

# RF TEST REPORT

Test item : Handheld Terminal  
Model No. : D3-POS  
Order No. : 1006-00266  
Date of receipt : 2010-06-21  
Test duration : 2010-07-21~2010-08-08  
Date of issue : 2010-09-14  
Use of report : FCC Original Grant

Applicant : Partner Tech Corporation  
10F, No. 233-2, Pao Chiao Road, Shin Tien, Taipei, Taiwan

Test laboratory : Digital EMC Co., Ltd.  
683-3, Yubang-Dong, Cheoin-Gu, Yongin-Si, Kyunggi-Do, 449-080, Korea

Test specification : FCC Part 15.225 Subpart C  
ANSI C63.4-2003

Test environment : See appended test report

Test result : ☒ Pass ☐ Fail

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose. This test report shall not be reproduced except in full, without the written approval of DIGITAL EMC CO., LTD.

Tested by:

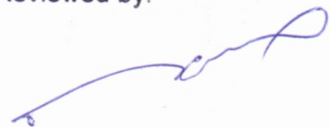
Witnessed by:

Reviewed by:



Engineer  
B.G.HAN

N/A



Manager  
W.J. Lee

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## 1. Equipment information

### 1.1 Equipment description

|                          |                                                  |
|--------------------------|--------------------------------------------------|
| FCC Equipment Class      | Low Power Communications Device Transmitter(DXX) |
| Equipment type           | Handheld Terminal                                |
| Equipment model name     | D3-POS                                           |
| Equipment add model name | MF-2350                                          |
| Equipment serial no.     | Identical prototype                              |
| Frequency band           | 13.56MHz                                         |
| Modulation type          | ASK                                              |
| Channel                  | 1                                                |
| Supplied tag type        | 15693, Mifare                                    |
| Power                    | Lithium Battery: DC 7.4V                         |
| Antenna type             | Internal Type: PCB LOOP Antenna                  |

### 1.2 Ancillary equipment

| Equipment | Model No. | Serial No. | Manufacturer        | Note |
|-----------|-----------|------------|---------------------|------|
| RFID Card | 15693     | N/A        | NXP Semiconductors. | -    |
| RFID Card | Mifare    | N/A        | NXP Semiconductors. | -    |

## 2. Information about test items

### 2.1 Test mode

|             |   |
|-------------|---|
| Test Case 1 | - |
| Test Case 2 | - |
| Test Case 3 | - |

### 2.2 Auxiliary equipment

| Equipment | Model No. | Serial No. | Manufacturer | Note |
|-----------|-----------|------------|--------------|------|
| -         | -         | -          | -            | -    |
| -         | -         | -          | -            | -    |

### 2.3 Tested frequency

|                 | TX Frequency (MHz) | RX Frequency (MHz) |
|-----------------|--------------------|--------------------|
| Lowest Channel  | 13.56              | 13.56              |
| Middle Channel  | -                  | -                  |
| Highest Channel | -                  | -                  |

### 2.4 Tested environment

|                           |                  |
|---------------------------|------------------|
| Temperature               | : 23 ℃           |
| Relative humidity content | : 62 ~ 66 % R.H. |
| Details of power supply   | : DC 7.4 V       |

### 2.5 EMI Suppression Device(s)/Modifications

EMI suppression device(s) added and/or modifications made during testing  
 → None

### 3. Test Report

#### 3.1 Summary of tests

| FCC Part Section(s)                                                                                                                                                                                                                                                                                                     | Parameter                     | Limit                                                                                                        | Test Condition    | Status Note 1        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------|----------------------|
| <b>I. Test Items</b>                                                                                                                                                                                                                                                                                                    |                               |                                                                                                              |                   |                      |
| 2.1049                                                                                                                                                                                                                                                                                                                  | 20 dB Bandwidth               | N/A                                                                                                          | Radiated          | <b>C</b><br>Note. 3  |
| 15.225 (a)                                                                                                                                                                                                                                                                                                              | In-Band Emissions             | 15.848 $\mu V/m$ @ 30m<br>15.553 – 13.567 MHz                                                                |                   | <b>C</b><br>Note. 3  |
| 15.225 (b)                                                                                                                                                                                                                                                                                                              | In-Band Emissions             | 334 $\mu V/m$ @ 30m<br>13.410 – 13.553 MHz<br>13.567 – 13.710 MHz                                            |                   | <b>C</b><br>Note. 3  |
| 15.225 (c)                                                                                                                                                                                                                                                                                                              | In-Band Emissions             | 106 $\mu V/m$ @ 30m<br>13.110 – 13.410 MHz<br>13.710 – 14.010 MHz                                            |                   | <b>C</b><br>Note. 3  |
| 15.225 (d)<br>15.205<br>15.209                                                                                                                                                                                                                                                                                          | Out-of Band Emissions         | Emissions outside of the specified band (13.110-14.010 MHz) must meet the radiated limits detailed in 15.209 |                   | <b>C</b><br>Note. 3  |
| 15.225 (e)                                                                                                                                                                                                                                                                                                              | Frequency Stability Tolerance | $\pm 0.001\%$ of operating frequency                                                                         | Conducted         | <b>C</b><br>Note. 3  |
| 15.207                                                                                                                                                                                                                                                                                                                  | AC Conducted Emissions        | EN 55022                                                                                                     | AC Line Conducted | <b>NA</b><br>Note. 2 |
| <p>Note 1: <b>C</b>=Comply    <b>NC</b>=Not Comply    <b>NT</b>=Not Tested    <b>NA</b>=Not Applicable</p> <p>Note 2: Normally when this device is in the charging mode, the RFID function is not used.</p> <p>Note 3: 2 RFID tags were used for all test items. And the worst case data(Tag: Mifare) was reported.</p> |                               |                                                                                                              |                   |                      |

The sample was tested according to the following specification:  
FCC Part 15.225; ANSI C-63.4-2003

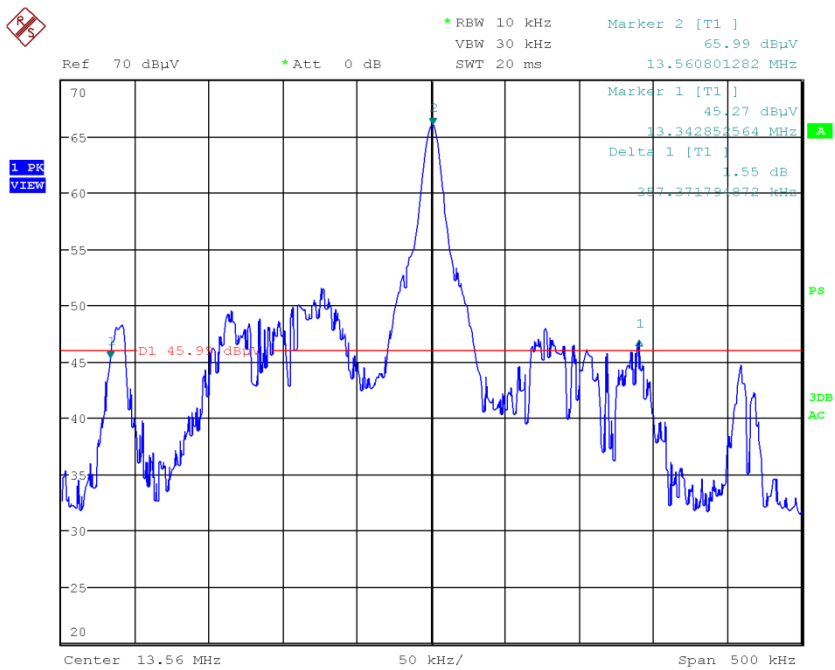
3.2 Transmitter requirements

3.2.1 20dB Bandwidth Measurement (§2.1049)

- **Procedure:**  
The 20dB Bandwidth is measured with a spectrum analyzer connected via a receive antenna placed near the EUT while the EUT is operating in transmission mode.

- **Measurement Data:** **Comply**

| Tested Frequency(MHz) | Test Results(KHz) |
|-----------------------|-------------------|
| 13.56                 | 357.372           |



- **Minimum Standard:**

|      |
|------|
| None |
|------|

### 3.2.2 In-Band Radiated Spurious Emission (§15.225(a), (b), (c))

**- Procedure:**

The EUT was placed on a 0.8m high wooden table inside a shielded enclosure. An antenna was placed near the EUT and measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed in OATS. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions.

**- Measurement Data: Comply**

| Frequency Band [MHz] | Frequency [MHz] | ANT Pol | Reading [dBuV] | T.F [dB/m] | Field Strength @ 3m [dBuV/m] | Field Strength @ 30m [dBuV/m] | Limit [dBuV/m] | Margin [dB] |
|----------------------|-----------------|---------|----------------|------------|------------------------------|-------------------------------|----------------|-------------|
| 13.110 ~ 13.410      | 13.356          | V       | 26.40          | -12.89     | 13.51                        | -26.49                        | 40.51          | 67.00       |
| 13.410 ~ 13.553      | 13.553          | V       | 48.60          | -12.90     | 35.70                        | -4.30                         | 50.47          | 54.77       |
| 13.553 ~ 13.567      | 13.560          | V       | 64.90          | -12.90     | 52.00                        | 12.00                         | 84.00          | 72.00       |
| 13.567 ~ 13.710      | 13.567          | V       | 52.40          | -12.90     | 39.50                        | -0.50                         | 50.47          | 50.97       |
| 13.710 ~ 14.010      | 13.770          | V       | 28.10          | -12.91     | 15.19                        | -24.81                        | 40.51          | 65.32       |

**Note 1.** This test item was performed using a loop antenna.

**Note 2.** This test item was performed at 3m and the data were extrapolated to the specified measurement distance of 30m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in §15.31(f)2.

$$\text{Extrapolation Factor} = 20 \log_{10}(30/3)^2 = 40\text{dB}$$

**Note 3.** Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Field Strength @ 30m} \quad / \quad \text{Field Strength @ 30m} = \text{Field Strength @ 3m} - 40$$

$$\text{Field Strength @ 3m} = \text{Reading} + \text{T.F} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain

**- Minimum Standard**

| Frequency Band [MHz]           | Limit  |          |
|--------------------------------|--------|----------|
|                                | [uV/m] | [dBuV/m] |
| 13.553-13.567                  | 15,848 | 84.00    |
| 13.410-13.553<br>13.567-13.710 | 334    | 50.47    |
| 13.110-13.410<br>13.710-14.010 | 106    | 40.51    |

### 3.2.3 Radiated Spurious Emission Measurements, Out-of-Band (§15.225(d) / §15.205 and 209)

**- Procedure:**

The EUT was tested from 9kHz up to the 1GHz excluding the band 13.110-14.010MHz. All measurements were recorded with spectrum analyzer employing a peak detector for emissions below 30MHz. Above 30MHz a Quasi-peak detector was used. All out-of-band emissions must not exceed the limits §15.209. A loop antenna was used for searching for emissions below 30MHz.

**- Measurement Data:** **Comply** (refer to the next page)

**- Minimum Standard**

**• FCC Part 15.205 (a):** Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz               | MHz                 | MHz                   | MHz             | GHz          | GHz           |
|-------------------|---------------------|-----------------------|-----------------|--------------|---------------|
| 0.009 ~ 0.110     | 8.41425 ~ 8.41475   | 108 ~ 121.94          | 1300 ~ 1427     | 3.6 ~ 4.4    | 14.47 ~ 14.5  |
| 0.495 ~ 0.505     | 12.29 ~ 12.293      | 123 ~ 138             | 1435 ~ 1626.5   | 4.5 ~ 5.15   | 15.35 ~ 16.2  |
| 2.1735 ~ 2.1905   | 12.51975 ~ 12.52025 | 149.9 ~ 150.05        | 1645.5 ~ 1646.5 | 5.35 ~ 5.46  | 17.7 ~ 21.4   |
| 4.125 ~ 4.128     | 12.57675 ~ 12.57725 | 156.52475 ~ 156.52525 | 1660 ~ 1710     | 7.25 ~ 7.75  | 22.01 ~ 23.12 |
| 4.17725 ~ 4.17775 | 13.36 ~ 13.41       | 156.7 ~ 156.9         | 1718.8 ~ 1722.2 | 8.025 ~ 8.5  | 23.6 ~ 24.0   |
| 4.20725 ~ 4.20775 | 16.42 ~ 16.423      | 162.0125 ~ 167.17     | 2200 ~ 2300     | 9.0 ~ 9.2    | 31.2 ~ 31.8   |
| 6.215 ~ 6.218     | 16.69475 ~ 16.69525 | 167.72 ~ 173.2        | 2310 ~ 2390     | 9.3 ~ 9.5    | 36.43 ~ 36.5  |
| 6.26775 ~ 6.26825 | 16.80425 ~ 16.80475 | 240 ~ 285             | 2483.5 ~ 2500   | 10.6 ~ 12.7  | Above 38.6    |
| 6.31175 ~ 6.31225 | 25.5 ~ 25.67        | 322 ~ 335.4           | 2655 ~ 2900     | 13.25 ~ 13.4 |               |
| 8.291 ~ 8.294     | 37.5 ~ 38.25        | 399.90 ~ 410          | 3260 ~ 3267     |              |               |
| 8.362 ~ 8.366     | 73 ~ 74.6           | 608 ~ 614             | 3332 ~ 3339     |              |               |
| 8.37625 ~ 8.38675 | 74.8 ~ 75.2         | 960 ~ 1240            | 3345.8 ~ 3358   |              |               |

**• FCC Part 15.205(b):**

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

**• FCC Part 15.209(a):**

| Frequency [MHz] | Field Strength [uV/m] | Measurement Distance [Meters] |
|-----------------|-----------------------|-------------------------------|
| 0.009 ~ 0.490   | 2400/F(kHz)           | 300                           |
| 0.490 ~ 1.705   | 24000/F(kHz)          | 30                            |
| 1.705 ~ 30      | 30                    | 30                            |
| 30 ~ 88         | 100 **                | 3                             |
| 88 ~ 216        | 150 **                | 3                             |
| 216 ~ 960       | 200 **                | 3                             |
| Above 960       | 200                   | 3                             |

\*\* Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

**• FCC Part 15.209(b):**

In the emission table above, the tighter limit applies at the band edges.

**- Measurement Data:**

Operating Frequency : 13.56MHz  
 Measurement Distance : 3 meters

| Frequency [MHz] | ANT Pol | Reading [dBuV] | T.F [dB/m] | Distance factor | Field Strength [dBuV/m] | Limit [dBuV/m] | Margin [dB] |
|-----------------|---------|----------------|------------|-----------------|-------------------------|----------------|-------------|
| 40.681          | H       | 32.30          | -8.60      | N/A             | 23.70                   | 40.00          | 16.30       |
| 40.681          | V       | 39.40          | -8.60      | N/A             | 30.80                   | 40.00          | 9.20        |
| 256.974         | V       | 36.50          | -8.40      | N/A             | 28.10                   | 46.00          | 17.90       |
| 257.650         | H       | 41.00          | -8.40      | N/A             | 32.60                   | 46.00          | 13.40       |
| 389.980         | H       | 45.50          | -6.20      | N/A             | 39.30                   | 46.00          | 6.70        |
| 389.985         | V       | 34.20          | -6.20      | N/A             | 28.00                   | 46.00          | 18.00       |
| 519.988         | H       | 33.20          | -3.90      | N/A             | 29.30                   | 46.00          | 16.70       |
| 718.710         | H       | 30.30          | -1.90      | N/A             | 28.40                   | 46.00          | 17.60       |

**Note 1.** Both Vertical and Horizontal polarities of the receiver antenna were evaluated with the worst case emissions being reported.

**Note 2.** The worst-case emissions are reported.

**Note 3.** Emissions were not reported greater than below 20dB of the limit.

**Note 4.** Sample calculation

Margin = Limit – Field Strength / T.F = AF + CL – AG

Distance factor =  $20\log(\text{Measurement distance} / \text{The measured distance})$

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain

### 3.2.4 Frequency Stability (§15.225(e))

#### - Procedure:

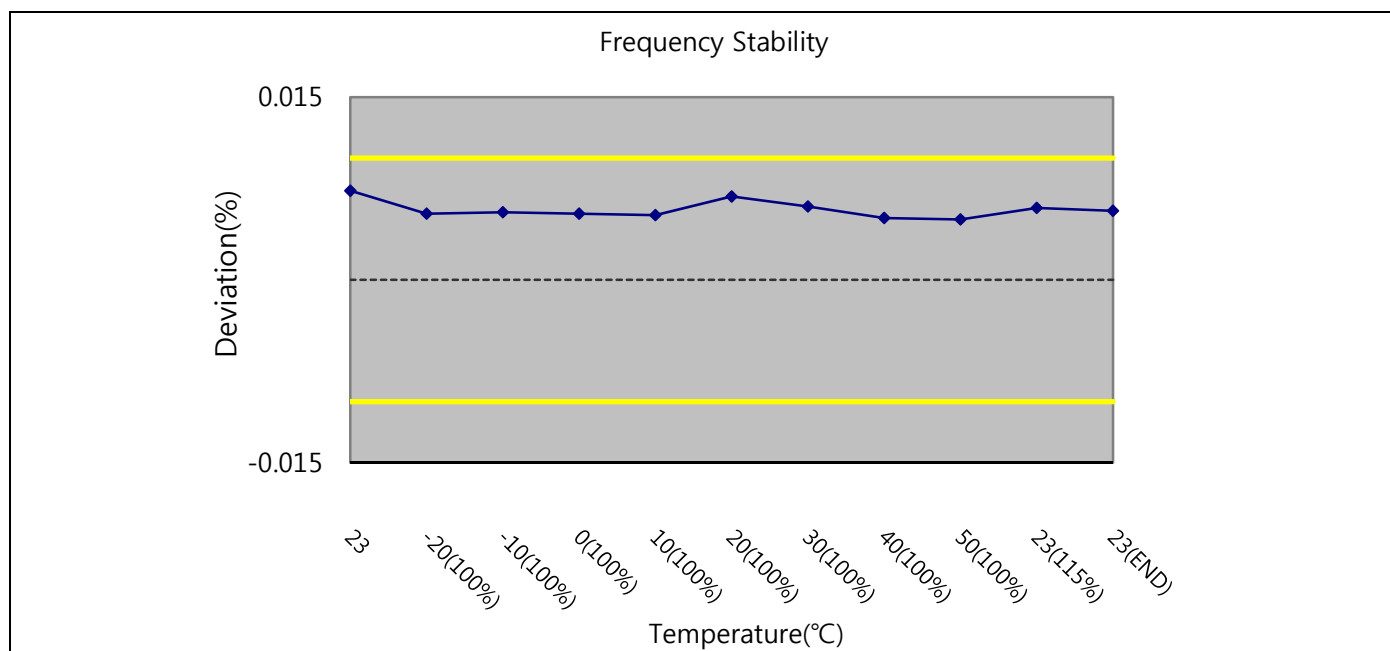
Part 15.225 requires that devices operating in the 13.553 – 13.567 MHz shall maintain the carrier frequency within 0.01% of the operating frequency over the temperature variation of -20 degrees to + 50 degrees C at normal supply voltage.

#### - Measurement Data: **Comply**

Operating Frequency : 13560000 Hz  
Reference Voltage : 7.4 V DC

| VOLTAGE (%)   | POWER (VDC) | TEMP (°C) | Frequency (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|---------------|-------------|-----------|----------------|-----------------|---------------|
| 100%          | 7.4         | +23(ref)  | 13,560,993     | 993             | 0.007322      |
| 100%          |             | -20       | 13,560,737     | 737             | 0.005435      |
| 100%          |             | -10       | 13,560,753     | 753             | 0.005553      |
| 100%          |             | 0         | 13,560,737     | 737             | 0.005435      |
| 100%          |             | +10       | 13,560,721     | 721             | 0.005317      |
| 100%          |             | +20       | 13,560,929     | 929             | 0.006851      |
| 100%          |             | +30       | 13,560,817     | 817             | 0.006025      |
| 100%          |             | +40       | 13,560,689     | 689             | 0.005081      |
| 100%          |             | +50       | 13,560,673     | 673             | 0.004963      |
| 85%           | 6.290       | +23       | -              | -               | -             |
| 115%          | 8.510       | +23       | 13,560,801     | 801             | 0.005907      |
| BATT.ENDPOINT | 7.000       | +23       | 13,560,769     | 769             | 0.005671      |

Note 1: This device is not operated at 6.29V(85%).



#### - Minimum Standard

The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  of the operating frequency.

### 3.2.5 AC Line Conducted Emissions (§15.207/EN 55022)

**- Procedure:**

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its hopping function disabled at the middle channels in line with Section 15.21(m). Emissions closest to the limit are measured in the quasi-peak and average detector mode with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

**- Measurement Data: NA**

Note: When this device is in the charging mode, the RFID function is not used normally.

**- Minimum Standard: FCC Part 15.207(a)/EN 55022**

| Frequency Range (MHz) | Conducted Limit (dBuV) |            |
|-----------------------|------------------------|------------|
|                       | Quasi-Peak             | Average    |
| 0.15 ~ 0.5            | 66 to 56 *             | 56 to 46 * |
| 0.5 ~ 5               | 56                     | 46         |
| 5 ~ 30                | 60                     | 50         |

\* Decreases with the logarithm of the frequency

# **APPENDIX**

## **TEST EQUIPMENT FOR TESTS**

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment.

|                                     | Type                                    | Manufacturer       | Model                              | Cal.Due.Date<br>(dd/mm/yy) | Next.Due.Date<br>(dd/mm/yy) | S/N                       |
|-------------------------------------|-----------------------------------------|--------------------|------------------------------------|----------------------------|-----------------------------|---------------------------|
| <input checked="" type="checkbox"/> | Spectrum Analyzer                       | Agilent            | E4440A                             | 25/09/09                   | 25/09/10                    | MY45304199                |
| <input type="checkbox"/>            | Spectrum Analyzer                       | Rohde Schwarz      | FSQ26                              | 25/02/10                   | 25/02/11                    | 200445                    |
| <input type="checkbox"/>            | Spectrum Analyzer(RE)                   | H.P                | 8563E                              | 13/10/09                   | 13/10/10                    | 3551A04634                |
| <input type="checkbox"/>            | Power Meter                             | H.P                | EPM-442A                           | 01/07/10                   | 01/07/11                    | GB37170413                |
| <input type="checkbox"/>            | Power Sensor                            | H.P                | 8481A                              | 01/07/10                   | 01/07/11                    | 3318A96332                |
| <input type="checkbox"/>            | Power Divider                           | Agilent            | 11636B                             | 13/10/09                   | 13/10/10                    | 56471                     |
| <input type="checkbox"/>            | Power Splitter                          | Anritsu            | K241B                              | 13/10/09                   | 13/10/10                    | 20611                     |
| <input type="checkbox"/>            | Power Splitter                          | Anritsu            | K241B                              | 01/07/10                   | 01/07/11                    | 017060                    |
| <input type="checkbox"/>            | Frequency Counter                       | H.P                | 5342A                              | 01/07/10                   | 01/07/11                    | 2119A04450                |
| <input checked="" type="checkbox"/> | TEMP & HUMIDITY Chamber                 | JISCO              | KR-100/J-RHC2                      | 10/10/09                   | 10/10/10                    | 30604493/021031           |
| <input checked="" type="checkbox"/> | Digital Multimeter                      | H.P                | 34401A                             | 12/03/10                   | 12/03/11                    | 3146A13475,<br>US36122178 |
| <input type="checkbox"/>            | Multifunction Synthesizer               | HP                 | 8904A                              | 06/10/09                   | 06/10/10                    | 3633A08404                |
| <input type="checkbox"/>            | Signal Generator                        | Rohde Schwarz      | SMR20                              | 12/03/10                   | 12/03/11                    | 101251                    |
| <input type="checkbox"/>            | Signal Generator                        | H.P                | ESG-3000A                          | 01/07/10                   | 01/07/11                    | US37230529                |
| <input type="checkbox"/>            | Vector Signal Generator                 | Rohde Schwarz      | SMJ100A                            | 11/01/10                   | 11/01/11                    | 100148                    |
| <input type="checkbox"/>            | Vector Signal Generator                 | Rohde Schwarz      | SMBV100A                           | 23/02/10                   | 23/02/11                    | 255571                    |
| <input type="checkbox"/>            | Audio Analyzer                          | H.P                | 8903B                              | 02/07/10                   | 02/07/11                    | 3011A09448                |
| <input type="checkbox"/>            | Modulation Analyzer                     | H.P                | 8901B                              | 01/07/10                   | 01/07/11                    | 3028A03029                |
| <input type="checkbox"/>            | 8960 Series 10 Wireless Comms. Test Set | Agilent            | E5515C                             | 02/07/10                   | 02/07/11                    | GB43461134                |
| <input type="checkbox"/>            | Universal Radio communication Tester    | Rohde Schwarz      | CMU 200                            | 12/03/10                   | 12/03/11                    | 106760                    |
| <input type="checkbox"/>            | Bluetooth Tester                        | TESCOM             | TC-3000B                           | 01/07/10                   | 01/07/11                    | 3000B000268               |
| <input type="checkbox"/>            | Thermo hygrometer                       | BODYCOM            | BJ5478                             | 28/01/10                   | 28/01/11                    | 090205-3                  |
| <input checked="" type="checkbox"/> | Thermo hygrometer                       | BODYCOM            | BJ5478                             | 28/01/10                   | 28/01/11                    | 090205-2                  |
| <input type="checkbox"/>            | Thermo hygrometer                       | BODYCOM            | BJ5478                             | 28/01/10                   | 28/01/11                    | 090205-4                  |
| <input type="checkbox"/>            | AC Power supply                         | DAEKWANG           | 5KVA                               | 12/03/10                   | 12/03/11                    | 20060321-1                |
| <input checked="" type="checkbox"/> | DC Power Supply                         | HP                 | 6622A                              | 12/03/10                   | 12/03/11                    | 3448A03760                |
| <input type="checkbox"/>            | DC Power Supply                         | HP                 | 6633A                              | 12/03/10                   | 12/03/11                    | 3524A06634                |
| <input type="checkbox"/>            | BAND Reject Filter                      | Microwave Circuits | N0308372                           | 06/10/09                   | 06/10/10                    | 3125-01DC0352             |
| <input type="checkbox"/>            | BAND Reject Filter                      | Wainwright         | WRCG1750                           | 06/10/09                   | 06/10/10                    | 2                         |
| <input type="checkbox"/>            | High-Pass Filter                        | ANRITSU            | MP526D                             | 06/10/09                   | 06/10/10                    | M27756                    |
| <input type="checkbox"/>            | High-pass filter                        | Wainwright         | WHNX2.1                            | N/A                        | N/A                         | 1                         |
| <input type="checkbox"/>            | High-pass filter                        | Wainwright         | WHNX3.0                            | N/A                        | N/A                         | 9                         |
| <input type="checkbox"/>            | High-pass filter                        | Wainwright         | WHNX5.0                            | N/A                        | N/A                         | 8                         |
| <input type="checkbox"/>            | High-Pass Filter                        | Wainwright         | WHKX8.5                            | N/A                        | N/A                         | 1                         |
| <input type="checkbox"/>            | Tunable Notch Filter                    | Wainwright         | WRCT800.0<br>/960.0-0.2/40-8SSK    | N/A                        | N/A                         | 32                        |
| <input type="checkbox"/>            | Tunable Notch Filter                    | Wainwright         | WRCD1700.0<br>/2000.0-0.2/40-10SSK | N/A                        | N/A                         | 53                        |
| <input type="checkbox"/>            | Tunable Notch Filter                    | Wainwright         | WRCT1900.0/<br>2200.0-5/40-10SSK   | N/A                        | N/A                         | 30                        |
| <input type="checkbox"/>            | HORN ANT                                | ETS                | 3115                               | 23/09/09                   | 23/09/10                    | 21097                     |
| <input type="checkbox"/>            | HORN ANT                                | ETS                | 3115                               | 14/07/10                   | 14/07/11                    | 6419                      |
| <input type="checkbox"/>            | HORN ANT                                | A.H.Systems        | SAS-574                            | 10/06/09                   | 10/06/11                    | 154                       |
| <input type="checkbox"/>            | HORN ANT                                | A.H.Systems        | SAS-574                            | 10/06/09                   | 10/06/11                    | 155                       |

|                                     | Type                         | Manufacturer   | Model            | Cal.Due.Date<br>(dd/mm/yy) | Next.Due.Date<br>(dd/mm/yy) | S/N           |
|-------------------------------------|------------------------------|----------------|------------------|----------------------------|-----------------------------|---------------|
| <input type="checkbox"/>            | Dipole Antenna               | Schwarzbeck    | VHA9103          | 06/10/09                   | 06/10/10                    | 2116          |
| <input type="checkbox"/>            | Dipole Antenna               | Schwarzbeck    | VHA9103          | 06/10/09                   | 06/10/10                    | 2117          |
| <input type="checkbox"/>            | Dipole Antenna               | Schwarzbeck    | UHA9105          | 05/10/09                   | 05/10/10                    | 2261          |
| <input type="checkbox"/>            | Dipole Antenna               | Schwarzbeck    | UHA9105          | 05/10/09                   | 05/10/10                    | 2262          |
| <input checked="" type="checkbox"/> | LOOP Antenna                 | ETS            | 6502             | 05/11/09                   | 05/11/10                    | 3471          |
| <input type="checkbox"/>            | Coaxial Fixed Attenuators    | Agilent        | 8491B            | 01/07/10                   | 01/07/11                    | MY39260700    |
| <input checked="" type="checkbox"/> | Attenuator (3dB)             | WEINSCHEL      | 56-3             | 16/12/09                   | 16/12/10                    | Y2342         |
| <input type="checkbox"/>            | Attenuator (3dB)             | WEINSCHEL      | 56-3             | 16/12/09                   | 16/12/10                    | Y2370         |
| <input type="checkbox"/>            | Attenuator (10dB)            | WEINSCHEL      | 23-10-34         | 01/10/09                   | 01/10/10                    | BP4386        |
| <input type="checkbox"/>            | Attenuator (10dB)            | WEINSCHEL      | 23-10-34         | 11/01/10                   | 11/01/11                    | BP4387        |
| <input type="checkbox"/>            | Attenuator (10dB)            | WEINSCHEL      | 31696            | 06/10/09                   | 06/10/10                    | 446           |
| <input type="checkbox"/>            | Attenuator (10dB)            | WEINSCHEL      | 31696            | 06/10/09                   | 06/10/10                    | 408           |
| <input type="checkbox"/>            | Attenuator (20dB)            | WEINSCHEL      | 86-20-11         | 06/10/09                   | 06/10/10                    | 432           |
| <input type="checkbox"/>            | Attenuator (30dB)            | JFW            | 50FH-030-300     | 12/03/10                   | 12/03/11                    | 060320-1      |
| <input type="checkbox"/>            | Attenuator (40dB)            | WEINSCHEL      | 57-40-33         | 01/10/09                   | 01/10/10                    | NN837         |
| <input type="checkbox"/>            | Termination                  | H.P            | HP-909D          | 02/07/10                   | 02/07/11                    | 02750         |
| <input type="checkbox"/>            | Termination                  | H.P            | HP-909D          | 02/07/10                   | 02/07/11                    | 02702         |
| <input type="checkbox"/>            | Type N<br>Coaxial CIRCULATOR | NOVA MICROWAVE | 0088CAN          | 01/07/10                   | 01/07/11                    | 788           |
| <input type="checkbox"/>            | Type N<br>Coaxial CIRCULATOR | NOVA MICROWAVE | 0185CAN          | 01/07/10                   | 01/07/11                    | 790           |
| <input type="checkbox"/>            | Type N<br>Coaxial CIRCULATOR | NOVA MICROWAVE | 0215CAN          | 01/07/10                   | 01/07/11                    | 112           |
| <input type="checkbox"/>            | Amplifier (30dB)             | Agilent        | 8449B            | 23/04/10                   | 23/04/11                    | 3008A01590    |
| <input type="checkbox"/>            | Amplifier (30dB)             | H.P            | 8449B            | 13/05/10                   | 13/05/11                    | 3008A00370    |
| <input type="checkbox"/>            | Amplifier                    | EMPOWER        | BBS3Q7ELU        | 02/11/09                   | 02/11/10                    | 1020          |
| <input type="checkbox"/>            | RF Power Amplifier           | OPHIRRF        | 5069F            | 01/07/10                   | 01/07/11                    | 1006          |
| <input checked="" type="checkbox"/> | EMI TEST RECEIVER            | R&S            | ESU              | 29/01/10                   | 29/01/11                    | 100014        |
| <input checked="" type="checkbox"/> | BILOG ANTENNA                | SCHAFFNER      | CBL 6112D        | 28/10/09                   | 28/10/10                    | 22609         |
| <input checked="" type="checkbox"/> | Amplifier (22dB)             | H.P            | 8447E            | 29/01/10                   | 29/01/11                    | 2945A02865    |
| <input type="checkbox"/>            | EMI TEST RECEIVER            | R&S            | ESCI             | 12/05/10                   | 12/05/11                    | 100364        |
| <input type="checkbox"/>            | LOG-PERIODIC ANT.            | Schwarzbeck    | UHALP 9108 A-1   | 07/10/09                   | 07/10/10                    | 1098          |
| <input type="checkbox"/>            | BICONICAL ANT.               | Schwarzbeck    | VHA 9103         | 06/10/09                   | 06/10/10                    | 91031946      |
| <input type="checkbox"/>            | LOG-PERIODIC ANT.            | Schwarzbeck    | UHALP9108A       | 07/07/10                   | 07/07/11                    | 590           |
| <input type="checkbox"/>            | Low Noise Pre Amplifier      | TSJ            | MLA-100K01-B01-2 | 12/03/10                   | 12/03/11                    | 1252741       |
| <input type="checkbox"/>            | Amplifier (25dB)             | Agilent        | 8447D            | 12/03/10                   | 12/03/11                    | 2944A10144    |
| <input type="checkbox"/>            | Amplifier (25dB)             | Agilent        | 8447D            | 01/07/10                   | 01/07/11                    | 2648A04922    |
| <input type="checkbox"/>            | Spectrum Analyzer(CE)        | H.P            | 8591E            | 12/03/10                   | 12/03/11                    | 3649A05889    |
| <input type="checkbox"/>            | LISN                         | Kyoritsu       | KNW-407          | 29/01/10                   | 29/01/11                    | 8-317-8       |
| <input type="checkbox"/>            | LISN                         | Kyoritsu       | KNW-242          | 29/01/10                   | 29/01/11                    | 8-654-15      |
| <input type="checkbox"/>            | CVCF                         | NF Electronic  | 4420             | 12/03/10                   | 12/03/11                    | 304935/337980 |
| <input type="checkbox"/>            | 50 ohm Terminator            | HME            | CT-01            | 12/01/10                   | 12/01/11                    | N/A           |
| <input type="checkbox"/>            | RFI/FIELD Intensity<br>Meter | Kyoritsu       | KNM-2402         | 02/07/10                   | 02/07/11                    | 4N-170-3      |