Báo cáo làm việc 4/DEC/2019 tại xưởng dịch vụ kỹ thuật

Phần ID của thiết bị như sau

uint8\_t id\_dme[7]={0xB0,0xF0,0x08,0x00,0x00,0x00,0x00};

uint8\_t id\_vorA[7]={0xC0,0xF0,0x08,0x00,0x00,0x00,0x00};

uint8\_t id\_vorPMDT[7]={0x80,0xF0,0x08,0x00,0x00,0x00,0x00};

Mục tiêu: Khảo sát dữ liệu các thiết bị VOR,DME

Tiến hành kết nối RS232 đến thiết bị DME 1119A, cấu hình 9600, 8, 1 None. Dữ liệu không trả về.

Kết nối thiết bị DME với thiết bị monitor chuyên ngành thu được các bản tin sau:

Determine/Vadidate DME Equipment Type

Lệnh hỏi 1: f8 f8 f0 b0 09 00 00 00 00 00 00 f8 84

Đáp: f8 f8 b0 f0 0a 00 00 03[Y1] 02[Y2] 06[LL] 00[LM] 0f 03 6f fb 2d 35 88 75

14/1/20 tra loi

F8 F8 B0 F0 0A 00 00 03 02 06 00 0F 03 6F FB 2D 35 88 75

Y1 Y2 : file system ID in the RMS

LL LM là độ dài

In đỏ là dữ liệu

2 byte cuối là CRC16 bỏ đi F8 F8

Lệnh hỏi 2: f8 f8 f0 b0 07 00 00 00 00 00 00 70 b6

Trả lời đây: F8 F8 B0 F0 08 00 00 00 00 34 00 13 0C 04 0A 03 15 00 00 81 07 08 02 01 88 00 39 8A 03 19 BC 87 13 A6 04 77 02 E8 03 43 06 00 00 00 00 00 00 00 00 00 00 06 FF 00 00 06 00 00 C2 AD 7F D6 66 1C E2

Phân tích

Những trường không đổi trong những hôm khảo sát in đậm đen

Màu đỏ là ngày tháng năm

Đáp: **F8 F8 B0 F0 08 00 00 00 00[ID DME] 34 00 [ Hai byte này là chiều dài của bản tin]** **13 [Năm] 0C 04 0A 03 15 [Giây]** **00 00 81** 07 08 02 01 88 **00 39 8A 03 19 BC** **87 13[đây là tham số delay]** **A6 04[đây là tham số Spacing 0x04A6 = 1190 => 11.90]** **77 02[TX power 0x0277 = 631]** **E8 03[ Efficiency 0x03E8 = 100.0???]** **43 06[PRF 0x0643 = 1603]** **00 00 00 00 00 00 00 00 00 00 06** FF **00 00 06 00[ERP : 0xff => -0.1 ] 00** C2 AD 7F D6 **66** **1C E2 [Hai byte cuối này là CRC16 CCITT]**

CRC16 CCITT của dãy bỏ đi F8 F8 ở đầu.

B0 F0 08 00 00 00 00 34[LSB] 00 [MSB] => 0x0034 = 52 đây là độ dài dữ liệu đi sau

13[Năm] 0C[Tháng] 04[Ngày] 0A[giờ] 03[phút] 15[giây]

00 00 81 07

08 02 01 88 00 39 8A 03 19 BC

87 13 A6 04 77 02 E8 03 43 06

00 00 00 00 00 00 00 00 00 00

06 FF 00 00 06 00 00 C2 AD 7F

D6 66

**1C E2**

CRC-CCITT (XModem) <https://www.lammertbies.nl/comm/info/crc-calculation>

Nội dung bản tin đáp 2 thay đổi tùy tình trạng thiết bị.

Bảng tra cứu status file của selex

|  |  |
| --- | --- |
| Variable | Location in status file |
| Maintenance alert | 8-b0 M\_Alert=bitRead(data[8],0); '1' Có Maintenance Alert; '0' ko có |
| Tx1 antena | 13-b0 tx1\_ant=bitRead(data[13],0); '1' Tx1 Anten ; '0' Tx2 Anten |
| Tx1 Main | 13-b1 tx1\_main=bitRead(data[13],1); '1' Tx1 Main ; '0' Tx2 Main |
| Tx1 On | 13-b2 tx1\_on=bitRead(data[13],2); '1' Tx1 On; '0' Tx1 Off |
| Tx2 On | 13-b3 tx2\_on=bitRead(data[13],3); '1' Tx2 On; '0' Tx2 Off |
| DualEquipment | 15-b0??? |
| localControl | 12-b4 Local=bitRead(data[12],4); |
| IntPriAlarm | 10-b0 Pri\_Alarm=bitRead(data[10],6); '1' Có Pri Alarm; '0' ko có. |
| IntMonBypass | 10-b2 Bypass=bitRead(data[11],0); '1' Có Bypass; '0' ko có |
| Onbattery | 8-b2 |
| ACFail | 8-b3 |
|  |  |

[16:28:44.644] F8 F8 B0 F0 08 00 00 00 00 34 00 14 01 0E 10 1D 14 00 00 81 07 24 03 11 9C 46 39 8A 01 19 BC 8A 13 A8 04 B9 01 E8 03 1E 03 00 00 00 00 00 00 00 00 00 00 06 EA 00 00 06 00 00 A1 59 60 D9 66 EC 1B

[16:28:44.816] F8 F8 B0 F0 04 01 00 00 00 34 00 14 01 0E 10 1D 14 00 00 81 07 24 03 11 9C 46 39 8A 01 19 BC 8A 13 A8 04 B9 01 E8 03 1E 03 00 00 00 00 00 00 00 00 00 00 06 EA 00 00 06 00 00 A1 5B 60 D9 66 BD AE

[16:28:44.972] F8 F8 B0 F0 08 00 00 00 00 34 00 14 01 0E 10 1D 15 00 00 81 07 24 03 11 9C 46 39 8A 01 19 BC 8A 13 A8 04 B9 01 E8 03 1E 03 00 00 00 00 00 00 00 00 00 00 06 EA 00 00 06 00 00 A4 79 60 D9 66 17 C2

[16:30:44.653] F8 F8 B0 F0 08 00 00 00 00 34 00 14 01 0E 10 1F 15 00 00 81 07 26 03 11 9C 46 39 8A 01 19 BC 8A 13 A8 04 AC 01 E8 03 2C 03 00 00 00 00 00 00 00 00 00 00 06 EB 00 00 06 00 00 A1 34 8F D9 66 42 CB

[16:30:44.918] F8 F8 B4 F0 04 03 00 00 00 B8 00 14 01 0E 10 1F 15 00 00 D3 07 00 00 00 00 00 00 00 00 00 00 04 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 04 00 00 00 00 00 4F 00 00 00 17 00 00 00 38 00 00 00 1D 03 E2 03 00 00 4F 00 17 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 25 03

[16:30:45.215] F8 F8 B0 F0 08 00 00 00 00 34 00 14 01 0E 10 1F 15 00 00 81 07 26 03 11 9C 46 39 8A 01 19 BC 8A 13 A7 04 BB 01 E8 03 2C 03 00 00 00 00 00 00 00 00 00 00 06 EB 00 00 06 00 00 A5 6C 8F D9 66 F7 53

[16:30:45.372] F8 F8 B0 F0 04 01 00 00 00 34 00 14 01 0E 10 1F 15 00 00 81 07 26 03 11 9C 46 39 8A 01 19 BC 8A 13 A7 04 BB 01 E8 03 2C 03 00 00 00 00 00 00 00 00 00 00 06 EB 00 00 06 00 00 A5 6C 8F D9 66 CE 0B

[16:30:45.528] F8 F8 B0 F0 08 00 00 00 00

[9]34 [10]00: độ dài bản tin 0x0034 là 52

[11]14 01 0E 10 1F [16]16: ngày tháng năm 20 tháng 01ngày 14 16h 31p 22s

[17]00 00 81 07 26 03 11 9C 46 39 8A 01 19 [30]BC

[31]8A [32]13 -5002 delay us

[33]A7 [34]04 – 1191 spacing us

[35]B3 01 – 435 tx power watts

[37]E8 03 – 100.0 efficiency %

[39]10 03 – prf 784 ppps

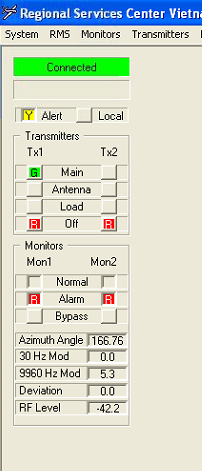
[41] 00 00 00 00 00 00 00 00 00 00 [51]06

[52]EC : ERP = 0xEC = -20 = -2

00 00 06 00 00 A8 8C 8F D9 66

9C 19: CRC

Bản tin khảo sát 24/6/2010 của anh Hùng



F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 0E

51 4C 02 FE D5 00

00 46 96 8C 2B 01 26 01 A0 00 02 00 0B D7 73

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 10 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 97 18

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 12 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B F1 73

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 14 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 5B CE

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 16 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 3D A5

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 18 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 2E A5

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 1A 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 48 CE

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 1C 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B E2 73

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 1E 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 84 18

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 20 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 62 A5

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 22 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 04 CE

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 24 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B AE 73

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 26 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B C8 18

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 28 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B DB 18

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 2A 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B BD 73

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 2C 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 17 CE

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 2E 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 71 A5

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 30 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 31 CE

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 32 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 57 A5

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 34 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B FD 18

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 36 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 9B 73

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 38 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 88 73

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 07 3A 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B EE 18

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 08 00 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 32 B5

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 08 02 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 54 DE

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 08 04 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B FE 63

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 08 06 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 98 08

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 08 08 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B 8B 08

F8 F8 80 D0 04 01 00 00 00 19 00 0A 06 18 0A 08 0A 51 4C 02 FE D5 00 00 46 96 8C 2B 01 26 01 A0 00 02 00 0B ED 63

Bóc tách bản tin cuối

[0]F8 [1]F8 => bắt đầu

[2]80 D0 04 01 00 00 [8]00 : ID máy VOr

[9]19 [10]00: độ dài dữ liêu 0x0019 = 25

[11]0A 06 18 0A 08 [16]0A : Năm tháng ngày giờ phút giây

[17]51 4C 02 FE D5 [22]00

[23]00 [24]46

[25]96 8C Azimuth Angle 35990

[27]2B 01 : 30 Hz Mod 0x012B = 29.9

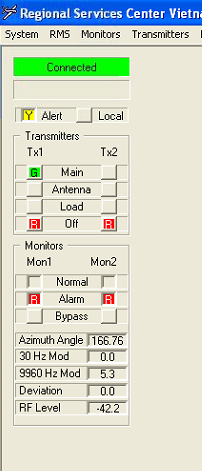
[29]26 01 : 9960 Hz Mod 0x0126 = 29.4

[31]A0 00 : Deviation: 0x00A0/10

[33]02 00 : RF level 0x0002/10 = 0.2

[35]0B : DualEquipment 1150 VOR [24]

ED 63: CRC



80 D0 04 01 00 00 00 19 00 0A 06 18 0F 12 08 51 4C 02 FC D7 18 00 46 24 41 00 00 35 00 00 00 5A FE 0B 0B 73

80 D0 04 01 00 00 00 : ID VOR

19 00 : Chiều dài bản tin

0A 06 18 0F 12 08 : thời gian

51 4C 02 FC D7 18 00 46

24 41: Azimuth Angle 16676

00 00: 30Hz Mod 0

35 00 : 9960 Hz Mod 5.3

00 00 : Deviation 0

5A FE : RF level -42.2

0B

0B 73: CRC16

Ban tin nay go condition

80 D0 04 01 00 00 00 19 00 0A 06 18 0F 05 2D 50 4C 02 FC C3 38 00 46 00 00 25 01 38 01 A1 00 01 00 0B 98 97

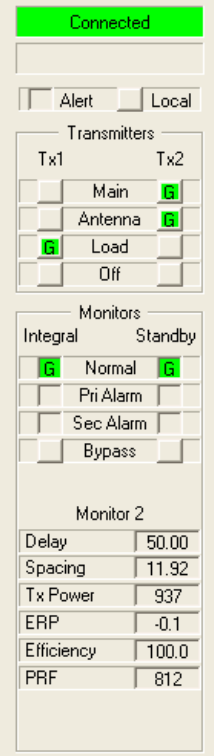
F8 F8 B0 F0 08 00 00 00 00 34 00 14 01 06 0E 2B 1F 00 00 81 27 24 03 11 9F 00 39 8A 01 19 BC 8A 13 B2 04 0C 03 E8 03 23 03 00 00 00 00 00 00 00 00 00 00 06 04 00 00 06 00 00 83 EC C2 D6 66 59 DC

F8 F8 B0 F0 08 00 00 00 00 34 00 14 01 0E 10 1D 14 00 00 81 07 24 03 11 9C 46 39 8A 01 19 BC 8A 13 A8 04 B9 01 E8 03 1E 03 00 00 00 00 00 00 00 00 00 00 06 EA 00 00 06 00 00 A1 59 60 D9 66 EC 1B

Ban tin nay ngon tx1:

F8 F8 B0 D0 04 01 00 00 00 34 00 0A 0A 05 11 0A 1E 00 00 00 27 00 00 01 8F 06 39 8A 05 01 AA 89 13 AA 04 E1 03 E8 03 1E 03 00 00 00 00 00 00 00 00 00 00 06 FF 00 00 06 00 00 0E AC 2D 04 54 71 6E

Ban tin nay ngon tx2



F8 F8 B0 D0 04 01 00 00 00 34 00 0A 0A 04 0A 09 11 00 00 00 07 00 00 01 8C 06 39 8A 05 01 AA 88 13 A8 04 A4 03 E8 03 C1 08 00 00 00 00 00 00 00 00 00 00 06 00 00 00 06 00 00 CD 1C CA 59 53 7d e5