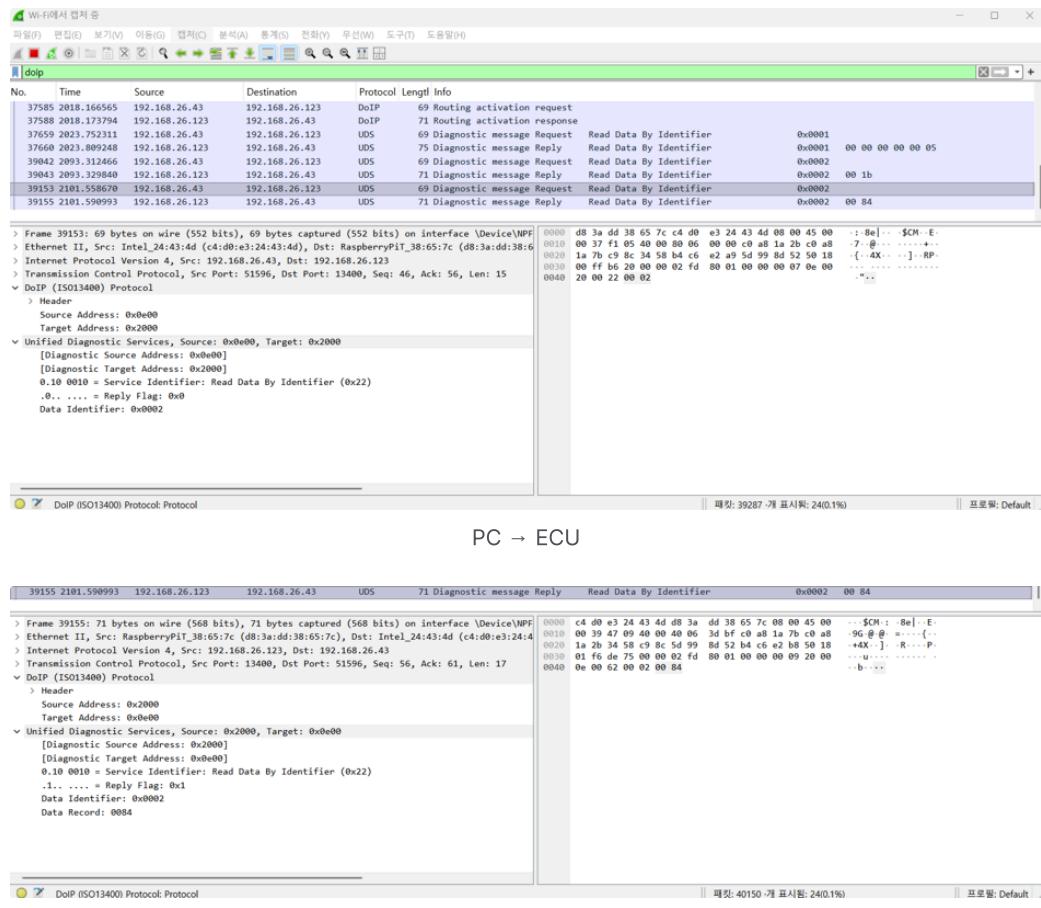


PC → ECU



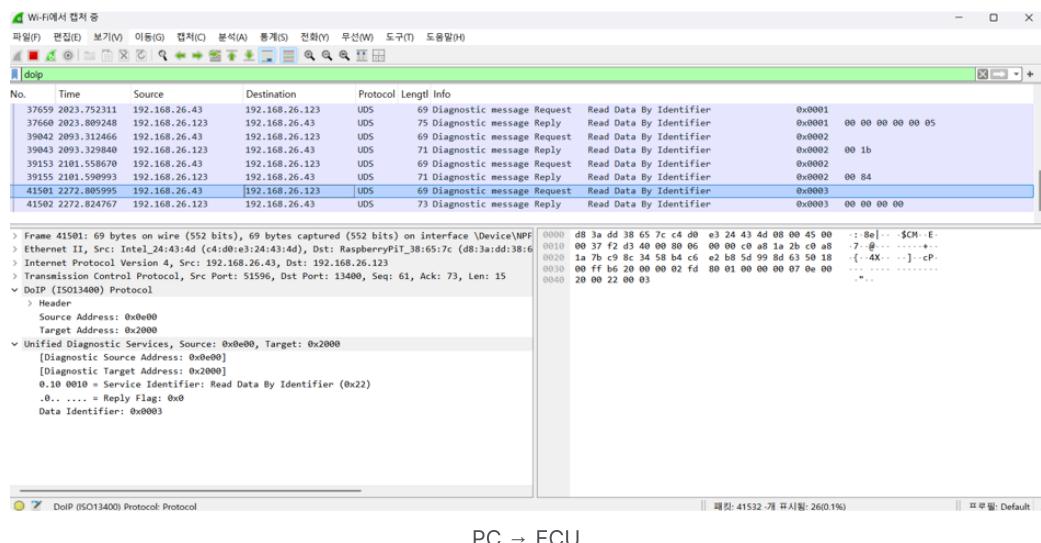
ECU → PC

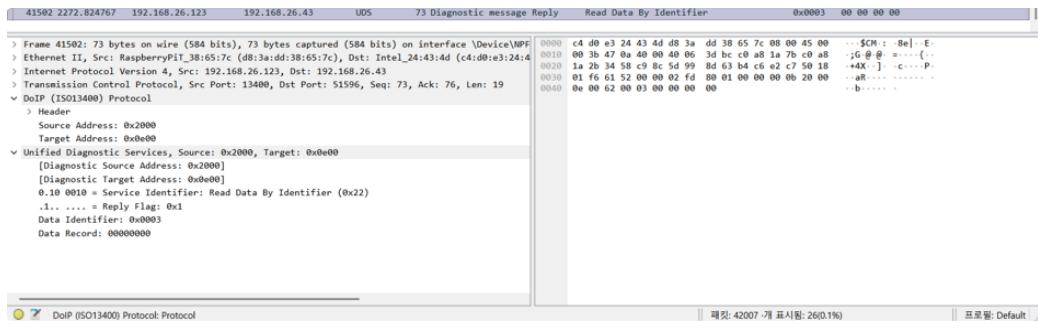
## 8. Read ToF



ECU → PC

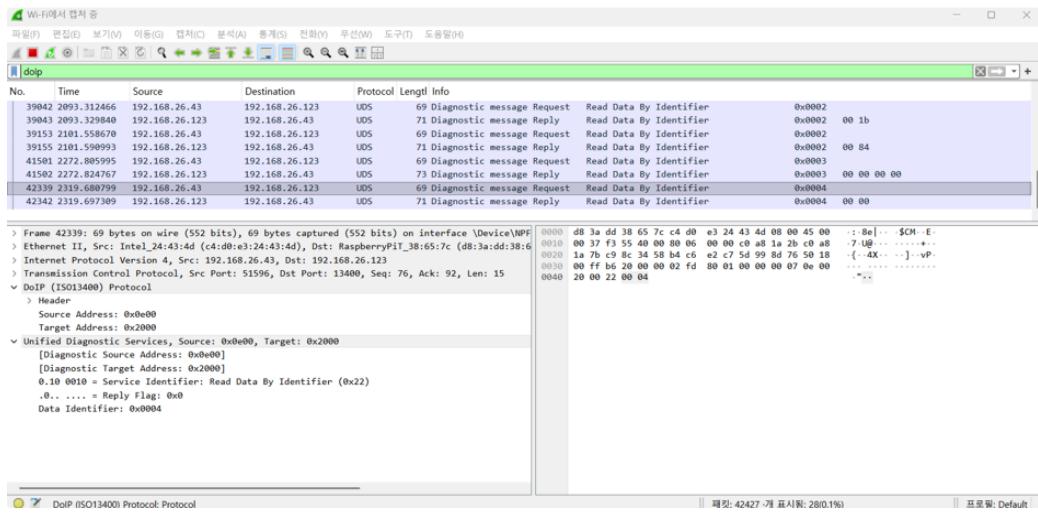
## 9. Read RPM



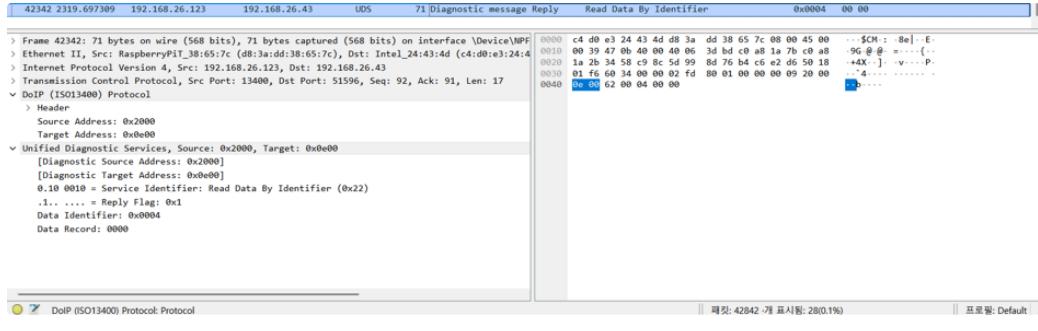


ECU → PC

## 10. Read LED

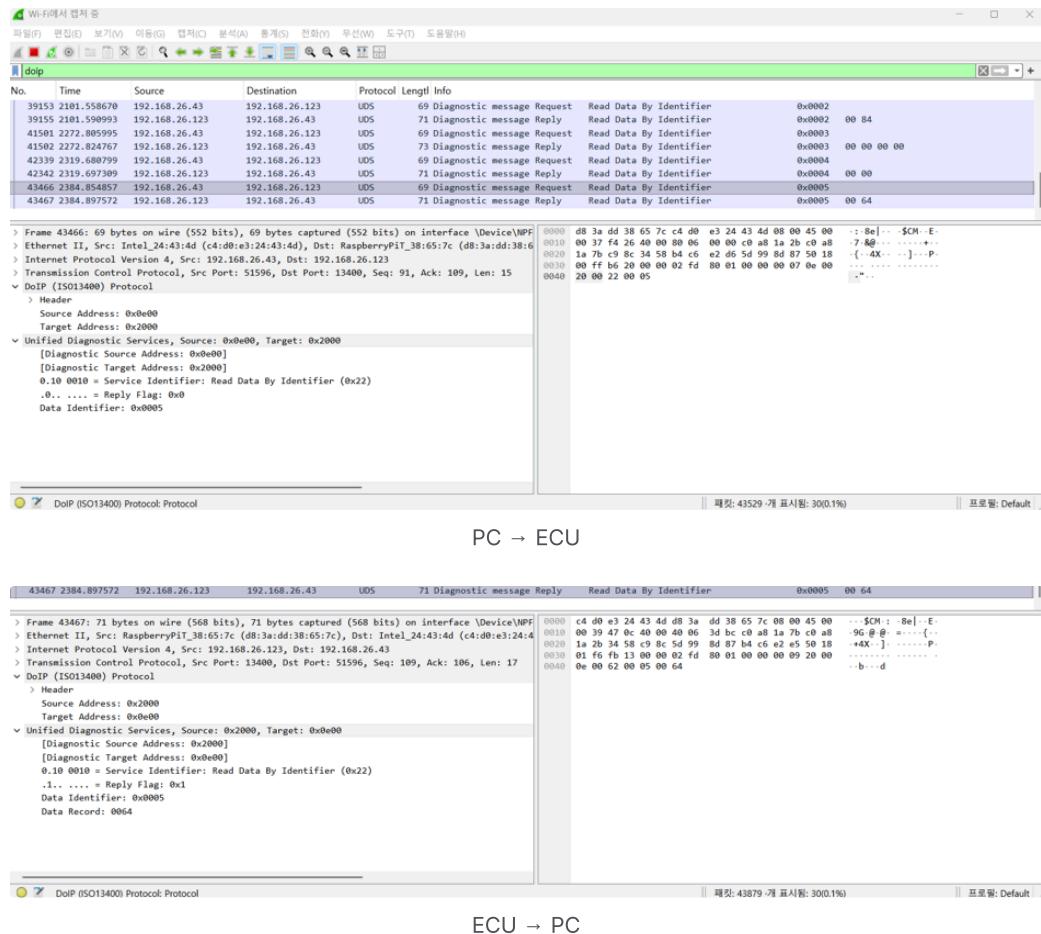


PC → ECU

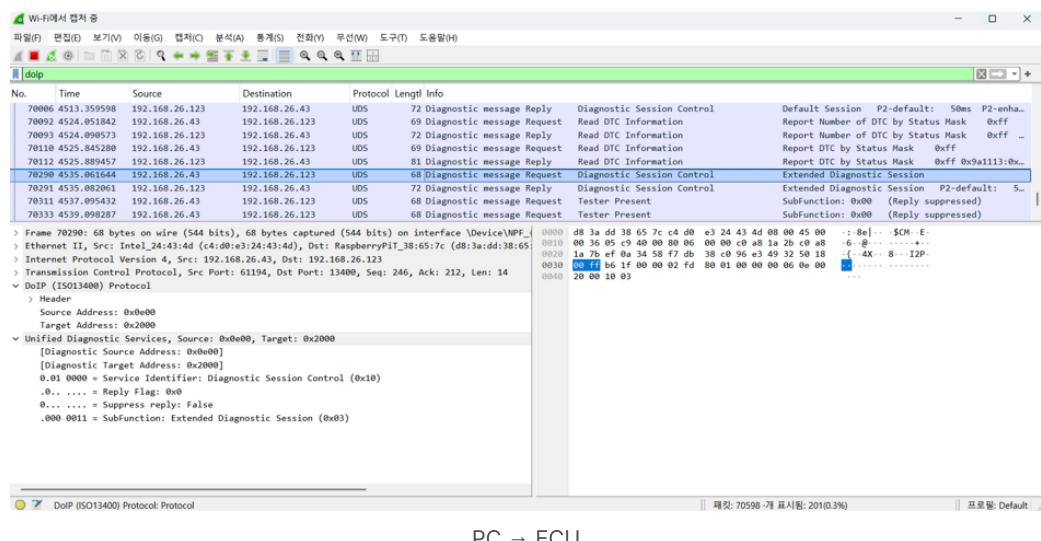


ECU → PC

## 11. Read AEB Offset



## 12. Extended Session (Extended Session 변경)



7031 4535.882061	192.168.26.123	192.168.26.43	UDS	72 Diagnostic message Reply	Diagnostic Session Control	Extended Diagnostic Session	P2-default: 5...
7031 4537.895432	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Diagnostic Session Control	SubFunction: 0x00 (Reply suppressed)	
7033 4539.998287	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
> Frame 70291: 72 bytes on wire (576 bits), 72 bytes captured (576 bits) on interface 'Device\NPF_{d8:3a:dd:38:65:7c}' (Intel PRO/100 MT Desktop Adapter), (ether II Src: RaspberryPI_38:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d))							
Ethernet II, Src: RaspberryPI_38:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d) Internet Protocol Version 4, Src: 192.168.26.123, Dst: 192.168.26.43 Transmission Control Protocol, Src Port: 13400, Dst Port: 61194, Seq: 212, Ack: 260, Len: 18							
> DoIP (ISO13400) Protocol							
> Header							
Source Address: 0x2000							
Target Address: 0x0e00							
Unified Diagnostic Services, Source: 0x2000, Target: 0x0e00							
[Diagnostic Source Address: 0x2000]							
[Diagnostic Target Address: 0x0e00]							
0..01 0000 = Service Identifier: Diagnostic Session Control (0x10)							
.1.... = Reply Flag: 0x1							
0... .0000 0011 = SubFunction: Extended Diagnostic Session (0x03)							
Parameter Record: 00321388							
Default P2 Server Timer: 50ms							
Enhanced P2 Server Timer: 50000ms							
0000 00 00 32 13 24 43 4d db 3a dd 38 65 7c 00 45 00 .-\$CH- .8el- E-							
00 3a 00 39 fd a3 40 00 80 06 00 00 c0 a8 1a 2b c0 a8 .6- @- .-.-.							
0020 1a 2b c0 34 58 e0 0a e3 49 32 f7 38 ce 00 18 .(-4X- .]--P-							
0030 01 f6 ee e4 00 00 02 fd 80 01 00 00 00 00 0a 18 .-.-. ....							
0040 0e 00 50 03 00 32 13 18 .P- 2- .-							

ECU → PC

### 13. TesterPresent

52291 3035.841423	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
52309 3037.842537	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
52329 3039.850856	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
52349 3041.851065	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
52374 3043.874172	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
52422 3045.883366	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
52455 3047.885650	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
52457 3049.887438	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
> Frame 52445: 68 bytes on wire (544 bits), 68 bytes captured (544 bits) on interface 'Device\NPF_{d8:3a:dd:38:65:7c}' (Intel PRO/100 MT Desktop Adapter), (ether II Src: RaspberryPI_38:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d))							
Ethernet II, Src: RaspberryPI_38:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d) Internet Protocol Version 4, Src: 192.168.26.43, Dst: 192.168.26.123 Transmission Control Protocol, Src Port: 13400, Dst Port: 51596, Seq: 542, Ack: 253, Len: 14							
> DoIP (ISO13400) Protocol							
> Header							
Source Address: 0x0e00							
Target Address: 0x2000							
Unified Diagnostic Services, Source: 0x0e00, Target: 0x2000							
[Diagnostic Source Address: 0x0e00]							
[Diagnostic Target Address: 0x2000]							
0..11 1110 = Service Identifier: Tester Present (0x3e)							
.0. .... = Reply Flag: 0x0							
.0..0000 = SubFunction (without Suppress): 0x00							
1... .... = Suppress reply: True							
0000 d8 3a dd 38 65 7c c4 d0 e3 24 43 4d 00 45 00 .-\$CH- .8el- E-							
0010 00 36 f8 ac 00 80 06 00 00 c0 a8 1a 2b c0 a8 .6- @- .-.-.							
0020 1a 7b c9 8c 34 58 b4 c6 e4 99 5d 99 8e 17 1b 18 .(-4X- .]--P-							
0030 00 ff b6 0f 00 00 02 fd 80 01 00 00 00 00 0e 00 ..... .-							
0040 20 00 3e 80 .->- .-							

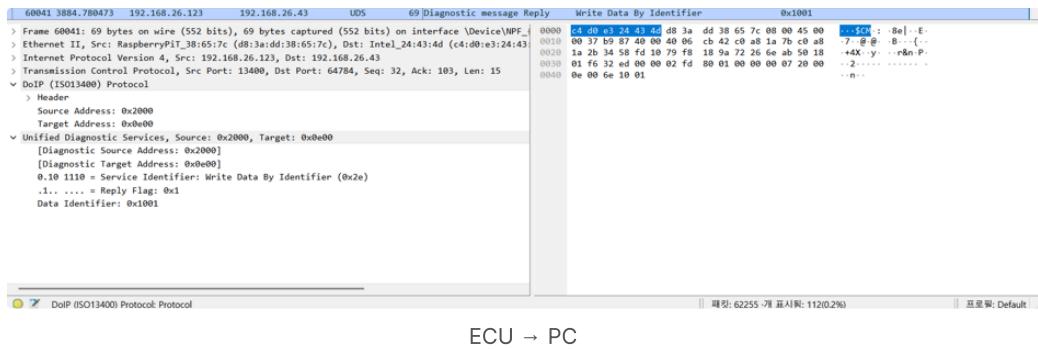
PC → ECU

(\*TesterPresent는 ECU로부터 응답을 받지 않음)

### 14. Write AEB Offset

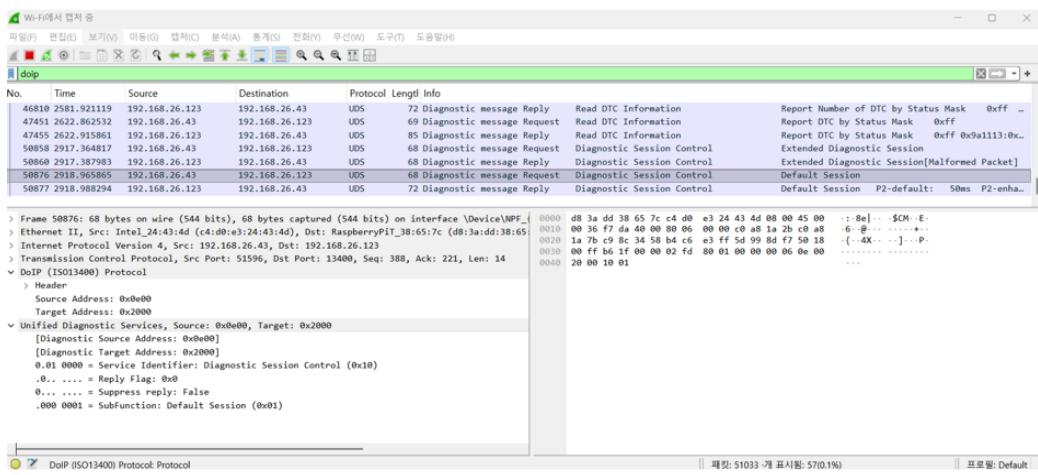
59837 3872.804299	192.168.26.123	192.168.26.43	DoIP	71 Routing activation response	Diagnostic Session Control	Extended Diagnostic Session	
59869 3876.232154	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Diagnostic Session Control	Extended Diagnostic Session	[Malformed Packet]
59876 3876.259460	192.168.26.123	192.168.26.43	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
59909 3880.260089	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
59913 3880.279464	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
59951 3880.298817	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
59977 3884.298087	192.168.26.43	192.168.26.123	UDS	68 Diagnostic message Request	Tester Present	SubFunction: 0x00 (Reply suppressed)	
60017 3884.681287	192.168.26.43	192.168.26.123	UDS	71 Diagnostic message Request	Write Data By Identifier	0x1001 00 70	
60041 3884.780473	192.168.26.123	192.168.26.43	UDS	69 Diagnostic message Reply	Write Data By Identifier	0x1001	
> Frame 60001: 71 bytes on wire (568 bits), 71 bytes captured (568 bits) on interface 'Device\NPF_{d8:3a:dd:38:65:7c}' (Intel PRO/100 MT Desktop Adapter), (ether II Src: RaspberryPI_38:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d))							
Ethernet II, Src: RaspberryPI_38:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d) Internet Protocol Version 4, Src: 192.168.26.43, Dst: 192.168.26.123 Transmission Control Protocol, Src Port: 64784, Dst Port: 13400, Seq: 86, Ack: 32, Len: 17							
> DoIP (ISO13400) Protocol							
> Header							
Source Address: 0x0e00							
Target Address: 0x2000							
Unified Diagnostic Services, Source: 0x0e00, Target: 0x2000							
[Diagnostic Source Address: 0x0e00]							
[Diagnostic Target Address: 0x2000]							
0..10 1110 = Service Identifier: Write Data By Identifier (0x2e)							
.0. .... = Reply Flag: 0x0							
Data Identifier: 0x1001							
Data Record: 0078							
0000 d8 3a dd 38 65 7c c4 d0 e3 24 43 4d 00 45 00 .-\$CH- .8el- E-							
0010 00 39 fd a3 40 00 80 06 00 00 c0 a8 1a 2b c0 a8 .6- @- .-.-.							
0020 1a 7b fd 10 34 58 26 6e 9a 79 f8 18 9a 18 .(-4X- .]--P-							
0030 00 ff b6 22 00 00 02 fd 80 01 00 00 00 09 0e 00 ..... .-							
0040 20 00 26 10 01 00 78 .->- .-							

PC → ECU

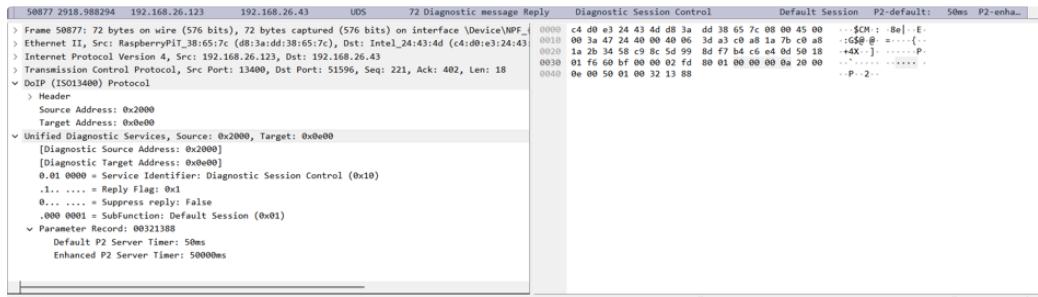


ECU → PC

## 15. Default Session (Default Session 변경)

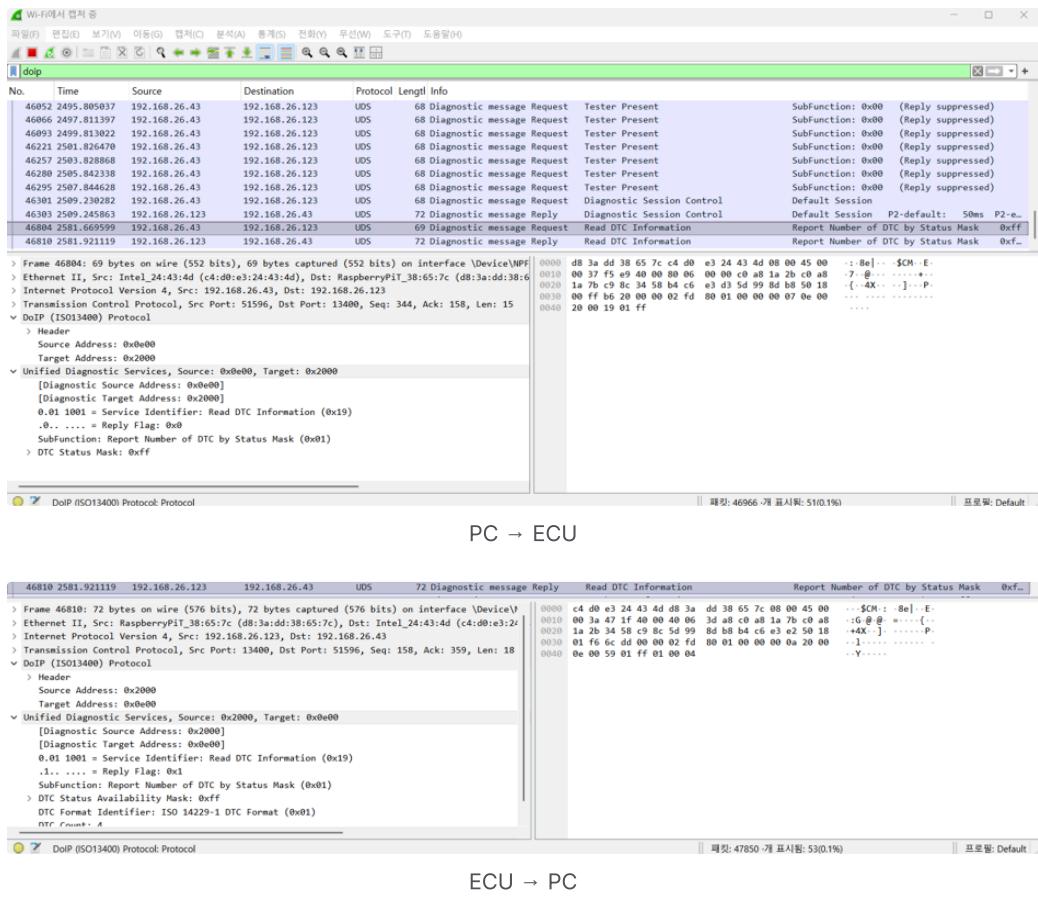


PC → ECU

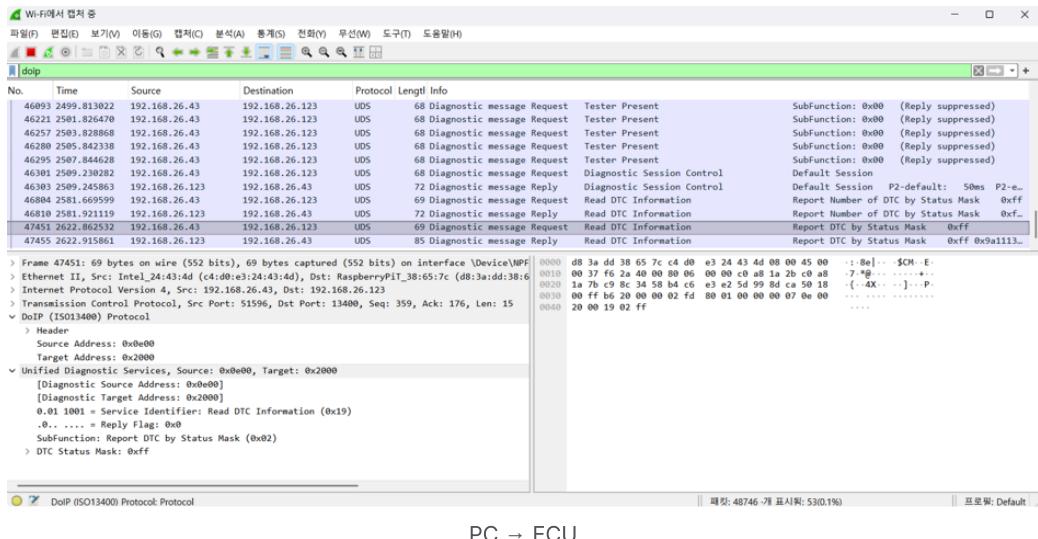


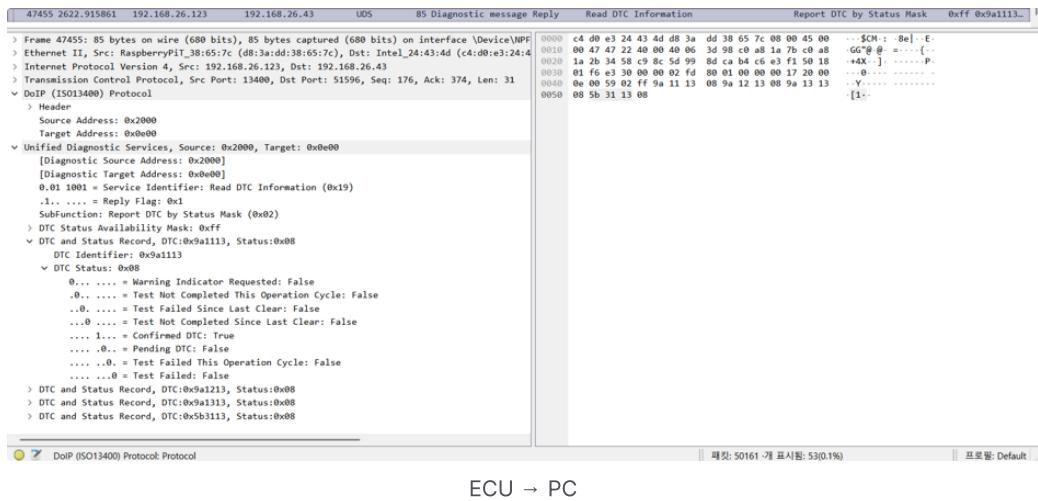
ECU → PC

## 16. Read DTC Count



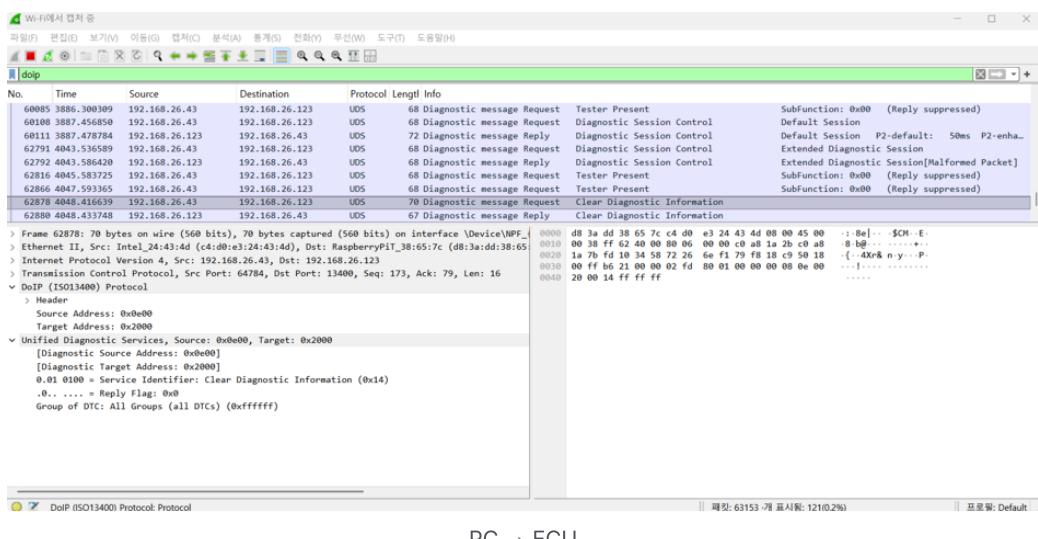
## 17. Read DTC List



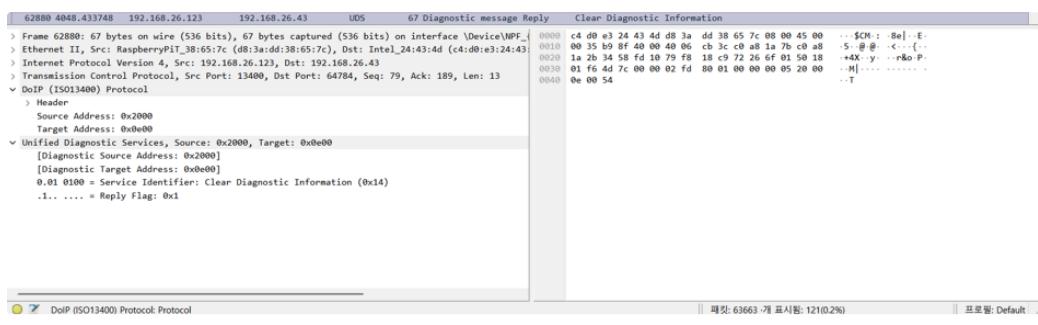


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## 18. Clear DTC (Extended Session 변경 선행)

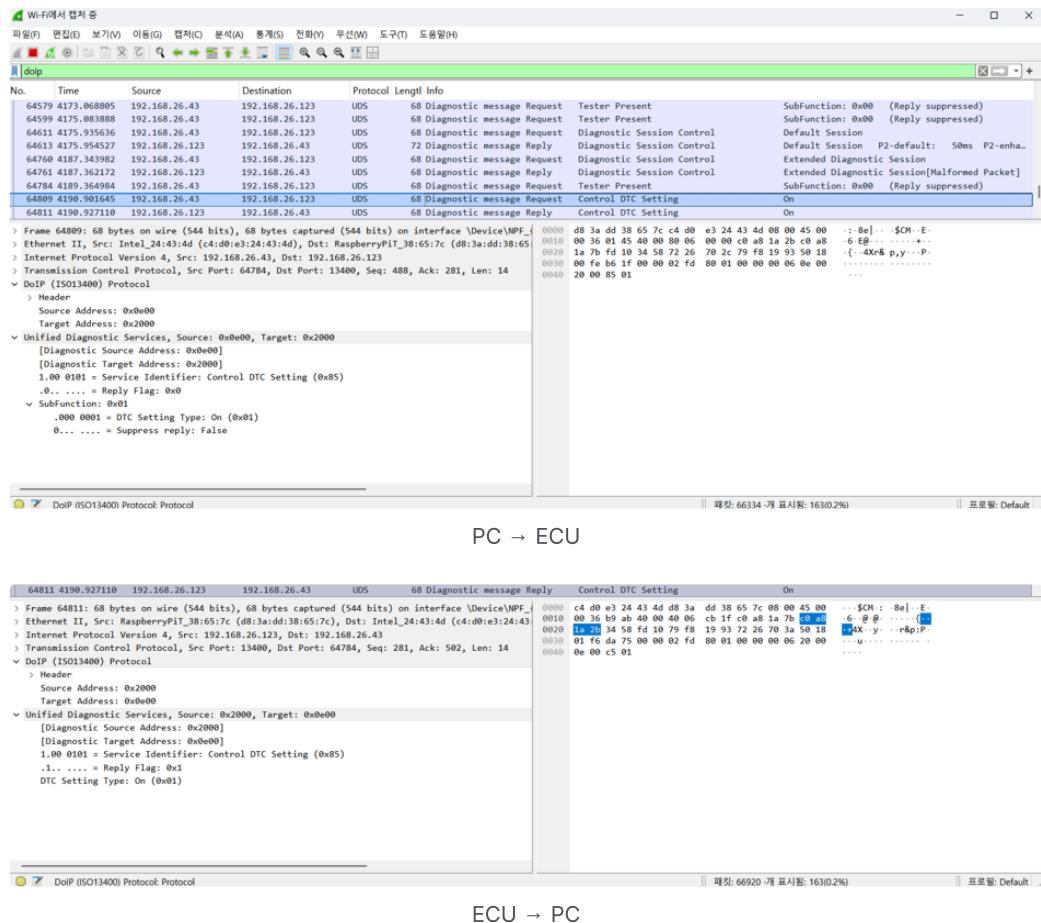


PC → ECU

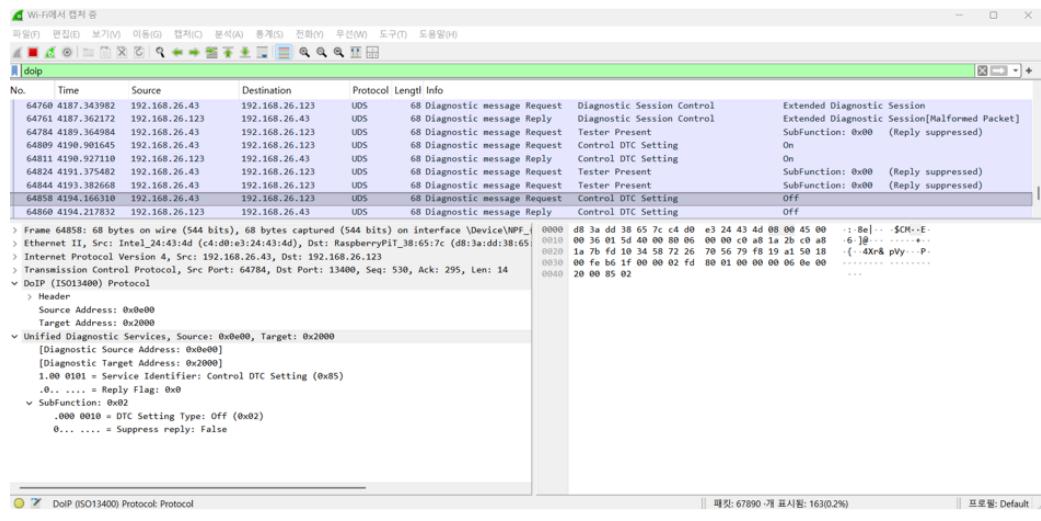


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## 19. Activate DTC (Extended Session 변경 선행)



## 20. Deactivate DTC (Extended Session 변경 선행)



	64860 4194.217832	192.168.26.123	192.168.26.43	UDS	68 Diagnostic message Reply	Control DTC Setting	Off
> Frame 64860: 68 bytes on wire (544 bits), 68 bytes captured (544 bits) on interface \Device\NPF_{...}							
> Ethernet II, Src: RaspberryPi_3B:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d)							- : \$CH : 8e   - E-
> Internet Protocol Version 4, Src: 192.168.26.123, Dst: 192.168.26.43							
> Transmission Control Protocol, Src Port: 13400, Dst Port: 64784, Seq: 295, Ack: 544, Len: 14							- : @   . . . . .
DoIP (ISO13400) Protocol							- : 1a 2b 34 58 fd 10 79 f8 1a a1 72 26 78 64 50 18
> Header							- : AX   - r8pdP
Source Address: 0x2000							- : . . . . .
Target Address: 0x0e00							- : . . . . .
v Unified Diagnostic Services, Source: 0x2000, Target: 0x0e00							
[Diagnostic Source Address: 0x2000]							- : . . . . .
[Diagnostic Target Address: 0x0e00]							- : . . . . .
0.00 0101 = Service Identifier: Control DTC Setting (0x85)							- : . . . . .
.1. .... = Reply Flag: 0x1							- : . . . . .
DTC Setting Type: Off (0x02)							- : . . . . .
DoIP (ISO13400) Protocol							- : . . . . .
0x0000 c4 d0 e3 24 43 dd 8 3a dd 38 65 7c c4 d0 e3 24 43 dd 08 00 45 00							- : \$CM : 8e   - E-
0x0010 00 38 07 75 40 00 00 00 00 00 c0 a8 1a 2b c0 a8							- : @   . . . . .
0x0020 1a 7b ef 0a 34 58 fd 39 22 96 e3 49 56 50 18							- : AX   - 9"   IVP
0x0030 00 ff b6 21 00 00 02 fd 80 01 00 00 00 08 00 00							- : . . . . .
0x0040 20 00 14 ff ff							- : . . . . .

ECU → PC

## 21. Default Session에서 Clear DTC (NRC 0x7F)

	73229 4695.893527	192.168.26.43	192.168.26.123	UDS	70 Diagnostic message Request	Clear Diagnostic Information	Error	Clear Diagnostic Information (NRC: Service no...
> Frame 73229: 70 bytes on wire (560 bits), 70 bytes captured (560 bits) on interface \Device\NPF_{...}								
> Ethernet II, Src: Intel_24:43:4d (c4:d0:e3:24:43:4d), Dst: RaspberryPi_3B:65:7c (d8:3a:dd:38:65:7c)								- : \$CM : 8e   - E-
> Internet Protocol Version 4, Src: 192.168.26.43, Dst: 192.168.26.123								
> Transmission Control Protocol, Src Port: 13400, Dst Port: 61194, Seq: 344, Ack: 248, Len: 16								- : . . . . .
DoIP (ISO13400) Protocol								- : . . . . .
> Header								- : . . . . .
Source Address: 0x2000								- : . . . . .
Target Address: 0x0e00								- : . . . . .
v Unified Diagnostic Services, Source: 0x2000, Target: 0x0e00								
[Diagnostic Source Address: 0x2000]								- : . . . . .
[Diagnostic Target Address: 0x0e00]								- : . . . . .
0.01 0100 = Service Identifier: Clear Diagnostic Information (0x14)								- : . . . . .
.0. .... = Reply Flag: 0x0								- : . . . . .
Group of DTC: All Groups (all DTCs) (0xfffffff)								- : . . . . .
DoIP (ISO13400) Protocol								- : . . . . .
0x0000 d8 3a dd 38 65 7c c4 d0 e3 24 43 dd 08 00 45 00								- : \$CM : 8e   - E-
0x0010 00 37 35 d2 40 00 40 06 4e f8 c0 a8 1a 7b c0 a8								- : @   . . . . .
0x0020 1a 2b 34 58 ef 0a 96 e3 49 56 f7 db 39 32 50 18								- : AX   - 9"   IVP
0x0030 01 f6 14 0b 00 00 02 fd 80 01 00 00 00 07 20 00								- : . . . . .
0x0040 20 00 14 ff ff								- : . . . . .

PC → ECU

	73230 4695.960395	192.168.26.123	192.168.26.43	UDS	69 Diagnostic message Reply	Error	Clear Diagnostic Information (NRC: Service no...
> Frame 73230: 69 bytes on wire (552 bits), 69 bytes captured (552 bits) on interface \Device\NPF_{...}							
> Ethernet II, Src: RaspberryPi_3B:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d)							- : \$CM : 8e   - E-
> Internet Protocol Version 4, Src: 192.168.26.123, Dst: 192.168.26.43							
> Transmission Control Protocol, Src Port: 13400, Dst Port: 61194, Seq: 344, Ack: 248, Len: 15							- : . . . . .
DoIP (ISO13400) Protocol							- : . . . . .
> Header							- : . . . . .
Source Address: 0x2000							- : . . . . .
Target Address: 0x0e00							- : . . . . .
v Unified Diagnostic Services, Source: 0x2000, Target: 0x0e00							
[Diagnostic Source Address: 0x2000]							- : . . . . .
[Diagnostic Target Address: 0x0e00]							- : . . . . .
0.11 1111 = Service Identifier: Error (0x3f)							- : . . . . .
.0. .... = Reply Flag: 0x1							- : . . . . .
Service Identifier: Clear Diagnostic Information (0x14)							- : . . . . .
Code: Service not supported in active session (0xf0)							- : . . . . .
DoIP (ISO13400) Protocol							- : . . . . .
0x0000 c4 d0 e3 24 43 dd 8 3a dd 38 65 7c c4 d0 e3 24 43 dd 08 00 45 00							- : \$CM : 8e   - E-
0x0010 00 37 35 d2 40 00 40 06 4e f8 c0 a8 1a 7b c0 a8							- : @   . . . . .
0x0020 1a 2b 34 58 ef 0a 96 e3 49 56 f7 db 39 32 50 18							- : AX   - 9"   IVP
0x0030 01 f6 14 0b 00 00 02 fd 80 01 00 00 00 07 20 00							- : . . . . .
0x0040 20 00 14 ff ff							- : . . . . .

ECU → PC

## 22. ECU와 연결이 끊겨있을 때 ReadVIN (NRC 0x22)

	77439 4902.107954	192.168.26.43	192.168.26.123	UDS	69 Diagnostic message Request	Read Data By Identifier	0x190 (VINDataIdentifier)
> Frame 77439: 69 bytes on wire (552 bits), 69 bytes captured (552 bits) on interface \Device\NPF_{...}							
> Ethernet II, Src: Intel_24:43:4d (c4:d0:e3:24:43:4d), Dst: RaspberryPi_3B:65:7c (d8:3a:dd:38:65:7c)							- : \$CH : 8e   - E-
> Internet Protocol Version 4, Src: 192.168.26.43, Dst: 192.168.26.123							
> Transmission Control Protocol, Src Port: 13400, Dst Port: 53243, Seq: 16, Ack: 18, Len: 15							- : . . . . .
DoIP (ISO13400) Protocol							- : . . . . .
> Header							- : . . . . .
Source Address: 0x2000							- : . . . . .
Target Address: 0x2000							- : . . . . .
v Unified Diagnostic Services, Source: 0x2000, Target: 0x2000							
[Diagnostic Source Address: 0x2000]							- : . . . . .
[Diagnostic Target Address: 0x2000]							- : . . . . .
0.10 0010 = Service Identifier: Read Data By Identifier (0x22)							- : . . . . .
.0. .... = Reply Flag: 0x0							- : . . . . .
Data Identifier: 0x190 (VINDataIdentifier)							- : . . . . .
DoIP (ISO13400) Protocol							- : . . . . .
0x0000 d8 3a dd 38 65 7c c4 d0 e3 24 43 dd 08 00 45 00							- : \$CH : 8e   - E-
0x0010 00 37 35 d2 40 00 40 06 4e f8 c0 a8 1a 7b c0 a8							- : @   . . . . .
0x0020 1a 2b 34 58 ef 0a 96 e3 49 56 f7 db 39 32 50 18							- : AX   - 9"   P
0x0030 01 f6 20 00 00 02 fd 80 01 00 00 00 07 0e 00							- : . . . . .
0x0040 20 00 22 f1 90							- : . . . . .

PC → ECU

77440 4902.119353 192.168.26.123 192.168.26.43 UDS 69 Diagnostic message Reply Error Read Data By Identifier (NRC: Conditions Not ...)

```

> Frame 77440: 69 bytes on wire (552 bits), 69 bytes captured (552 bits) on interface \Device\NPF_{...}
> Ethernet II, Src: RaspberryPi_3B:65:7c (d8:3a:dd:38:65:7c), Dst: Intel_24:43:4d (c4:d0:e3:24:43:4d)
> Internet Protocol Version 4, Src: 192.168.26.123, Dst: 192.168.26.43
> Transmission Control Protocol, Src Port: 13400, Dst Port: 53243, Seq: 18, Ack: 31, Len: 15
  ✓ DoIP (ISO13400) Protocol
    > Header
      Source Address: 0x2000
      Target Address: 0xe000
    ✓ Unified Diagnostic Services, Source: 0x2000, Target: 0xe000
      [Diagnostic Source Address: 0x2000]
      [Diagnostic Target Address: 0xe000]
      0..11 1111 = Service Identifier: Error (0x3f)
      .1. .... = Reply Flag: 0x1
      Service Identifier: Read Data By Identifier (0x22)
      Code: Conditions Not Correct (0x22)

0000 c4 d0 e3 24 43 4d d8 3a dd 38 65 7c 08 00 45 00 .. $CH : 8e] -E-
0010 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. -7 @ @ -{-
0020 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .. -1X -1 ) R TaP-
0030 01 f6 42 e8 00 00 00 02 fd 00 01 00 00 00 00 07 29 00 .. -B .....-
0040 0e 00 7f 22 22 .. -"=
```

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화면: 79542 / 79 표시됨: 208(0.3%) | 프로필: Default