



ELECTROMAGNETIC RESEARCH INSTITUTE

# EMI COMPLIANCE REPORT

## Emission of electromagnetic disturbance

**Test Report No.** : ERI-FCC-0145  
**Equipment** : DIGITAL VOICE RECORDER & MP3- PLAYER  
**Name of basic model** : DN4128  
**Family model** : DN432, DN464, MVP-108, MVP-108+  
**Manufacturer** : DYNE TELECOM CO., LTD.  
**Applicant** : DYNE TELECOM CO., LTD.  
**Tested date** : 2002.10.10  
**Issued date** : 2002.10. 14  
**Received date of EUT**:2002. 10. 12  
**Test results** : PASS  
**Test Standards** : FCC Part 15 Subpart B (Class B)

### Test Procedure and Items :

- AC Power line Conducted emissions measurement : ANSI C63.4-1992
- Radiated emissions measurement : ANSI C63.4-1992

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**Tested by: SE-JIN, O**

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**Approved by: SANG-KYU, LEE**

The results in this report apply only to the sample tested.

This test report shall not be reproduced except in full, without the written approval of **ERI Laboratory**.

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## 1. CLIENT INFORMATION

The EUT has been tested by request of :

Company : DYNE TELECOM CO., LTD.  
Address : #3F CHUNGYONG B/D 1123-1, KWANYANG-2DONG,  
DONGAN-GU, ANYANG-CITY, KYUNGKI-DO, KOREA  
Name of contact : HAK- REA HONG  
Telephone : +82-31-422-3481  
Facsimile : +82-31-422-3483

## 2. LABORATORY INFORMATION

The 10m semi-anechoic chamber and/or EMC facilities are used for these testing.  
These facilities were accredited by KOLAS, EK, MIC of Korea and FCC.

### Address

ELECTROMAGNETIC RESEARCH INSTITUTE.  
66-6, JEIL-RI, YANGJI-MYUN, YOUNGIN-CITY, KYUNGKI-DO, KOREA  
Telephone No. : +82-31-336-1186 ~ 7  
Facsimile No. : +82-31-336-1184

### Registered No.

KOLAS : 111  
EK : J  
MIC : KR0030  
FCC Filing No. : 302567

## 3. EQUIPMENT UNDER TEST INFORMATION(EUT)

### 3.1 Identification of the EUT

Type of equipment : DIGITAL VOICE RECORDER & MP3-PLAYER  
Model name : DN4128  
Brand name : N/A  
Manufacturer : DYNE TELECOM CO., LTD.  
Address : #3F CHUNGYONG B/D 1123-1, KWANYANG-2DONG,  
DONGAN-GU, ANYANG-CITY, KYUNGKI-DO, KOREA  
Telephone : +82-31-422-3481  
Facsimile : +82-31-422-3483  
Country of origin : KOREA  
Rating : DC 1.5V

### 3.2 Additional information about the EUT

Family Models List:

| Basic Model | Variant Model | Memory | Differential point       |
|-------------|---------------|--------|--------------------------|
| DN4128      | -             | 128M   | Memory                   |
| DN4128      | DN432         | 32M    | Memory                   |
|             | DN464         | 64M    | Memory                   |
|             | MVP-108       | -      | Buyer request model name |
|             | MVP-108+      | -      | Buyer request model name |

### 3.3 Peripheral equipment

Defined as equipment needed for correct operation of the EUT.

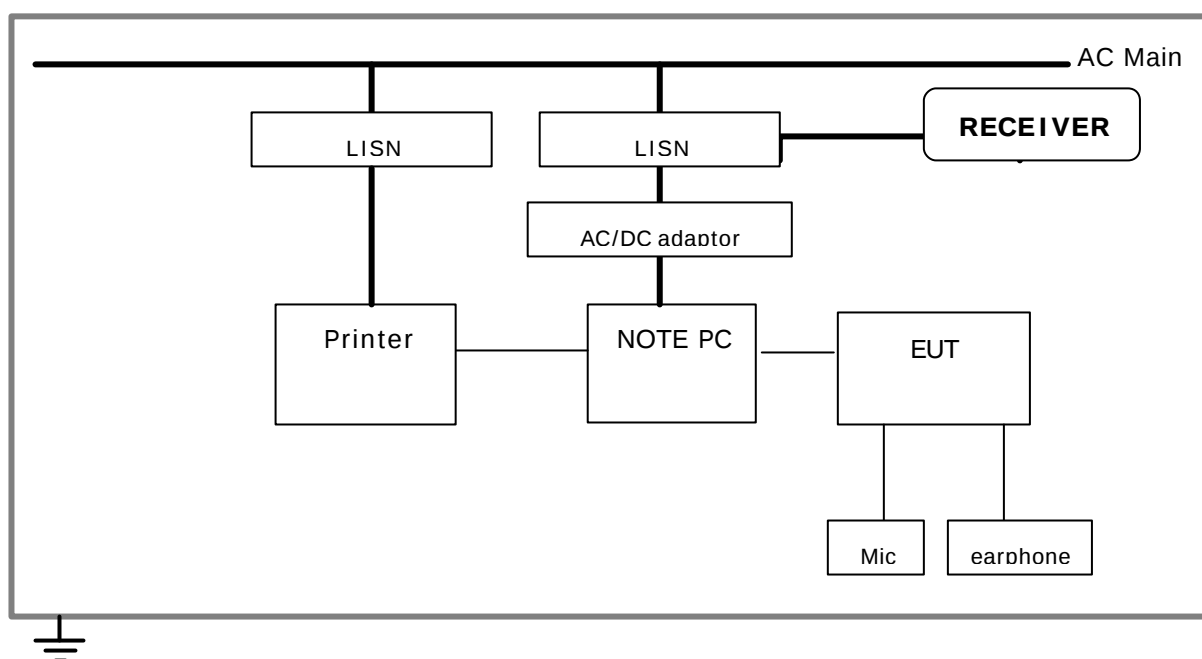
| Description                       | Model No | Manufacture                | Serial No     |
|-----------------------------------|----------|----------------------------|---------------|
| DIGITAL VOICE RECORDER&MP3-PLAYER | DN4128   | DYNE TELECOM CO., LTD      | N/A           |
| NOTE PC                           | CM2080   | LG electronic Co., Ltd.    | 5Y17JNZ9R892  |
| AC/DC adaptor                     | -        | Delta electronics Co., Ltd | MJD0124008510 |
| Mic                               | N/A      | N/A                        | N/A           |
| Earphone                          | N/A      | N/A                        | N/A           |
| Printer                           | 930C     | HP                         | CN13V1B1SZ    |

#### 4. CONTINUOUS DISTURBANCE VOLTAGE, MAIN TERMINAL : Frequency range 0.15 MHz to 30 MHz

##### 4.1 Operating environment

Temperature : 25.0  
Relative Humidity : 65.0 %

##### 4.2 Test set-up and test procedures



The mains terminal disturbance voltage was measured with the equipment under test(EUT) in a shield room. The EUT was connected to an artificial mains network(LISN) placed on the floor. The EUT was placed on non-metallic table 0.8m above the metallic, grounded floor. The distance to other metallic surface was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

Operation condition : During the Test, we played DVD player.

#### 4.3 Test instrument

| Instrument    | Model No.      | Serial No. | Makers | Next cal.date | Used |
|---------------|----------------|------------|--------|---------------|------|
| Test receiver | ESCS30         | 100022     | R&S    | 2003. 3. 25   |      |
| L.I.S.N.      | ESH3-Z5        | 827246/008 | R&S    | 2003. 3. 12   |      |
|               | ESH3-Z5        | 831887/018 | R&S    | 2003. 3. 12   |      |
| Shield room   | 8 × 6 × 3.3m/H | -          | -      | -             |      |

#### 4.4 Test results

Date of test : Oct 10, 2002.

An overview sweep performed with peak detector is included in the report **as test reports**.

| Frequency Range<br>[MHz] | Tested Freq.<br>[MHz] | LISN Pol. | Meter Reading |      | Limits |      | Margin |      |
|--------------------------|-----------------------|-----------|---------------|------|--------|------|--------|------|
|                          |                       |           | QP            | AV   | QP     | AV   | QP     | AV   |
|                          |                       |           | [dBuV]        |      | [dBuV] |      | [dBuV] |      |
| <b>0.15-0.5</b>          | 0.150                 | H         | 46.9          | 25.8 | 66.0   | 56.0 | 19.1   | 30.2 |
|                          | 0.210                 | H         | 49.1          | 37.7 | 63.1   | 53.1 | 14.0   | 15.4 |
|                          | 0.279                 | N         | 38.4          | 30.9 | 60.8   | 50.8 | 22.4   | 19.9 |
|                          | 0.285                 | H         | 34.0          | 31.6 | 60.6   | 50.6 | 26.6   | 19.0 |
|                          | 0.417                 | N         | 32.2          | 27.4 | 57.4   | 47.4 | 25.2   | 20.0 |
| <b>0.5-30</b>            | 5.370                 | H         | 28.7          | 19.0 | 56.0   | 46.0 | 27.3   | 27.0 |
|                          | 5.650                 | H         | 30.6          | 23.1 | 56.0   | 46.0 | 25.4   | 22.9 |
|                          | 9.200                 | H         | 35.8          | 32.4 | 56.0   | 46.0 | 20.2   | 13.6 |
|                          | 11.070                | N         | 35.9          | 32.0 | 56.0   | 46.0 | 20.1   | 14.0 |
|                          | 12.340                | H         | 32.9          | 30.2 | 56.0   | 46.0 | 23.1   | 15.8 |

\* <5 : mean less than 5dB

\* other frequency keep over 20dB margin.

#### Result : Pass

The measured emissions level of the EUT have found the below of the specified limit.

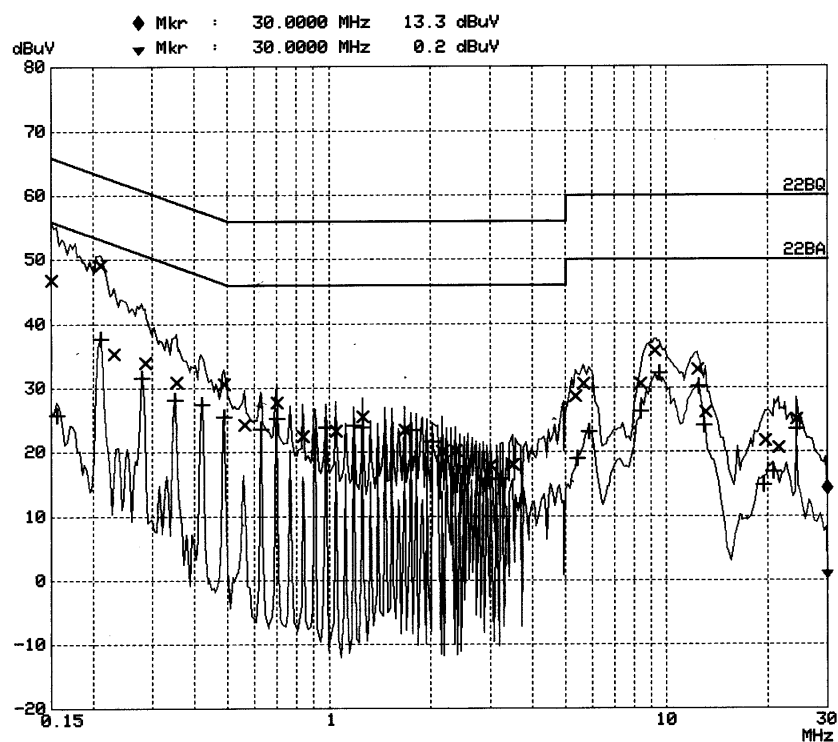


C. E  
 EUT: DN464  
 Op Cond: H  
 Test Spec: FCC  
 Date: 10. Oct 02 12:41

Scan Settings (2 Ranges)

| Frequencies |      |      | Receiver Settings |          |        |       |        |
|-------------|------|------|-------------------|----------|--------|-------|--------|
| Start       | Stop | Step | IF BW             | Detector | M-Time | Atten | Preamp |
| 150k        | 3M   | 3k   | 9k                | PK+AV    | 20ms   | AUTO  | LN ON  |
| 3M          | 30M  | 10k  | 9k                | PK+AV    | 10ms   | AUTO  | LN ON  |

Final Measurement: x QP / + AV  
 Meas Time: 1 s  
 Subranges: 25  
 Acc Margin: 50dB



PAGE 1

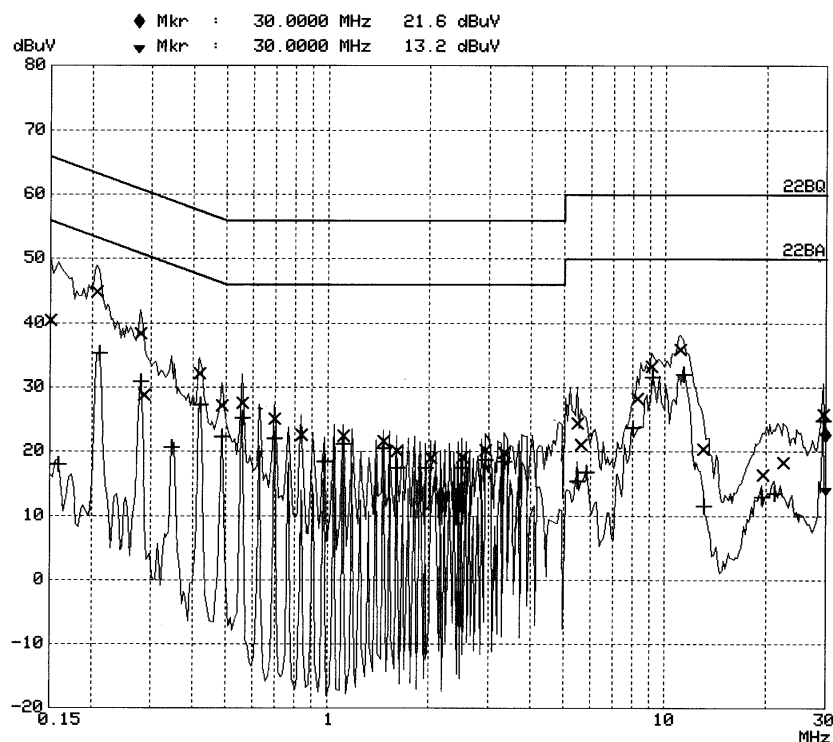
[Hot line]

C. E  
 EUT: DN464  
 Op Cond: N  
 Test Spec: FCC  
 Date: 10. Oct 02 14:21

Scan Settings (2 Ranges)

| Frequencies |      |      | Receiver Settings |          |        |       |        |
|-------------|------|------|-------------------|----------|--------|-------|--------|
| Start       | Stop | Step | IF BW             | Detector | M-Time | Atten | Preamp |
| 150k        | 3M   | 3k   | 9k                | PK+AV    | 20ms   | AUTO  | LN ON  |
| 3M          | 30M  | 10k  | 9k                | PK+AV    | 10ms   | AUTO  | LN ON  |

Final Measurement: x QP / + AV  
 Meas Time: 1 s  
 Subranges: 25  
 Acc Margin: 50dB



PAGE 1

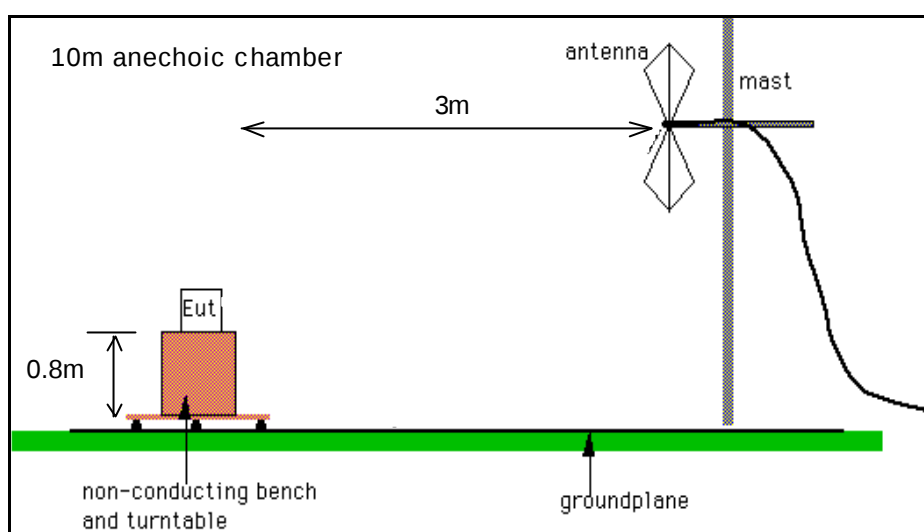
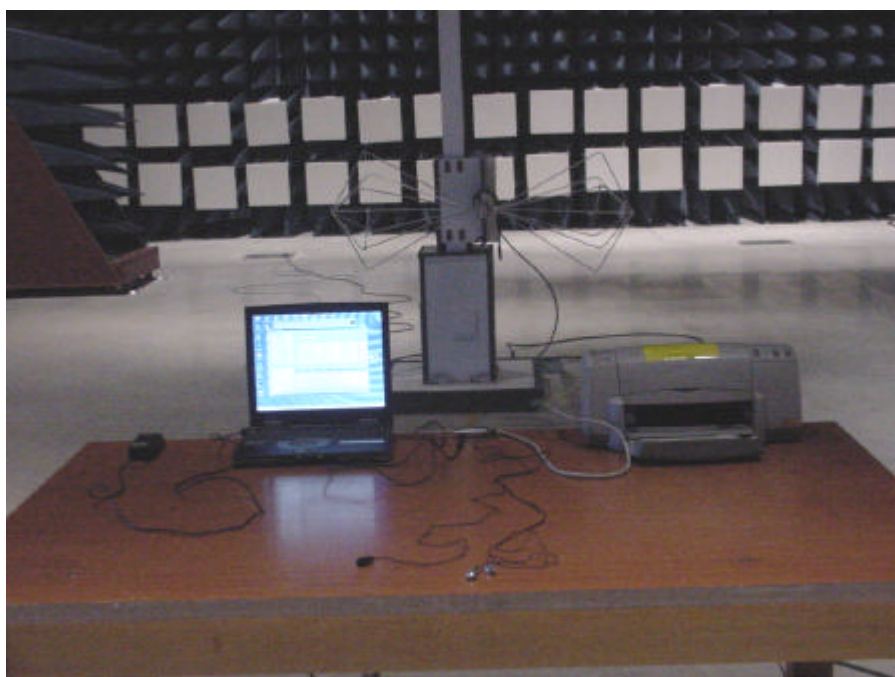
[Neutral]

## 5. RADIATED DISTURBANCE : 30MHz – 1000MHz

### 5.1 Operating environment

Temperature : 24.0  
Relative Humidity : 50.0 %

### 5.2 Test set-up



<General test set-up for radiated emissions>

### 5.3 Operation Conditions

During the Test, we played DVD player.

### 5.4 Test instrument

| Instrument       | Model No.      | Serial No. | Makers         | Next cal.date | Used |
|------------------|----------------|------------|----------------|---------------|------|
| Test receiver    | ESCS30         | 100022     | R&S            | 2003. 3. 25   |      |
| L.I.S.N.         | ESH3-Z5        | 827246/008 | R&S            | 2003. 3. 12   |      |
|                  | ESH3-Z5        | 831887/018 | R&S            | 2003. 3. 12   |      |
| Anechoic chamber | 8 × 6 × 3.3m/H | -          | Daetong shield | -             |      |

### 5.5 Test results

Date of test : Oct 10, 2002.

| Tested Frequency<br>[MHz] | ANT Pol. | Meter Reading<br>[A]<br>[dBuV] | Antenna Loss<br>[B]<br>[dB/m] | Cable Loss<br>[C]<br>[dB] | Results<br>[A+B+C]<br>[dBuV/m] | Limits<br>[dBuV/m] |
|---------------------------|----------|--------------------------------|-------------------------------|---------------------------|--------------------------------|--------------------|
| 121.80                    | H        | 23.83                          | 12.44                         | 2.50                      | 38.77                          | <b>43.5</b>        |
| 146.10                    | V        | 20.47                          | 14.70                         | 2.70                      | 37.87                          |                    |
| 149.50                    | V        | 20.57                          | 14.70                         | 2.70                      | 37.97                          |                    |
| 248.70                    | V        | 20.04                          | 17.10                         | 3.50                      | 40.64                          | <b>46.0</b>        |
| 349.00                    | H        | 21.83                          | 13.80                         | 3.90                      | 39.53                          |                    |
|                           |          |                                |                               |                           |                                |                    |
|                           |          |                                |                               |                           |                                |                    |
|                           |          |                                |                               |                           |                                |                    |
|                           |          |                                |                               |                           |                                |                    |
|                           |          |                                |                               |                           |                                |                    |
|                           |          |                                |                               |                           |                                |                    |
|                           |          |                                |                               |                           |                                |                    |

\* Receiving Antenna Mode : **Horizontal, Vertical**

\* <5 : mean less than 5dB

Note : Reading = Test Receiver meter, P= Polarization ≦ POL H = Horizontal  
POL V = Vertical A = Angle, AF = Antenna Factor CL = Cable Loss Result =  
Field Strength( AF + CL+ Reading)

**Result : Pass**

The measured emissions level of the EUT have found the below of the specified limit.

## 6. PRODUCT PHOTOGRAPHS

### 6.1 Front Photograph of EUT



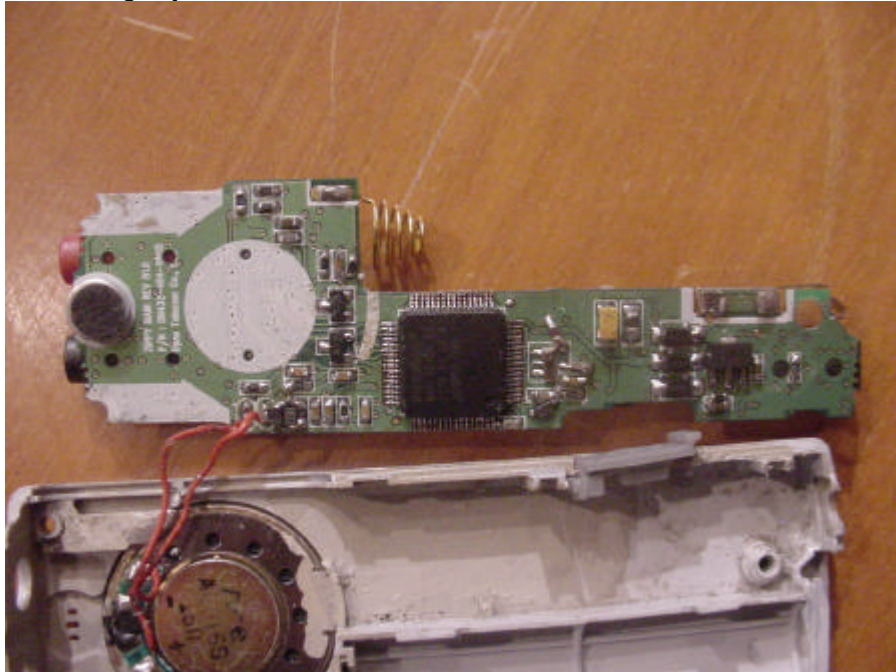
### 6.2 Rear Photograph of EUT



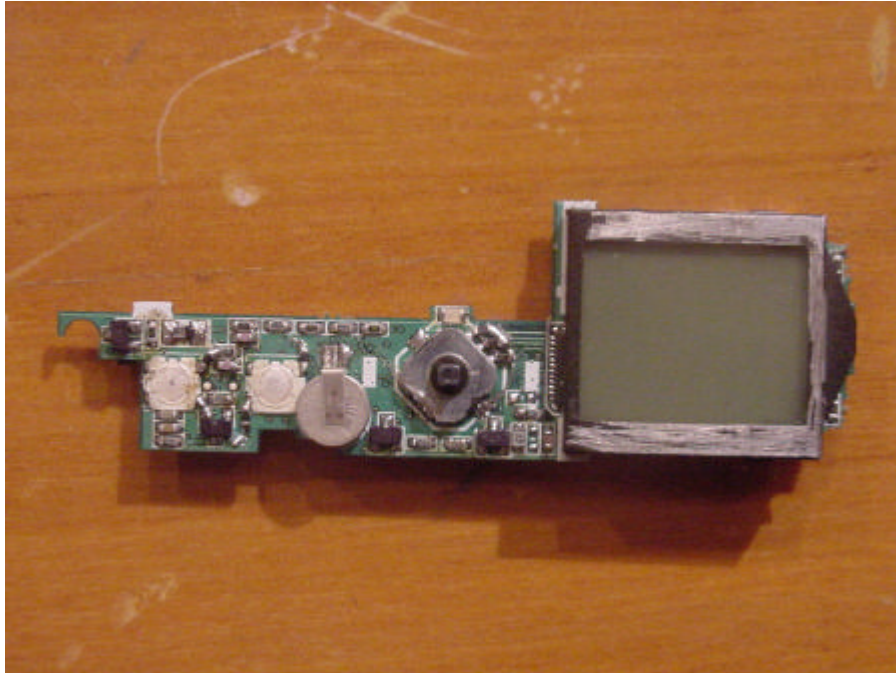
### 6.3 Front Photograph of mainboard 1



### 6.4 Rear Photograph of mainboard 1



**6.5 Front Photograph of mainboard 2**



**6.6 Rear Photograph of mainboard 2**

