

Site Survey

Remote Controller

Development of Remote Controller for an EMI Test Receiver in Site Survey

150

Site survey(EMI) 가
 Site survey Rodge-Schwaltz GmbH
 (EMI Test Receiver, :ESI7)
 Site survey ESI7 , ESI7 remote control
 "Remote Controller"
 Remote Controller PC,
 PCMCIA-GPIB , LabVIEW "G" ESI7 (SCAN
 data) . Remote Controller 가 Site survey
 EMI data .

Abstract

EMI assessment, which is based on the Site survey(the measurement of EMI noise) in an operating plant, can be considered for system design. Our Site survey is being planned to utilize the ESI7 model, to be manufactured as the EMI test receiver by Rodge-Schwaltz GmbH. But the ESI7 is often manipulated by manual if a Site survey is continued for some days in nuclear power plant. The problem can be resolved if a remote controller is implemented for the ESI7 and it controls the ESI7. The Remote Controller has its functions for supporting the ESI7 manual tasks, including storing mass SCAN data onto external PC memory (hard-disk), controlling ESI7, and analyzing the stored SCAN data. These functions have been implemented in "G" programming of LabVIEW software under a notebook PC with PCMCIA-GPIB card. The Remote Controller prototype will be applied to store the real EMI measurements in the coming Site survey and analyze the data after integrated tests and their evaluation.

1.

가 EMI/RFI Reference Envelop
 (EMC) (guideline) 가 Site survey(EMI
) 3 , 2
 EMI [1].
 가 EMI ORNL NUREG/CR-6463 EPRI TR-102323
 가 , EMI
 MIL-STD-462D, IEEE (IEEE
 Std.-473)가 [2].
 2 Site survey Rodge-Schwaltz GmbH EMI
 (: ESI7) , ESI7 1 Site survey

setting
가

PC ESI7 "remote controller" 가 , Site
survey ESI7 PC "Remote Controller"
(ESI7 SCAN data) ESI7 Softkey
2 Site survey Remote Controller

Remote Controller EMI , mild condition harsh/hazard
15m EMI "Remote Controller" 가
(, PCMCIA-GPIB cable 15m 가
).

2. EMI

2.1 ESI7

Rohde&Schwarz GmbH 3 (frequency range: 20Hz-7GHz, ESI26:
20Hz-26.5GHz, ESI40: 20Hz-40GHz) EMI ESI7 IEEE-488.2 (IEC-625)
IEC-625 [4]. ESI7 , IEC-625 ESI7
(I/O) / 가 , IEC-625 ESI7
"Remote Control" , Site survey ESI7
, ESI7 ESI7
가 가 . ESI7 IEC-625 (IEEE-488.2) ESI7
PC , ESI7 PC
PCMCIA-GPIB 가 . PCMCIA-GPIB 15m
가 , ESI7 Remote Control [-1] .

	IEEE-488.2 (GPIB) IEC-625 가 , PC GPIB 15m 가 .
	Local remote control Remote
ESI7	SCAN, CALCulate ESI7 Library function call 가
IEEE-488.2	*ESR? (Standard Event Status Query) IEEE-488.2 17

[-1] ESI7 Remote Control

2.2 Remote Controller

LabVIEW 5.1/Windows95 PC Remote Controller . PC
PCMCIA-GPIB ESI7 IEC-625 가 , Remote Controller
LabVIEW "G" . PC GPIB 1Mbps
National Instruments PCMCIA-GPIB , PC
ESI7 , ESI7 SCAN data PC

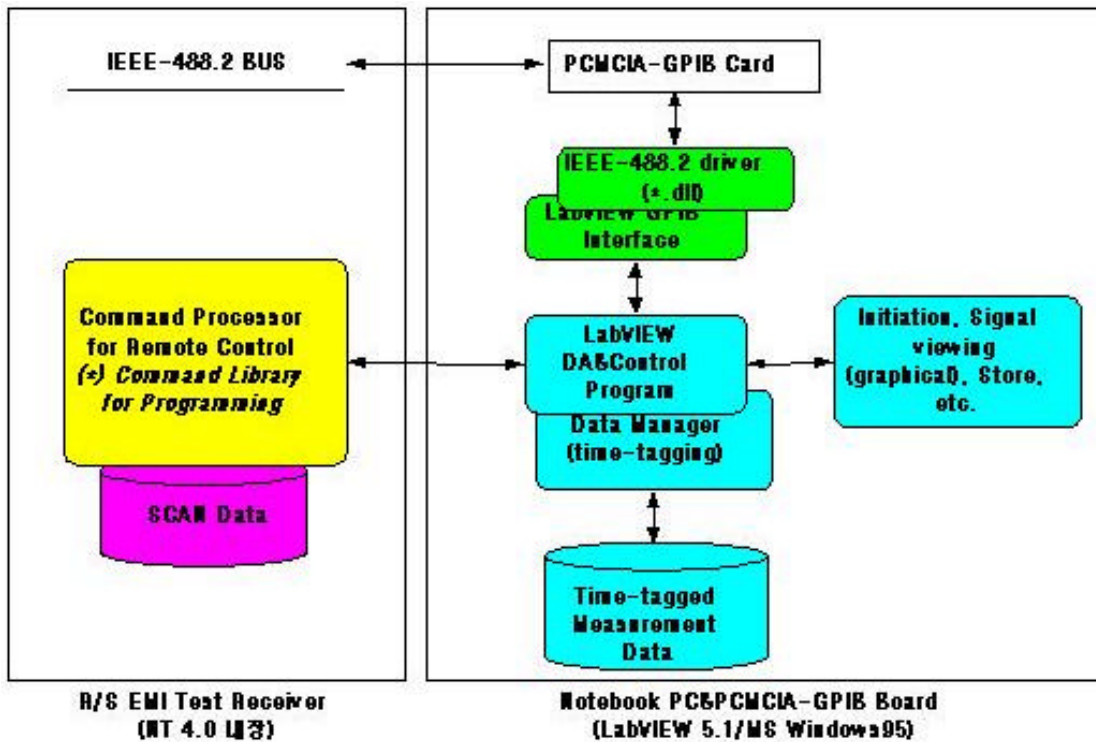
2.3 LabVIEW

Remote Controller
 LabVIEW 5.1
 (graphical programming) "G" LabVIEW
 LabVIEW , 가 (virtual instrument)
 (debugging)
 icon() [5].

3. ESI7 Remote Controller

3.1

EMI 가 ESI7 SCAN time
 ESI7 Remote Controller
 [-1]



[-1] ESI7 Remote Controller

, SCAN time, ESI7 Softkey
 "Remote Controller" ESI7 Remote Controller Remote
 Controller ESI7 "Remote" , SCAN

(write), SCAN (read)
time-tagging

3.2

ESI7 (Scan data) PCMCIA-GPIB Notebook PC
ESI7 Remote Controller 2 SCAN
1 가
Remote Controller Site survey
가
Pseudo-algorithm

/* Initialization - establish communication path between remote controller and instrument (ESI7); */

Initialize_PCMCIA-GPIB()

```
{  
    Set_GPIB_Parameters(values);  
    Check_Connection(); /* check values and write/read name &  
                        version data to/from ESI7 */  
    Present_Message(errors or OK);  
}
```

/* Periodically read the scan data from ESI7 */

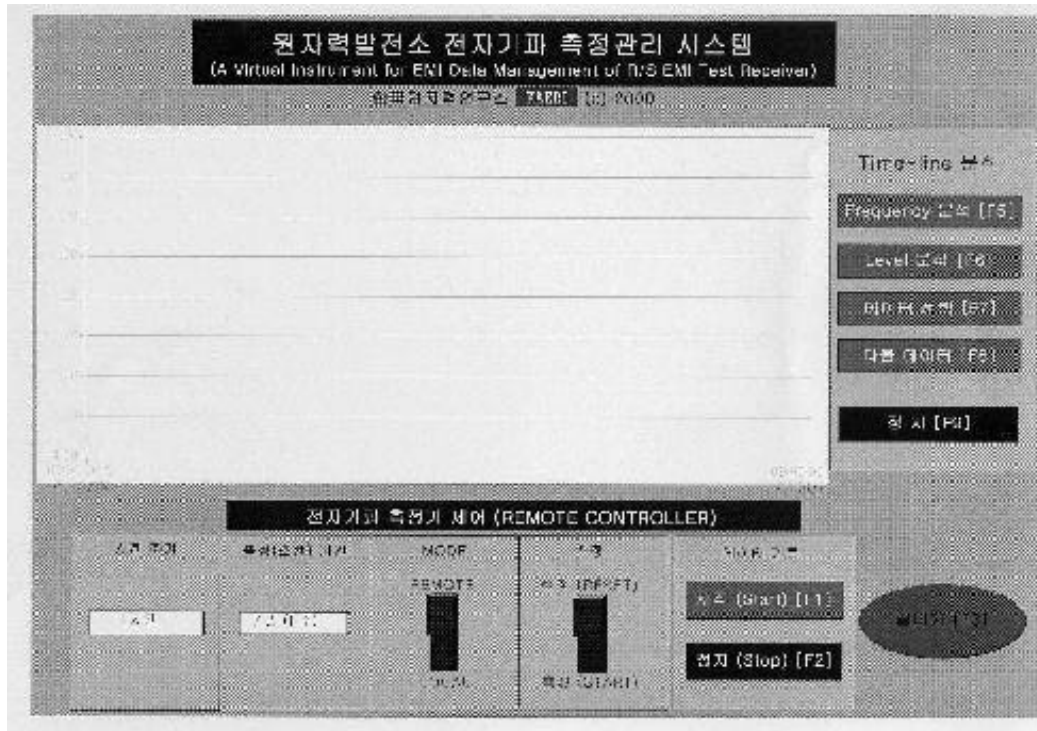
Read_Scanned_EMI_Data()

```
{  
    if(START_button is pushed) {  
        for(time = 0; time <= test days; time = time + 2 hours) {  
            Query_to_ESI7("SCAN"); /* data read from ESI7 */  
            Store_Scandata(hard disk as a time-tagged data);  
            if(STOP_button is pushed) exit;  
        }  
    }  
}
```

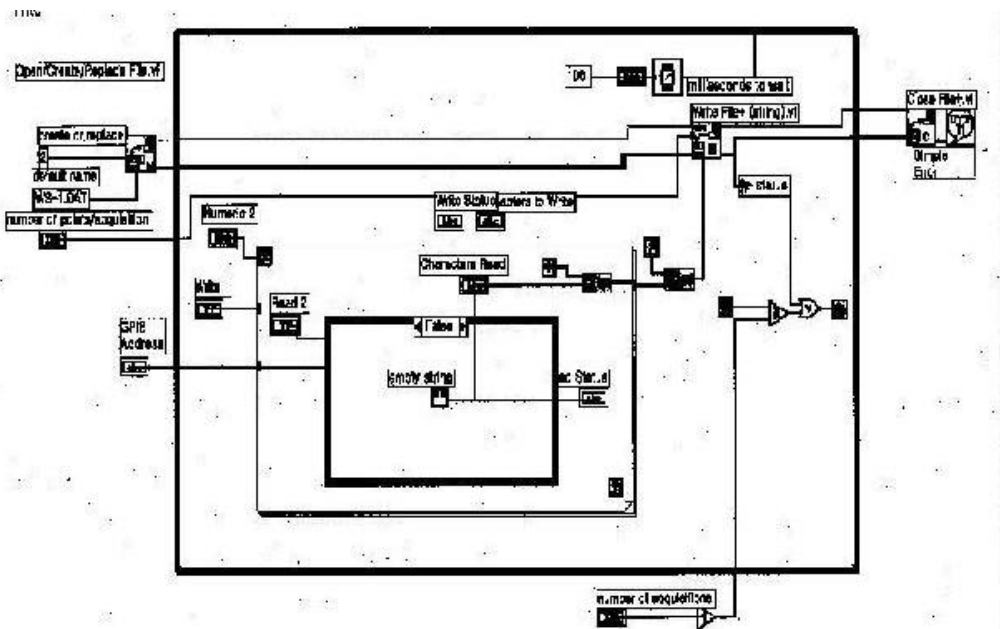
/* Data Analysis */

Data_Analysis()

```
{  
    if(STOP button is pushed) exit;  
    while(STOP button is not pushed) {  
        if(FREQUENCY button is pushed)  
            Set_Graph_To_FrequencyGraph();  
        if(LEVEL button is pushed) Set_Graph_To_LevelGraph();  
        if(DATA button is pushed) Display_Data_As_Graph(points);  
        if(REAL-TIME button is pushed) Display_RT_Graph();  
        else Display_The_Next_Data_As_Graph(points);  
    }  
}
```



[-2] RC.vi



[-3] RC.vi Diagram

4.

EMI
Mild condition

EMI/RFI

(Site survey)

Remote Controller 가 Site survey PC 가 ESI7 Remote Controller , PC EMI Remote Controller 1 .

[1] , 2000 4 .

[2] (MMIS) , 2000 9 20 .

[3] , I&C Equipment Qualification Methods on EMI for Nuclear Power Plants, '99 , 1999 5 29 .

[4] Rohde&Schwarz GmbH, ESI7 (EMI Test Receiver) Manual (Ch. 3: Remote Control).

[5] National Instruments, LabVIEW User Manual 4 .