

| REV | Δ | Description | Sheet<br>Effected | Date     | Drawn    | Checked |
|-----|---|-------------|-------------------|----------|----------|---------|
| A   |   |             |                   | 15.06.03 | D.Lanuel | S.Cohen |

EMC Laboratory

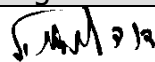
# Pull Cord

FCCID :QUX-PC-800  
Manufactured by  
HomeFree System Ltd.

EMC Test Report

According FCC Part 15 Requirements

JUNE 2003

|             | Function/Title   | Name     | Signature                                                                             | Date     |
|-------------|------------------|----------|---------------------------------------------------------------------------------------|----------|
| Prepared by | Test Engineer    | D.Lanuel |  | 15.06.03 |
| Approved by | EMC Lab. Manager | S.Cohen  |  | 15.06.03 |

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## 1 TEST DATA INFORMATION

### a. Description of equipment Under Test.

|                               |                      |
|-------------------------------|----------------------|
| Equipment Under Test:         | Local Pager Unit     |
| FCCID                         | QUX-PC-800           |
| Manufacturer:                 | HomeFree System Ltd. |
| Serial Numbers:               | 0001                 |
| Mode of Operation:            | TX MODE              |
| Receiver operating frequency: | 318MHZ               |
| Year of Manufacture:          | 2003                 |

### b. Applicant Information:

|                                                                 |                             |
|-----------------------------------------------------------------|-----------------------------|
| Applicant:                                                      | HomeFree System Ltd.        |
| Applicant Address                                               | 2, Habarzel Street Tel-Aviv |
| Telephone:                                                      | +972-3-6478871              |
| FAX:                                                            | +972-3-6478872              |
| The testing was observed by<br>following applicant's personnel: | LEV ROSMAN                  |

### c. Test Performance:

|                                |                                                                                                                                                                          |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Date of reception for testing: | 02.06.03                                                                                                                                                                 |
| Dates of testing               | 15.06.03                                                                                                                                                                 |
| Test Laboratory Location       | TADIRAN EMC LAB , Hashoftim 26 Holon<br>58102 ISRAEL<br>Tel: 972-3-5574476 Fax: 972-3-5575320                                                                            |
| Applicable EMC Specification:  | Federal Communication Commission (FCC),<br>Code of Federal Regulations 47,<br>FCC Docket 89-103, Part 15: Radio Frequency<br>Devices, Sections 15.109, 15.209, & 15.231. |

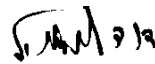
## 2 TEST SUMMARY AND SIGNATURES.

TADIRAN EMC Laboratory has completed testing of E.U.T in accordance with the requirements of the FCC Part 15 Regulations for Class B equipment.

**The E.U.T has been found to comply with the emission requirements of the FCC Part 15 Regulations for parts 15.109, 15.209, 15.205 & 15.231**

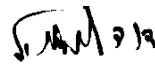
**a. Test performed by:**

Mr. D. Lanuel Test Engineer



**b. Test Report prepared by:**

Mr. D. Lanuel Test Engineer



**c. Test Report Approved by:**

Mr. Samuel Cohen EMC Lab. Manager



### 3 GENERAL INFORMATION

#### a. Specification Reference

|                 |                                                                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section 15.109: | Limits of Radiated Interference Field Strength in the 30MHz to 1000MHz frequency range.unintentional radiators                                           |
| Section 15.209: | Limits of Radiated Interference Field Strength in the 9KHz to 35000MHz frequency range intentional Radiators                                             |
| Section 15.205  | Limits of Radiated Interference Field Strength in the restricted bands of operation for intentional radiators                                            |
| Section 15.231  | Limits of Radiated Interference Field Strength in the 30MHz to 1000MHz frequency range for intentional radiators operating in frequency rang above 70MHz |

#### b. Applicable Documents.

- 3.1 Federal Communication Commission (FCC), Code of Federal Regulations 47, FCC Docket 89-103, Part 15: Radio Frequency Devices, Sections 15.107 & 15.109.
- 3.2 FCC/OET, Laboratory Measurement Procedures MP-4, July 1987, "FCC Procedures for Measuring RF Emissions from Computing Devices".
- 3.3 FCC/Office of Science and Technology OST-55, August 1982, "Characteristics of Open Field Test Sites".
- 3.4 FCC/OET, "FCC Procedure for Measuring Electromagnetic Emissions from Digital Devices", TP-5, March 1989.
- 3.5 FCC/OET, "Understanding the FCC Regulations Concerning Computing Devices", OST-62, May 1984
- 3.6 International Special Committee On Radio Interference (CISPR) Publication 16, First Edition 1977, "CISPR Specification for Radio Interference Measuring Apparatus and Measurement Methods".
- 3.7 American National Standard, "Specifications for Electromagnetic Noise and Field Strength Instrumentation, 9KHz to 1GHz", ANSI C63.2, 1987.
- 3.8 American National Standard, "Method of Measurement Electromagnetic Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9KHz to 40GHz", ANSI C63.4, 1992.

## **4 ADMINISTRATIVE DATA**

### **a. Scope**

This document describes the measurement procedures and tests for Radiated and conducted emission testing of the PULL CORD Manufactured by HomeFree System Ltd..

### **b. Administrative Data**

The test was performed by the TADIRAN / EMC Laboratory, 26 Hashoftim St. P.O.B. 267, 58102 Holon, ISRAEL.

### **c. Certification And Qualifications**

I Certify that TADIRAN / EMC Laboratory. Conducted the tests performed in order to obtain a technical data presented in this application. Also based on the results of this enclosed data I have concluded that the equipment tested meets or exceeds the requirements of the Rules and regulations governing this application.

TADIRAN / EMC Laboratory, 26 Hashoftim St. P.O.B. 267, 58102 Holon, ISRAEL was established in 1975 to provide Electromagnetic Compatibility testing, Consulting and Engineering. All facility are equipped with modern Automated test equipment and staffed with experienced EMC test engineers. Engineering support is a standard feather of our sites, we are ready to support and assist our customers in meeting the compliance requirements.

Our qualifications include:

Quality assurance MIL-I-45208A

Calibration per MIL-STD-45662A

FCC Listed

ISO 9001 Approved By The International Certification Network "IQNet"

ISO 9001 Approved By the Standards Institute of Israel.

Approved by I.D.F for Compliance with regulation.

Approved by I.A.F for Compliance with regulation

TADIRAN / EMC Laboratory has previously performed FCC testing of similar equipment.

Appendix A includes an FCC approval of our application for licensing of a previous generation of a Transceiver product operating under the requirements of FCC part 15.247

for intentional radiator equipment. As well as evidence for our accreditation by ISO 9001 & listing by FCC.

### **d. Measurement Repeatability information**

The test data presented in this report has been acquired using the guidelines set forth in FCC Part 15 .The test data presented in this document are valid only for the equipment identified under the test conditioned described. Repeatability of these tests results will only be achieved with identical test conditions. This conditions include: the same test distance, E.U.T height, measurement site characteristics and the same E.U.T System components, The system must have the same interconnecting cables arranged in identical placement to that in the test set-up, with the system and /or E.U.T functioning in identical mode of operation (i.e. software and so on) as on the date of the test. Any deviation from the test conditions and the environment on the date of test may result in measurement repeatability difficulties. All changes made to the E.U.T during the course of testing as identified in this test report must be incorporated into the E.U.T or identical modes to ensure compliance with the FCC regulations.

## **e. Measuring Equipment Calibration**

### **(1) Receiving System Calibration**

The equipment calibration is traceable. Calibration is performed under the MIL-STD-45662A requirements

### **f. Antennas calibration**

Biconical and Log-periodic antennas are calibrated by using the reference antenna method according to ANSI C63.5-1988, when the reference antenna is the Robert's antenna.

Double-ridged guide antennas (1-18 GHz) are calibrated by using two identical antenna methods according to ANSI C63.2-1987 and SAE ARP-958

Calibration of listed above antennas is performed periodically once a year

Robert antenna is calibrated every three years by using the reference antenna method according to ANSI C63.5-1988, when the reference antenna is the calibrated Robert antenna.

Antennas, which are used according to military standards tests, are calibrated every two years by using two identical antenna methods according to SAE ARP-958.

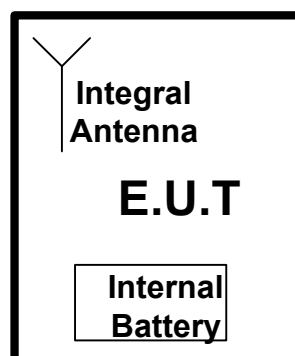
## **5 E.U.T INFORMATION**

### **a. E.U.T description**

- 1.1. The Pull Cord is a small wall-mounted device, to be installed in nursing homes and assisted leaving homes.
- 1.2. The Pull Cord is a stand-alone unit. It is battery operated; it has RF transmitter module, a microcontroller, which controls the Pull Cord operation, and one PCB.
- 1.3. The Pull Cord has one RF channel. It is 318 MHz carrier with FSK modulated data.
- 1.4. The Pull Cord in active mode transmits 5ms identification & status signals with interval about 20s. The device in panics alert mode transmits three 5ms within 1 sec with 50-200 ms interval between these transmissions.

### **b. E.U.T Test Configuration**

E.U.T. test configuration is shown in figure bellow



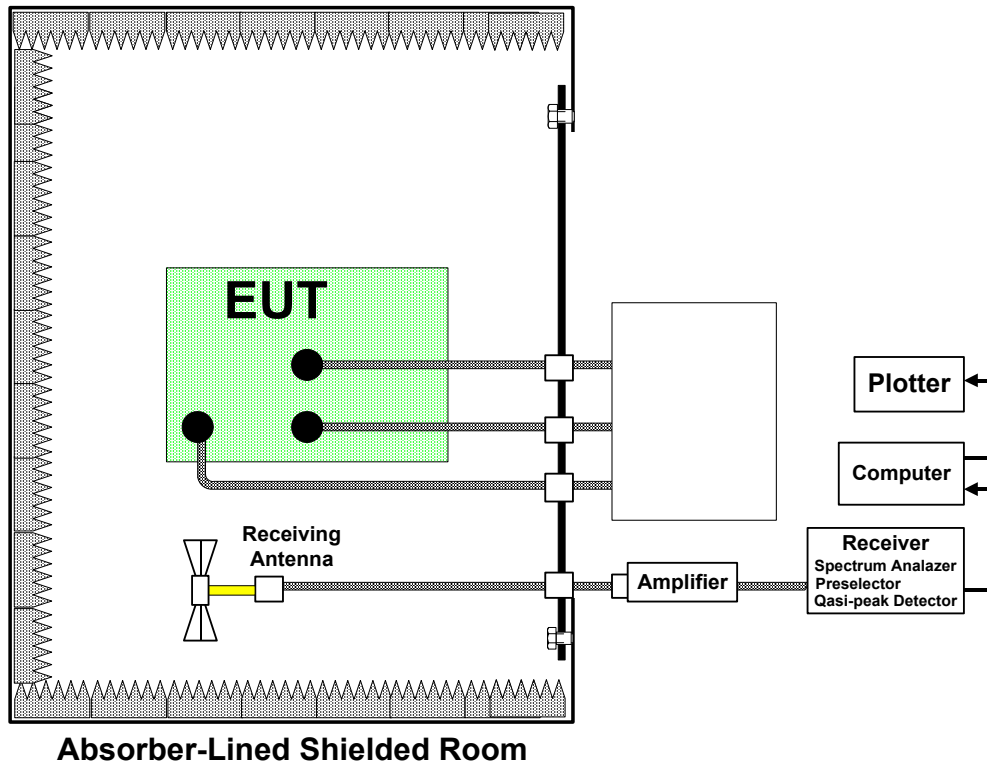
### **c. E.U.T Mode of Operation description**

All the tests were performed at TX Mode

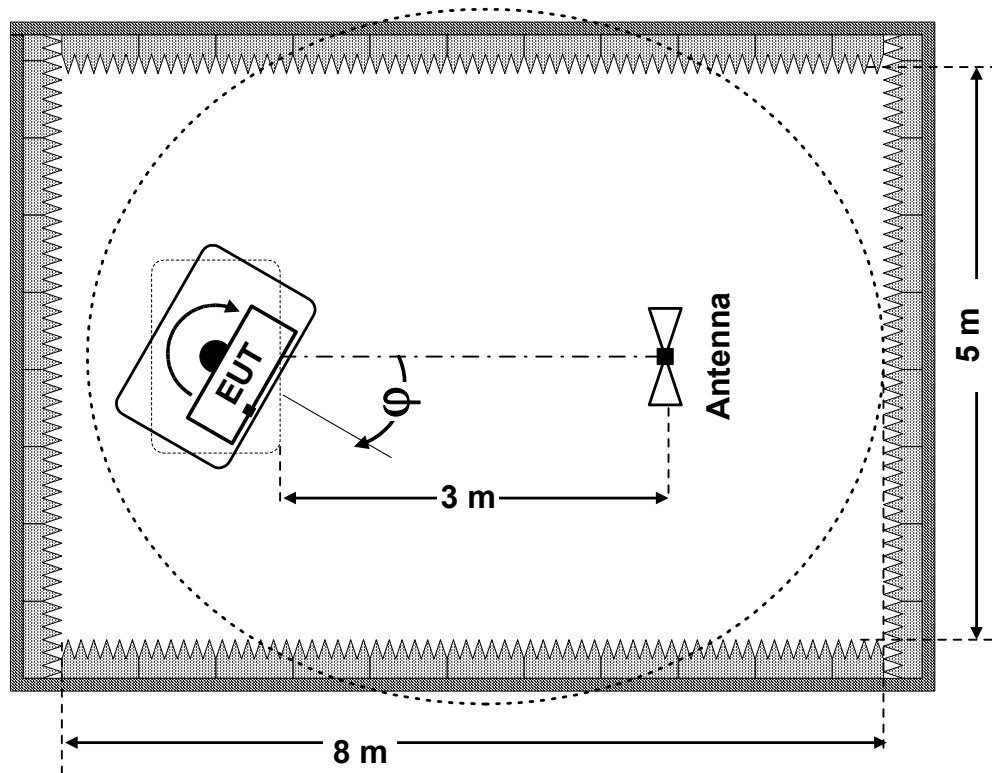
## 6 OUT OF BAND RADIATED FIELD STRENGTH TEST PROCEDURE

### a. Preliminary test set up

- (1) The measuring system block diagram shown in Figure 6.a.1.
- (2) E.U.T orientation and antenna position shown in Figure 6.a.2



**Figure 6a.1**



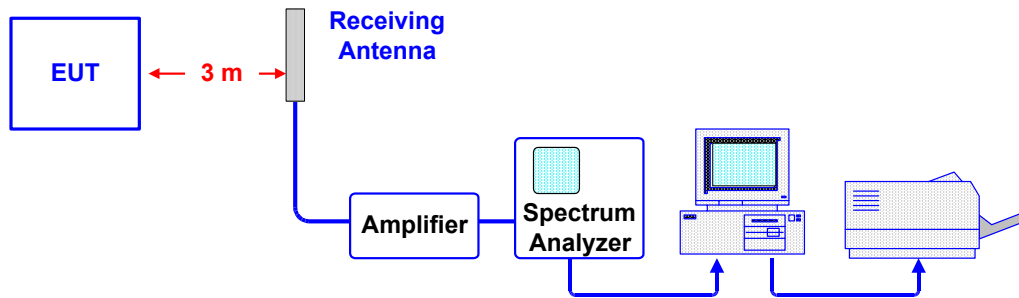
**Figure 6.a.2**

**b. Preliminary Test Procedure**

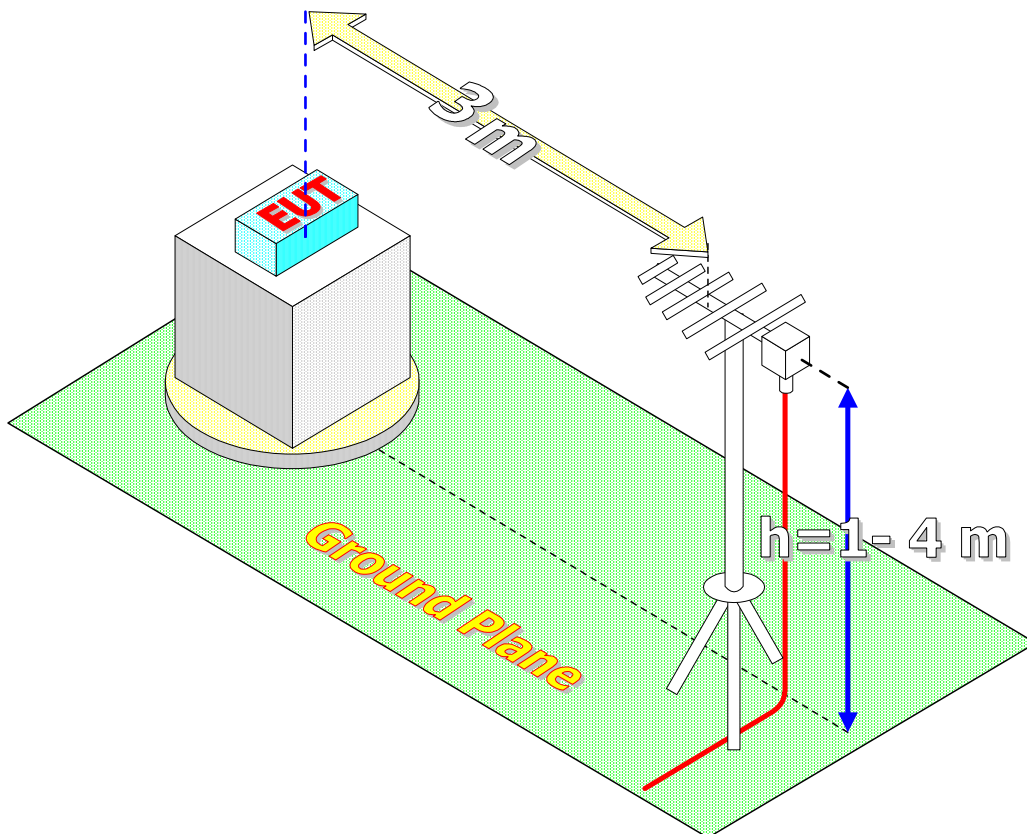
- (1) Maintain setup in absorber-lined shielded room as shown in Figures 6.a.1, 6.a.2
- (2) Turn on the E.U.T and allow sufficient time for stabilization.
- (3) Monitor the frequency range of interest at a fixed antenna height and E.U.T azimuth.
- (4) Rotate the E.U.T 360° to maximize the suspected highest amplitude signal.
- (5) Move the antenna over its full-allowed range of travel to maximize the suspected highest amplitude signal.
- (6) Change the polarity of the antenna and repeat step d and e. compare the result suspected highest amplitude signal with that found for the other polarity. Select and note the higher of the two signals. The signal is termed the highest observed signal with the respect to the limit.
- (7) Repeat testing for each operational mode of the E.U.T.
- (8) Choose six highest emissions relative to limit and record antenna heights and polarities, E.U.T configuration for each emission frequency.
- (9) Perform measurements for selected frequencies using quasi-peak detector.

**c. Final test setup**

- (1) The measuring system block diagram shown in Figure 6.c.1
- (2) E.U.T orientation and antenna position shown in Figure 6.c.2



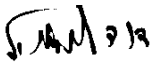
**Figure 6.c.1**



**Figure 6.c.2**

## 7 BANDWIDTH OF THE EMISSION PART 15.231—TEST RESULTS

E.U.T: Pull Cord S/N 001  
Test Method: ANSI 63.4  
Date: 02/06/03  
Relative Humidity: 34%  
Ambient Temperature: 25c  
Air Pressure: 1027hpa  
Test Setup: Figure 6.c.1

**Testing Engineer:** D.Lanuel  **Date** 15/06/03

### a. General

The test was performed to measure bandwidth of Radiated emission at fundamental Frequency.

### b. Test Results Summary & Conclusions

**The E.U.T was found in compliance with Bandwidth of Radiated Emission fundamental frequency requirement**

### c. Limits of Field Strength for fundamental according 15.231

The test unit shall meet the limits of Table 7.c for Class B equipment.

**Table 7.C Limits For Bandwidth**

| Frequency (MHz) | Bandwidth Max Limits (%) | Bandwidth Max Limits (KHz) |
|-----------------|--------------------------|----------------------------|
| 318.01000       | 0.25                     | 795                        |

### d. Test Instrumentation and Equipment

**Table 7.d Test Instrumentation and Equipment**

| Item                    | Model     | Manufacturer | Next Date Calibration |
|-------------------------|-----------|--------------|-----------------------|
| Spectrum Analyzer       | 8593E     | HP           | 31/01/04              |
| Broadband Antenna       | BTA-L     | FRANKONIA    | 10.04.04              |
| Low Noise Amp. (0-1GHz) | AM-1300-N | MITEQ        | 14.01.04              |

### e. Test Results

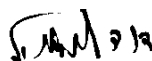
**Table 6.e Bandwidth Test Result**

| Frequency (MHz) | Bandwidth (KHz) | Bandwidth Max Limit (KHz) | Plot No | PASS/FAIL |
|-----------------|-----------------|---------------------------|---------|-----------|
| 318             | 564             | 795                       | RE/3    | PASS      |

## 8 FIELD STRENGTH OF FUNDAMENTAL PART 15.231-TEST RESULTS

E.U.T: Pull Cord S/N 001  
Test Method: ANSI 63.4  
Date: 09/06/03  
Relative Humidity: 34%  
Ambient Temperature: 25c  
Air Pressure: 1027hpa  
Test Setup: Figure 6.c.1

**Testing Engineer:** D.Lanuel



**Date** 15/06/03

### a. General

The test was performed to measure Radiated emission at fundamental Frequency.

### b. Test Results Summary & Conclusions

**The E.U.T was found in compliance with fundamental frequency requirement**

### c. Limits of Field Strength for fundamental according 15.231

The test unit shall meet the limits of Table 8.c for Class B equipment.

**Table 8.C Limits For Fundamental**

| Frequency (MHz) | Average Max Limits<br>(dB $\mu$ V/m) | Peak Max Limits<br>(dB $\mu$ V/m) |
|-----------------|--------------------------------------|-----------------------------------|
| 318.01000       | 75.8                                 | 95.8                              |

### d. Test Instrumentation and Equipment

**Table 8.d Test Instrumentation and Equipment**

| Item                    | Model     | Manufacturer | Next Date Calibration |
|-------------------------|-----------|--------------|-----------------------|
| Spectrum Analyzer       | 8593E     | HP           | 31/01/04              |
| Broadband Antenna       | BTA-L     | FRANKONIA    | 10.04.04              |
| Low Noise Amp. (0-1GHz) | AM-1300-N | MITEQ        | 14.01.04              |

## e. Test Results

**Table 6.e Average Factor**

| TX Period( min) | Duty Cycle(min)  | Average Factor     | Plot No |
|-----------------|------------------|--------------------|---------|
| 11.2ms*         | $11.2/100=0.112$ | $20\log 0.112=-19$ | RE/2    |

\*The worst case is while two panics alert(5.6msx2) are transmitted within 100ms

**Table 6.e.1 Peak Result of Fundamental**

| Frequency (MHz) | Peak Result (dB $\mu$ V/m) | peak Limits (dB $\mu$ V/m) | Margine (dB) | Plot No | Pass/Fail |
|-----------------|----------------------------|----------------------------|--------------|---------|-----------|
| 318.07200       | 87.6                       | 95.8                       | 8.2          | RE/1    | PASS      |

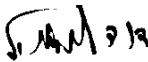
**Table 6.e.2 Average Result of Fundamental**

| Frequency (MHz) | Peak Result (dB $\mu$ V/m) | Average Factor | Calculation Results | Average Limits (dB $\mu$ V/m) | Margine (dB) | Pass/Fail |
|-----------------|----------------------------|----------------|---------------------|-------------------------------|--------------|-----------|
| 318.07200       | 87.6                       | -19            | 68.6                | 75.8                          | 7.2          | PASS      |

## 9 RADIATED EMISSION PART 15.109-TEST RESULTS.

### a. Preliminary Radiated emission Test Result According Part 15.109

E.U.T: Pull Cord S/N 001  
Test Method: ANSI 63.4  
Date: 10/06/03  
Relative Humidity: 34%  
Ambient Temperature: 25c  
Air Pressure: 1027hpa  
Test Setup: Figur 6.c.1

**Testing Engineer:** D.Lanuel  **Date** 15/06/03

### b. General

The test was performed to measure Radiated emission at out of band spurious emission at TX OFF period

### c. Test Results Summary & Conclusions

**The E.U.T was found in compliance with 15.109**

### d. Limits of Radiated Interference Field Strength according 15.109

The test unit shall meet the limits of Table 9.d for Class B equipment.

**Table 9.d Limits For 15.109 Class B equipment**

| Frequency Range (MHz) | Quasi-peak Limits (dB $\mu$ V/m) |
|-----------------------|----------------------------------|
| 30 - 88               | 40                               |
| 88 - 216              | 43                               |
| 216 - 960             | 46                               |
| 960 - 2000            | 54                               |

# e. Test Instrumentation and Equipment

**Table 9.e Test Instrumentation and Equipment**

| Item                                | Model     | Manufacturer | Next Date Calibration |
|-------------------------------------|-----------|--------------|-----------------------|
| Spectrum Analyzer                   | 8593E     | HP           | 31/01/04              |
| Double Ridge Guide Antenna(1-18GHz) | 3105      | EMCO         | 24.04.04              |
| Broadband Antenna(30-1000MHz)       | BTA-L     | FRANKONIA    | 10.04.04              |
| Low Noise Amplifier (0-1GHz)        | AM-1300-N | MITEQ        | 14.01.04              |
| Low Noise Amplifier (1-2GHz)        | SMC-09    | MITEQ        | 14.01.04              |
| Low Noise Amplifier (2-6GHz)        | SMC-09    | MITEQ        | 14.01.04              |

# f. Preliminary Results

**Table 9.f Preliminary Test Results for Unintentional Emissions in TX Mode 15.109**

| Configuratiion | Antenna Polarization | Freq. Range MHz | Res. BW (kHz) | Plot No.      | PASS/FAIL |
|----------------|----------------------|-----------------|---------------|---------------|-----------|
| Calibration    | Calibration          | 4               | 120           | Plot REcal/ 1 | Pass      |
|                |                      | 30              |               | Plot REcal/ 2 | Pass      |
|                |                      | 200             |               | Plot REcal/ 3 | Pass      |
|                |                      | 956             |               | Plot REcal/ 4 | Pass      |
|                |                      | 1200            |               | Plot REcal/ 5 | Pass      |
| Test           | Both Hor.&Ver        | 30-200          | 120           | Plot RE/6     | Pass      |
|                |                      | 200-318         | 120           | Plot RE/7     | Pass      |
|                |                      | 319-400         | 120           | Plot RE/8     | Pass      |
|                |                      | 400-800         | 120           | Plot RE/9     | Pass      |
|                |                      | 800-1000        | 120           | Plot RE/10    | Pass      |
|                |                      | 1000-2000       | 2000          | Plot RE/11    | Pass      |

# g. Final Test Results

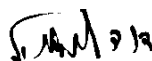
**Table 9.g Six Highest TX Mode 15.109**

| Mode Of Operation | Freq. (MHz) | peak Reading (*) (dB $\mu$ V/m)                                                         | Limit dB $\mu$ V/m | Margin (dB) | Polarity Ver/Hor | Height (m) |
|-------------------|-------------|-----------------------------------------------------------------------------------------|--------------------|-------------|------------------|------------|
| TX                | 30-2000     | The Emissions are below the unintentional limits except harmonics(See Plots RE/6- RE11) |                    |             |                  |            |

## 10 RADIATED EMISSION PART 15.231 & 15.205-TEST RESULTS

E.U.T: Pull Cord S/N 001  
Test Method: ANSI 63.4  
Date: 11/06/03  
Relative Humidity: 34%  
Ambient Temperature: 25c  
Air Pressure: 1027hpa  
Test Setup: Figure 6.c.1

**Testing Engineer:** D.Lanuel



**Date** 15/06/03

### a. General

The test was performed to measure Radiated emission at out of band spurious emission at intentional period

### b. Test Results Summary & Conclusions

**The E.U.T was found in compliance with 15.231**

### c. Limits of Radiated Interference Field Strength according 15.231

The test unit shall meet the limits of Table 10.c for Class B equipment.

**Table 10.c Limits For 15.231(b)**

| Frequency range(MHz) | Average Limits (dB $\mu$ V/m) | peak Limits (dB $\mu$ V/m) |
|----------------------|-------------------------------|----------------------------|
| 0.009 – 3500         | 55.8                          | 75.8                       |

### d. Test Instrumentation and Equipment

**Table 10.d Test Instrumentation and Equipment**

| Item                                | Model     | Manufacturer | Next Date Calibration |
|-------------------------------------|-----------|--------------|-----------------------|
| Spectrum Analyzer                   | 8593E     | HP           | 31/01/04              |
| Rode Antenna(10KHz-30MHz)           | 95010-1   | ETN          | 13.11.04              |
| Double Ridge Guide Antenna(1-18GHz) | 3105      | EMCO         | 24.04.04              |
| Broadband Antenna                   | BTA-L     | FRANKONIA    | 10.04.04              |
| Low Noise Amplifier (0-1GHz)        | AM-1300-N | MITEQ        | 14.01.04              |
| Low Noise Amplifier (1-2GHz)        | SMC-09    | MITEQ        | 14.01.04              |
| Low Noise Amplifier (2-6GHz)        | SMC-09    | MITEQ        | 14.01.04              |

# e. Preliminary Test Results

**Table 9.f Preliminary Test Results for intentional Emissions in TX Mode 15.231**

| Antenna Polarization | Freq. Range MHz | Res. BW (kHz) | Plot No.   | PASS/FAIL |
|----------------------|-----------------|---------------|------------|-----------|
| Both Hor.&Ver        | 0.009 – 0.15    | 0.2           | Plot RE/4  | Pass      |
|                      | 0.15 - 30       | 9             | Plot RE/5  | Pass      |
|                      | 30-200          | 120           | Plot RE/6  | Pass      |
|                      | 200-318         | 120           | Plot RE/7  | Pass      |
|                      | 319-400         | 120           | Plot RE/8  | Pass      |
|                      | 400-800         | 120           | Plot RE/9  | Pass      |
|                      | 800-1000        | 120           | Plot RE/10 | Pass      |
|                      | 1000-2000       | 1000          | Plot RE/11 | Pass      |
|                      | 2000-3500       | 1000          | Plot RE/12 | Pass      |

# f. Final Results Results

**Table 10.f Six Highest Peak Emission Test Results**

| Mode Of Operation | Freq. (MHz) | peak Reading (*) (dBμV/m) | Limit dBμV/m | Margin (dB) | Pass/Fail |
|-------------------|-------------|---------------------------|--------------|-------------|-----------|
| TX                | 634.4       | 51                        | 75.8         | 24.8        | PASS      |
|                   | 954.5       | 67                        | 75.8         | 8.8         | PASS      |
|                   | 1275        | 57                        | 75.8         | 18.8        | PASS      |
|                   | *1592.5     | 52.5                      | 74           | 21.5        | PASS      |
|                   | 1910        | 56.1                      | 75.8         | 19.7        | PASS      |
|                   | 2915        | 45.5                      | 75.8         | 30.3        | PASS      |

\* Restricted bands

**Table 10.f.1 Six Highest Average Emission Test Results**

| Mode Of Operation | Freq. (MHz) | Calculated (dBμV/m) | Limit dBμV/m | Margin (dB) | Pass/Fail |
|-------------------|-------------|---------------------|--------------|-------------|-----------|
| TX                | 634.4       | 32                  | 55.8         | 23.8        | PASS      |
|                   | 954.5       | 48                  | 55.8         | 7.8         | PASS      |
|                   | 1275        | 38                  | 55.8         | 17.8        | PASS      |
|                   | *1592.5     | 33.5                | 54           | 20.5        | PASS      |
|                   | 1910        | 37.1                | 55.8         | 18.7        | PASS      |
|                   | 2915        | 26.5                | 55.8         | 29.3        | PASS      |

\*Restricted bands

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 63183433

**Client**

Name: Dmatek

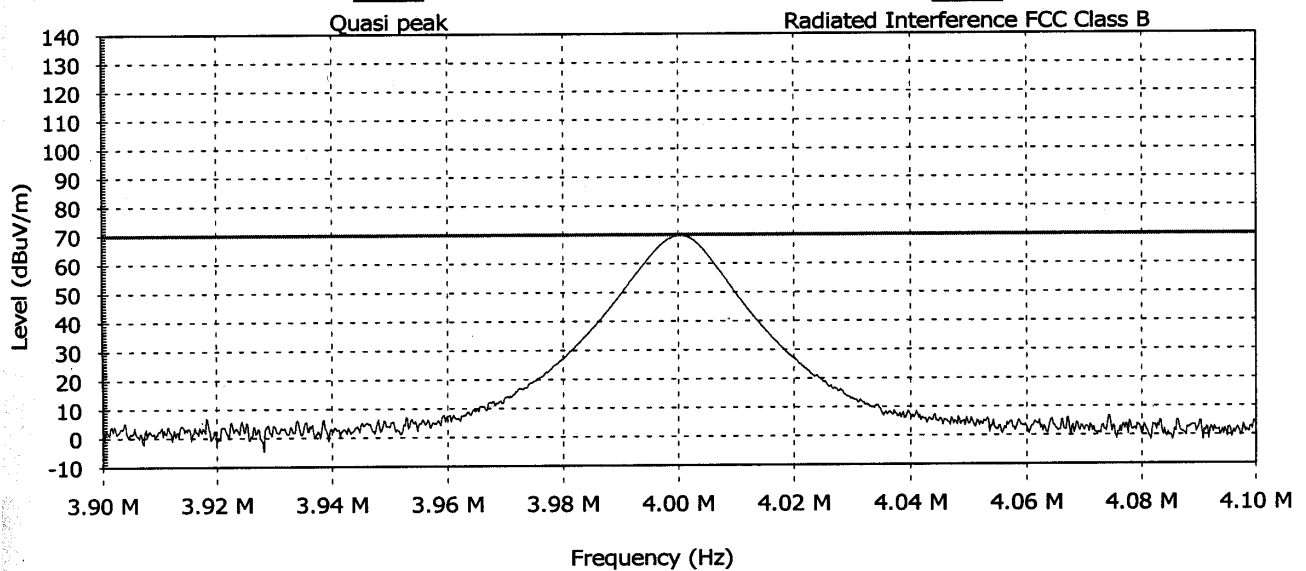
Contact Person: Lev Rosman

**Radiated Emission**

Description: 69) RE FCC 15.109 CAL 1M.

From 3.9 MHz to 4.1 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|------|-----------------|------------|
| 1  | 4               | 69.7        | Pass | 270             | 1          |

**Settings:**

Antenna: Horizontal at 3 m

Ref. Level: 90.0 dBuV/m Att: 20 dB. RBW: 9 kHz. VBW: 1000 kHz. Sweep time: 50 ms.

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Note:**

Calibration ROD Antenna for 4MHz 70dbuV

**EUT File:**

S:\EMC LAB\common\AMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 63183433

**Client**

Name: Dmatek

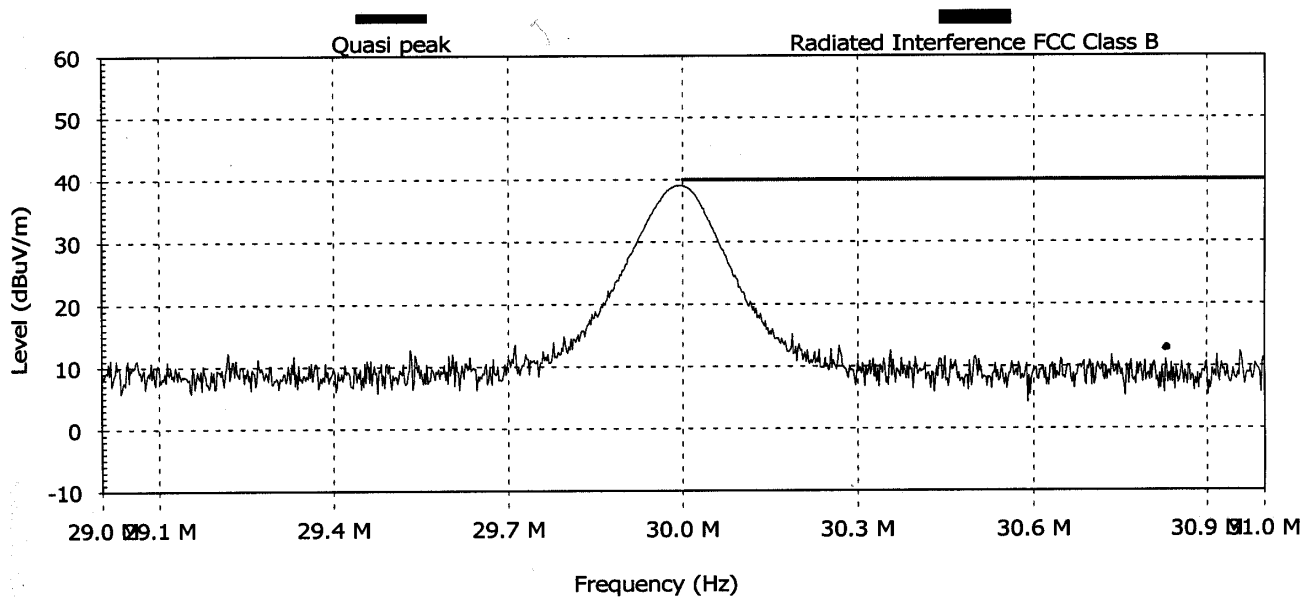
Contact Person: Lev Rosman

**Radiated Emission**

Description: 55) RE FCC 15.109 CAL 30M

From 29 MHz to 31 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|------|-----------------|------------|
| 1  | 29.994          | 39.1        | Pass | 270             | 1          |

**Settings:**

Antenna: Horizontal at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 20 ms.

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Note:**

Calibration for 30MHz 40dbuV

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 63183433

**Client**

Name: Dmatek

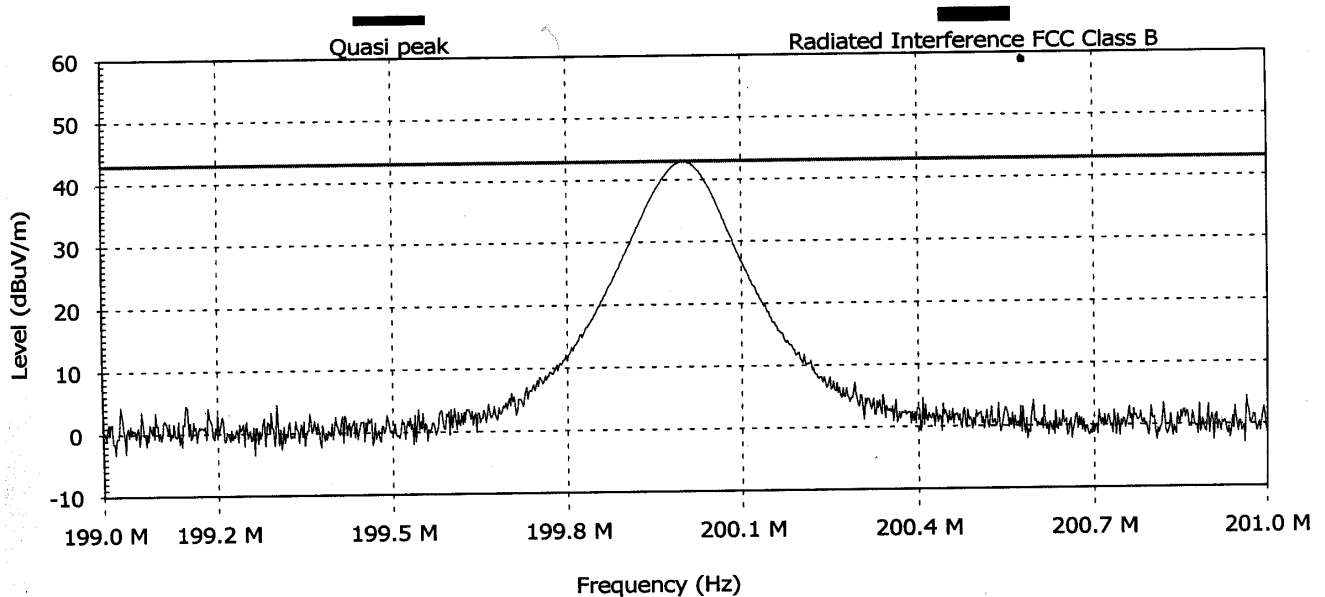
Contact Person: Lev Rosman

**Radiated Emission**

Description: 59) RE FCC 15.109 CAL 200M

From 199 MHz to 201 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|------|-----------------|------------|
| 1  | 200             | 42.9        | Pass | 270             | 1          |

**Settings:**

Antenna: Horizontal at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 20 ms.

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Note:**

Clibration for 200MHz 43dbuV

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 63183433

**Client**

Name: Dmatek

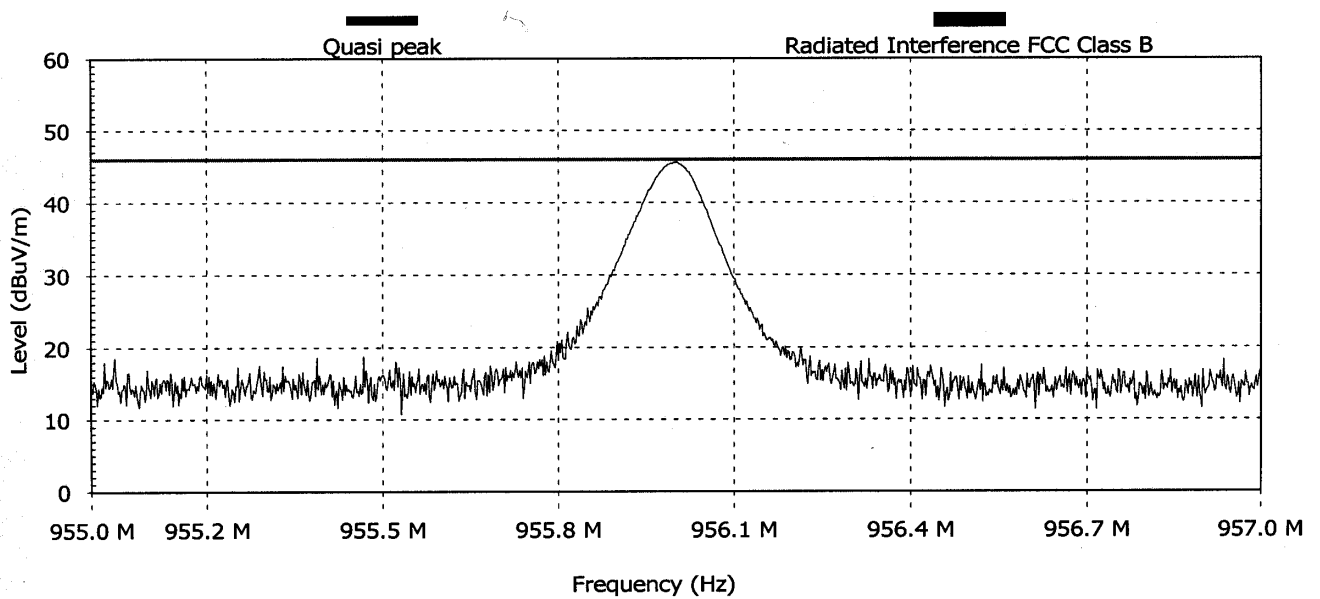
Contact Person: Lev Rosman

**Radiated Emission**

Description: 61) RE FCC 15.109 CAL 960M

From 955 MHz to 957 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|------|-----------------|------------|
| 1  | 956.002         | 45.6        | Pass | 270             | 1          |

**Settings:**

Antenna: Horizontal at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 20 ms.

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Note:**

Calibration for 960MHz 46dbuV

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 63183433

**Client**

Name: Dmatek

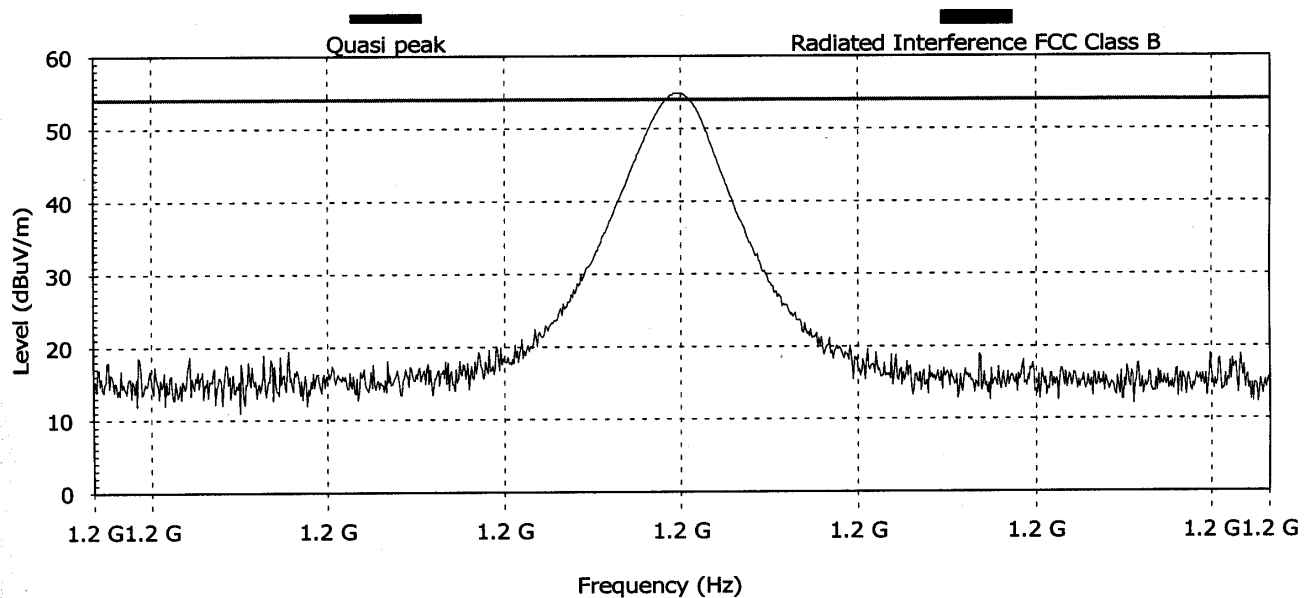
Contact Person: Lev Rosman

**Radiated Emission**

Description: 63) RE FCC 15.109 CAL 1200M

From 1199 MHz to 1201 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|------|-----------------|------------|
| 1  | 1200.002        | 54.8        | Pass | 270             | 1          |

**Settings:**

Antenna: Horizontal at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 20 ms.

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Note:**

Calibration Double ridge antenna for 1200MHz 54dbuV

**EUT File:**

S:\EMC\_LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

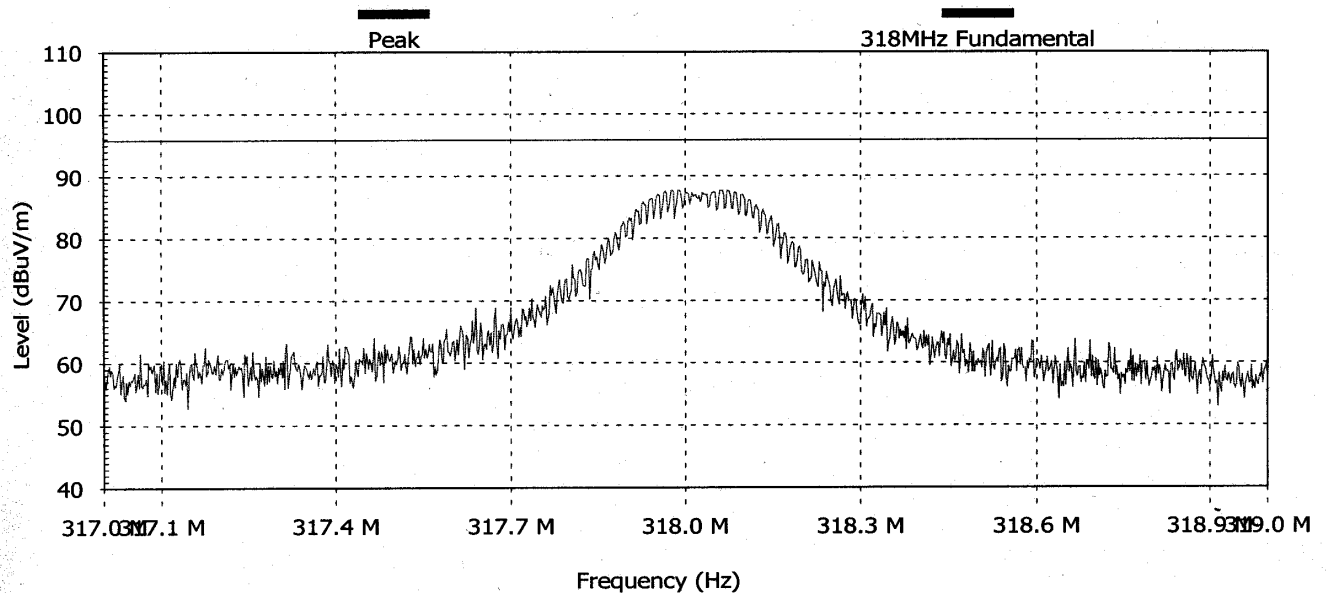
Contact Person: Lev Rosman

**Radiated Emission**

Description: 8) RE FCC CLASS B 318MHz Fundam.

From 317 MHz to 319 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | PK Limit (dBuV/m) | PK Diff (dBuV/m) | PK Pass | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|-------------------|------------------|---------|------|-----------------|------------|
| 1  | 318.072         | 87.6        | 95.8              | -8.2             | Pass    | Pass | 270             | 1          |

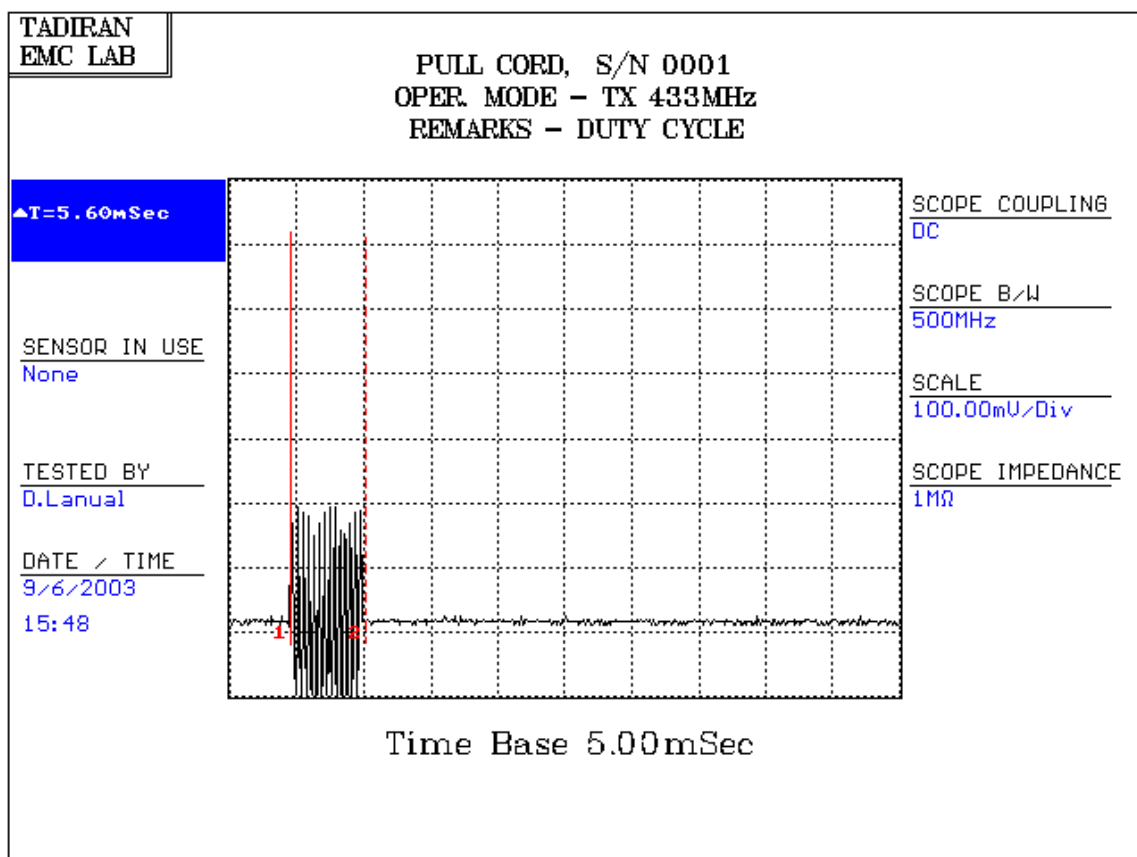
**Settings:**

Antenna: Both Polarizations at 3 m

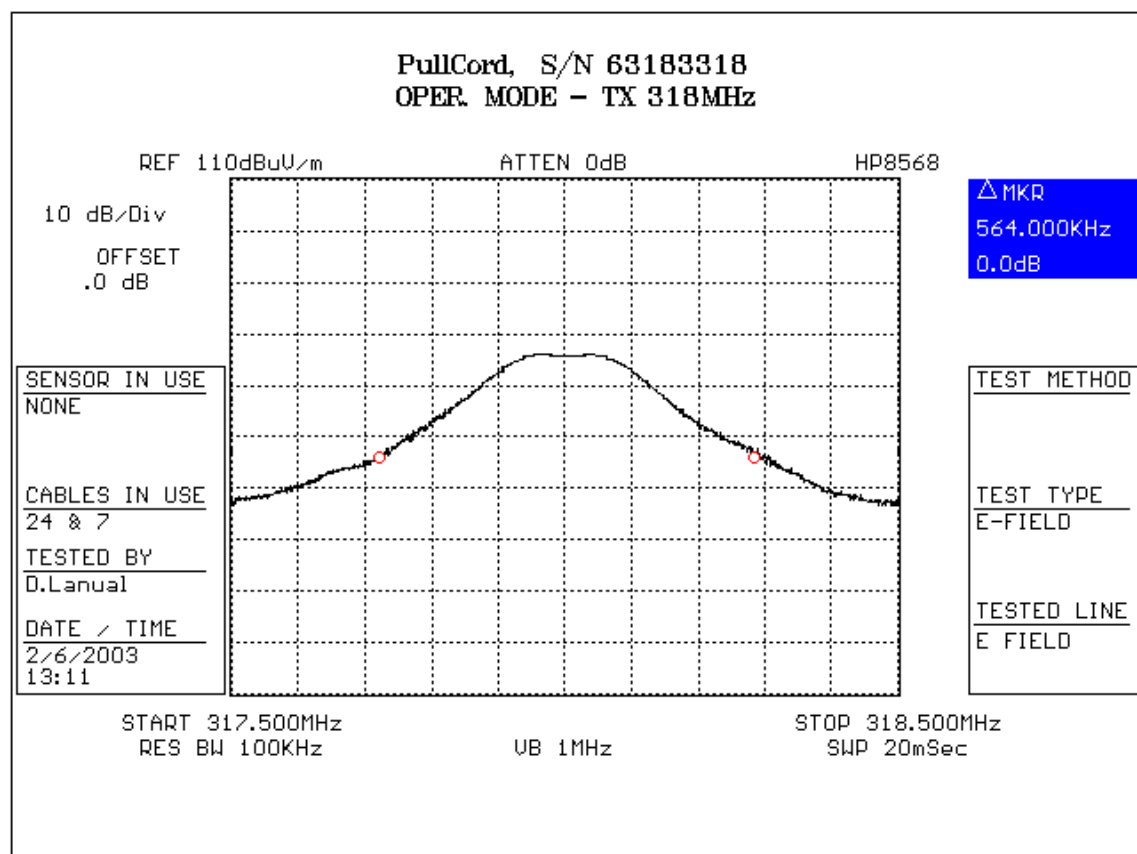
Ref. Level: 70.0 dBuV/m Att: 10 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 20 ms.

Detect all peaks above 19 dB below the limit lines

**Plot RE/1**



**Plot RE/2**



**Plot RE/3**

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

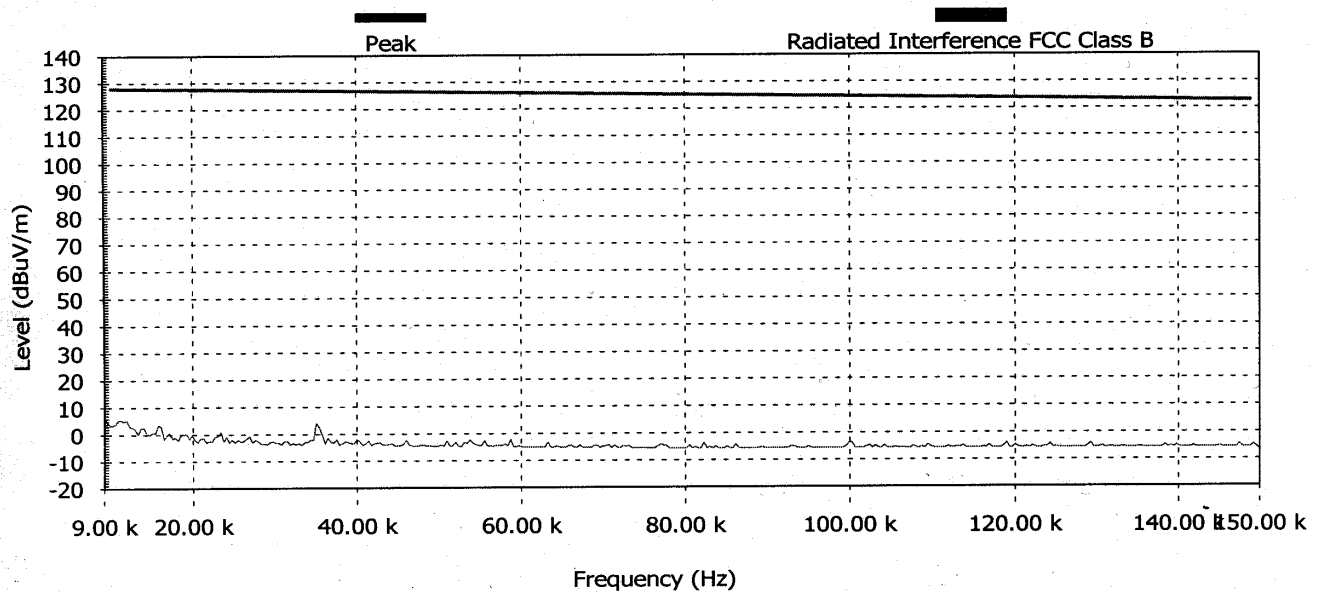
Contact Person: Lev Rosman

**Radiated Emission**

Description: 51) RE FCC 15.109 9k-30mhz

From 9 kHz to 150 kHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | AVG (dBuV/m) | QP (dBuV/m) | RMS (dBuV/m) | PK Limit (dBuV/m) | PK Diff (dBuV/m) | AVG Limit (dBuV/m) | AVG Diff (dBuV/m) | QP Limit (dBuV/m) | QP Diff (dBuV/m) | RMS Limit (dBuV/m) | RMS Diff (dBuV/m) | PK Pass | AVG Pass | QP Pass | RMS Pass | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|--------------|-------------|--------------|-------------------|------------------|--------------------|-------------------|-------------------|------------------|--------------------|-------------------|---------|----------|---------|----------|------|-----------------|------------|
|----|-----------------|-------------|--------------|-------------|--------------|-------------------|------------------|--------------------|-------------------|-------------------|------------------|--------------------|-------------------|---------|----------|---------|----------|------|-----------------|------------|

**Settings:**

Antenna: Both Polarizations at 3 m

Ref. Level: 130.0 dBuV/m Att: 0 dB. RBW: 0.200000002980232 kHz. VBW: 0.300000011920929

Detect all peaks above 15 dB below the limit lines with a maximum of 6 peaks.

**Plot RE/4**

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

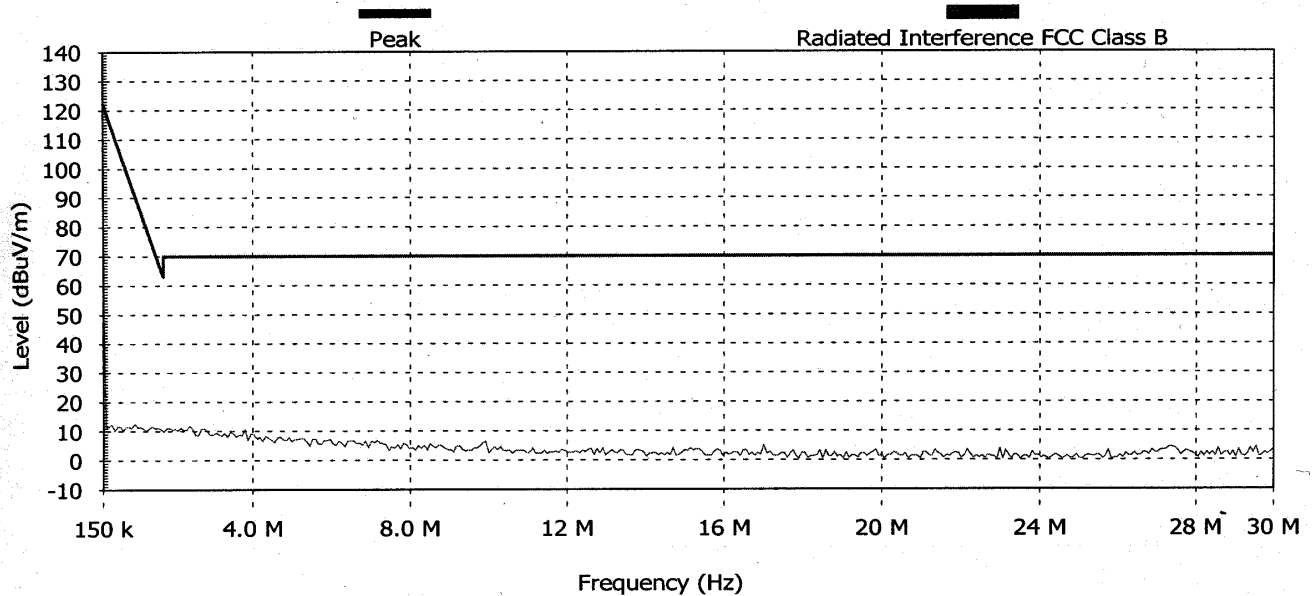
Contact Person: Lev Røsman

**Radiated Emission**

Description: 52) RE FCC 15.109 9k-30MHz

From 150 kHz to 30 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | AVG (dBuV/m) | QP (dBuV/m) | RMS (dBuV/m) | PK Limit (dBuV/m) | PK Diff (dBuV/m) | AVG Limit (dBuV/m) | AVG Diff (dBuV/m) | QP Limit (dBuV/m) | QP Diff (dBuV/m) | RMS Limit (dBuV/m) | RMS Diff (dBuV/m) | PK Pass | AVG Pass | QP Pass | RMS Pass | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|--------------|-------------|--------------|-------------------|------------------|--------------------|-------------------|-------------------|------------------|--------------------|-------------------|---------|----------|---------|----------|------|-----------------|------------|
|----|-----------------|-------------|--------------|-------------|--------------|-------------------|------------------|--------------------|-------------------|-------------------|------------------|--------------------|-------------------|---------|----------|---------|----------|------|-----------------|------------|

**Settings:**

Antenna: Both Polarizations at 3 m

Ref. Level: 105.0 dBuV/m Att: 0 dB. RBW: 9 kHz. VBW: 30 kHz. Sweep time: 1105.55603027344

Detect all peaks above 15 dB below the limit lines with a maximum of 6 peaks.

**Plot RE/5**

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

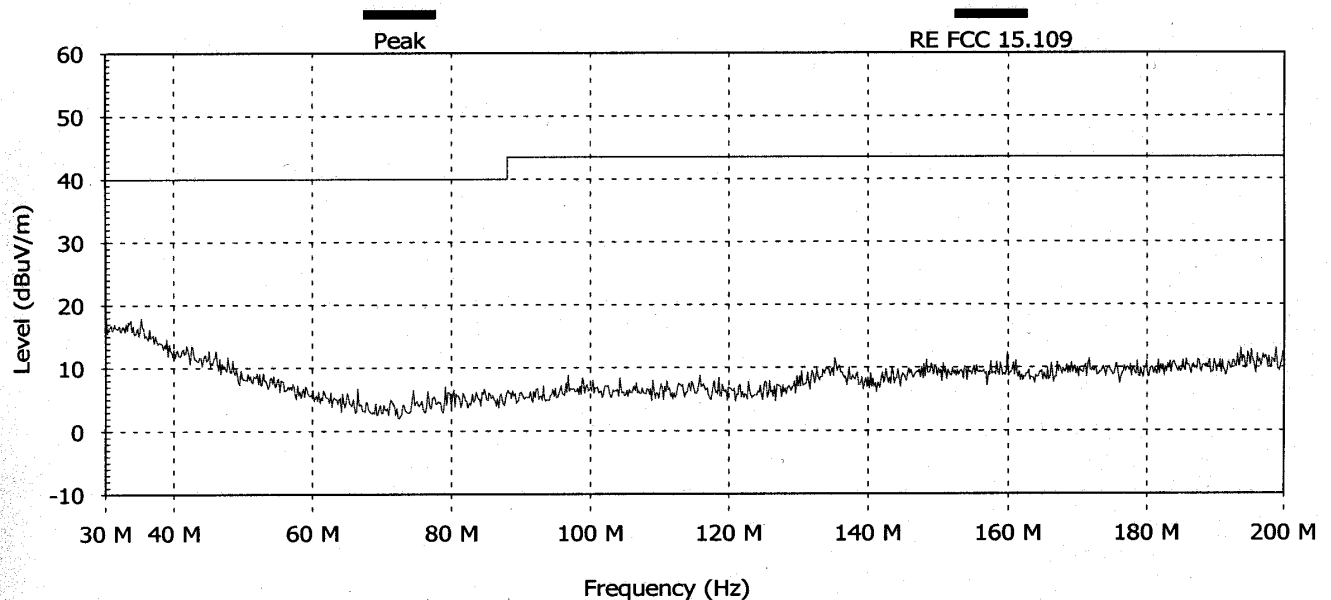
Contact Person: Lev Rosman

**Radiated Emission**

Description: 21) RE FCC 15.109 30M-200M

From 30 MHz to 200 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | AVG (dBuV/m) | QP (dBuV/m) | RMS (dBuV/m) | PK Limit (dBuV/m) | PK Diff (dBuV/m) | AVG Limit (dBuV/m) | AVG Diff (dBuV/m) | QP Limit (dBuV/m) | QP Diff (dBuV/m) | RMS Limit (dBuV/m) | RMS Diff (dBuV/m) | PK Pass | AVG Pass | QP Pass | RMS Pass | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|--------------|-------------|--------------|-------------------|------------------|--------------------|-------------------|-------------------|------------------|--------------------|-------------------|---------|----------|---------|----------|------|-----------------|------------|
|----|-----------------|-------------|--------------|-------------|--------------|-------------------|------------------|--------------------|-------------------|-------------------|------------------|--------------------|-------------------|---------|----------|---------|----------|------|-----------------|------------|

**Settings:**

Antenna: Both Polarizations at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 50 ms.

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Plot RE/6**

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

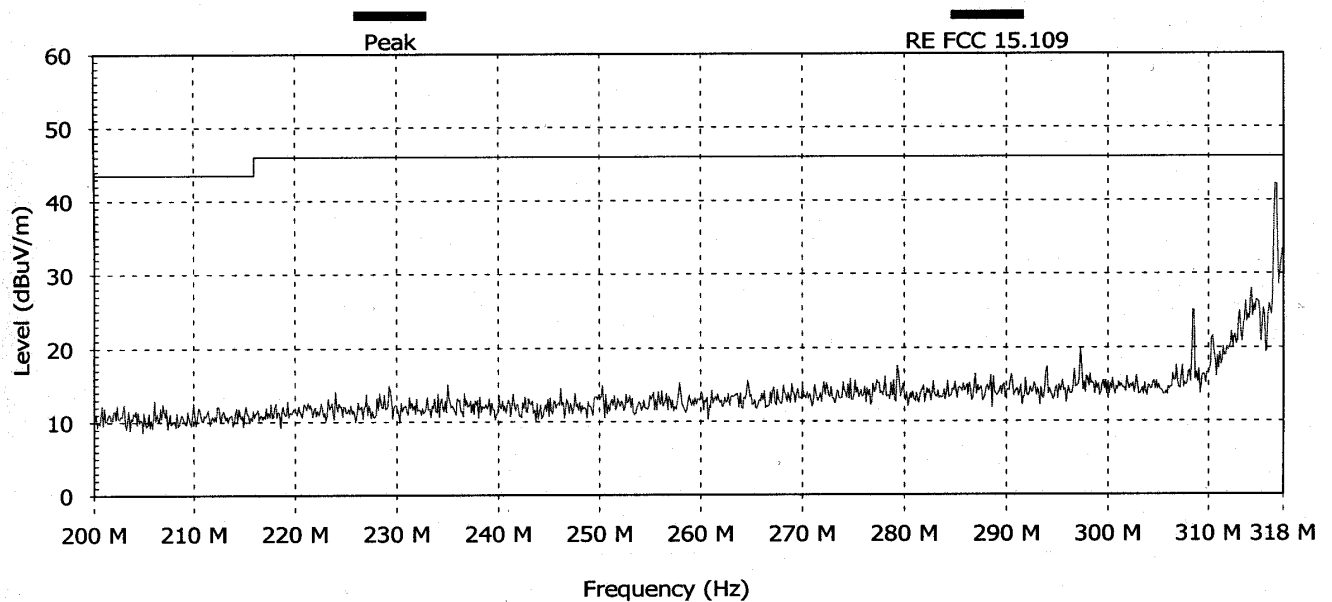
Contact Person: Lev Rosman

**Radiated Emission**

Description: 22) RE FCC 15.109 30M-200M

From 200 MHz to 317.5 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|------|-----------------|------------|
| 1  | 316.678         | 42.2        | Pass | 270             | 1          |

**Settings:**

Antenna: Both Polarizations at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 30 ms.

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Plot RE/7**

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

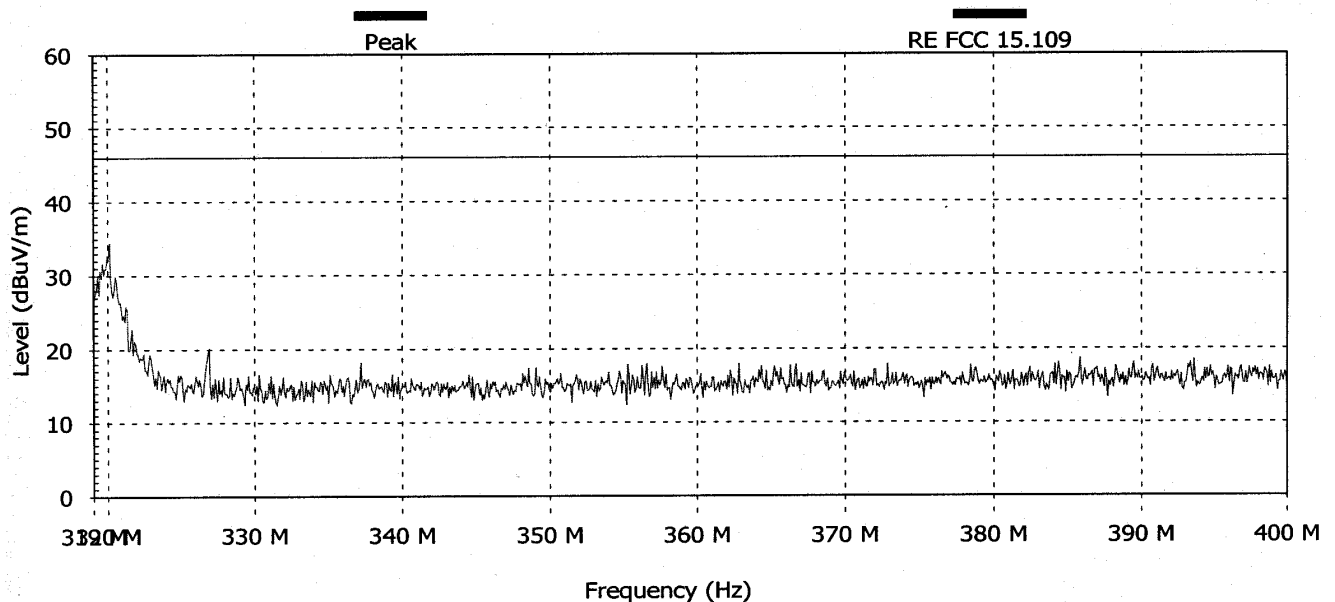
Contact Person: Lev Rosman

**Radiated Emission**

Description: 23) RE FCC 15.109 30M-200M

From 319 MHz to 400 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency<br>(MHz) | PK<br>(dBuV/m) | AVG<br>(dBuV/m) | QP<br>(dBuV/m) | RMS<br>(dBuV/m) | PK Limit<br>(dBuV/m) | PK Diff<br>(dBuV/m) | AVG Limit<br>(dBuV/m) | AVG Diff<br>(dBuV/m) | QP Limit<br>(dBuV/m) | QP Diff<br>(dBuV/m) | RMS Limit<br>(dBuV/m) | RMS Diff<br>(dBuV/m) | PK<br>Pass | AVG<br>Pass | QP<br>Pass | RMS<br>Pass | Pass | Angle<br>(degrees) | Height<br>(m) |
|----|--------------------|----------------|-----------------|----------------|-----------------|----------------------|---------------------|-----------------------|----------------------|----------------------|---------------------|-----------------------|----------------------|------------|-------------|------------|-------------|------|--------------------|---------------|
|----|--------------------|----------------|-----------------|----------------|-----------------|----------------------|---------------------|-----------------------|----------------------|----------------------|---------------------|-----------------------|----------------------|------------|-------------|------------|-------------|------|--------------------|---------------|

**Settings:**

Antenna: Both Polarizations at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 20 ms.

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Plot RE/8**

**EUT File:**

S:\EMC\_LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

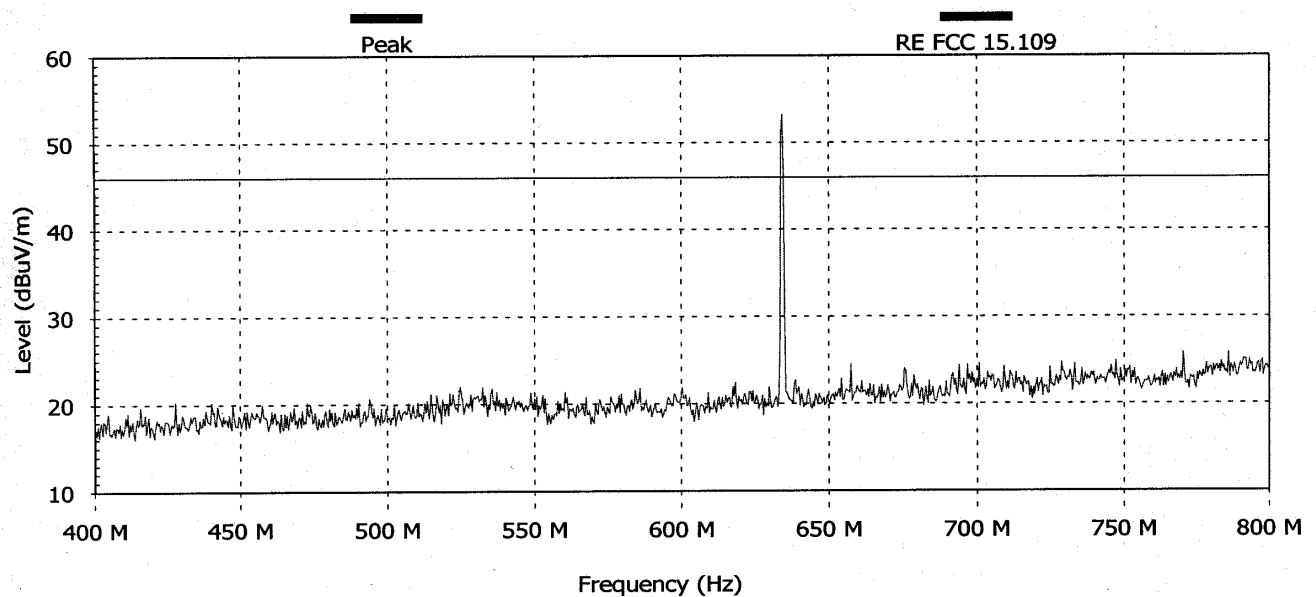
Contact Person: Lev Rosman

**Radiated Emission**

Description: 24) RE FCC 15.109 30M-200M

From 400 MHz to 800 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|------|-----------------|------------|
| 1  | 634.4           | 53.2        | Pass | 270             | 1          |

**Settings:**

Antenna: Both Polarizations at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 100 ms.

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Plot RE/9**

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

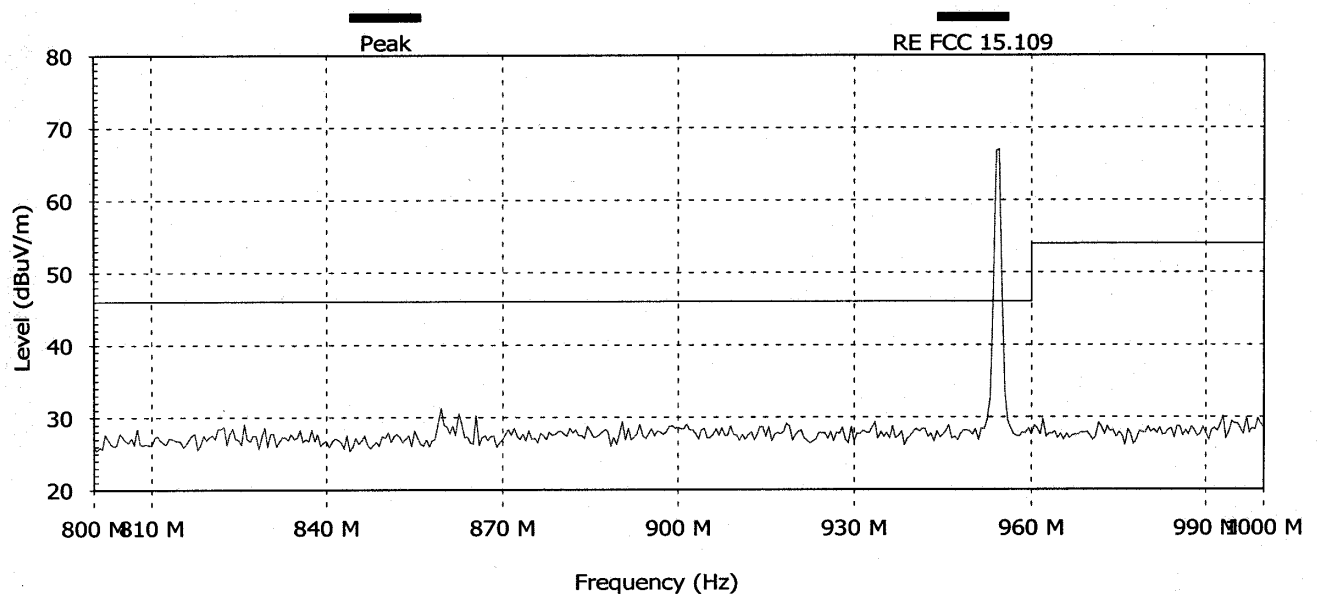
Contact Person: Lev Rosman

**Radiated Emission**

Description: 30) RE FCC 15.109 30M-200M

From 800 MHz to 1000 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|------|-----------------|------------|
| 1  | 954.5           | 67.0        | Pass | 270             | 1          |

**Settings:**

Antenna: Both Polarizations at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 120 kHz. VBW: 1000 kHz. Sweep time: 41.6669998168

Detect all peaks above 10 dB below the limit lines with a maximum of 6 peaks.

**Plot RE/10**

**EUT File:**

S:\EMC\_LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

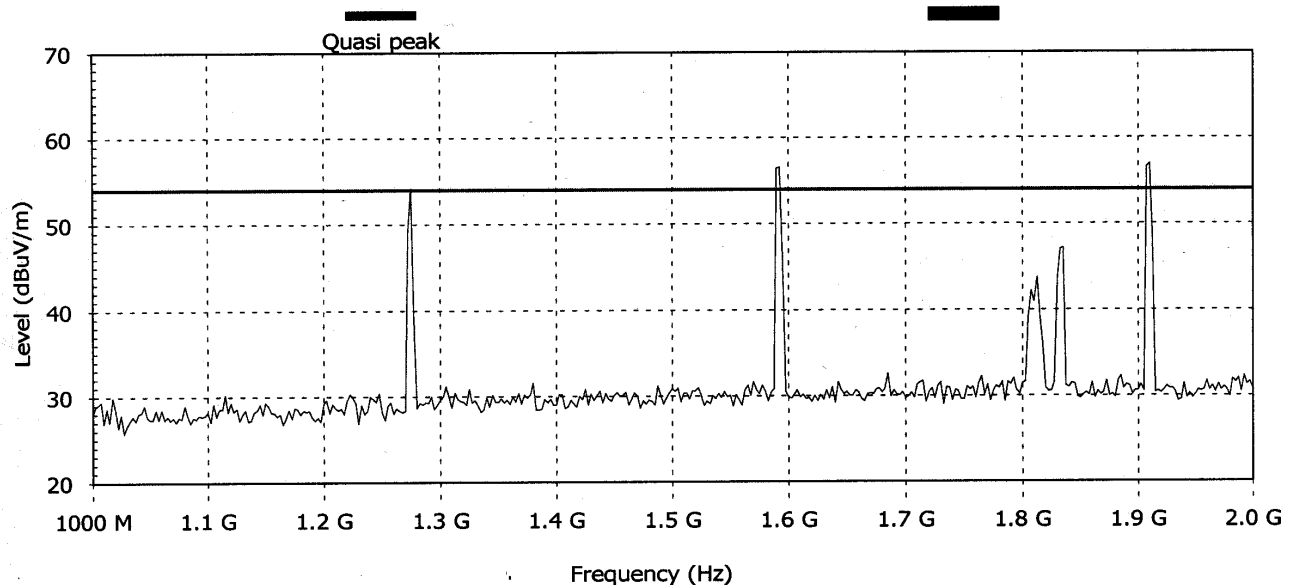
Contact Person: Lev Rosman

**Radiated Emission**

Description: 47) RE FCC 15.109 1908mhz

From 1000 MHz to 2000 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | PK Limit (dBuV/m) | PK Diff (dBuV/m) | PK Pass | Pass |
|----|-----------------|-------------|-------------------|------------------|---------|------|
| 1  | 1275            | 43.3        | 75.8              | 32.5             | Pass    | Pass |
| 2  | 1275            | 45.4        | 75.8              | 30.4             | Pass    | Pass |
| 3  | 1592.5          | 42.5        | 75.8              | 32.7             | Pass    | Pass |
| 4  | 1832.5          | 47.0        | 75.8              | 28.8             | Pass    | Pass |
| 5  | 1910            | 57.0        | 75.8              | 18.8             | Pass    | Pass |

**Settings:**

Antenna: Both Polarizations at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 1000 kHz. VBW: 1000 kHz. Sweep time: 20 ms.

Detect all peaks above 28 dB below the limit lines with a maximum of 6 peaks.

**Plot RE/11**

**EUT File:**

S:\EMC LAB\common\DAMATEC\PullCord\Data\Fcc.eut

**Order Number:**

**EUT**

Name: PULLCORD

Serial Number: 0001

**Client**

Name: Dmatek

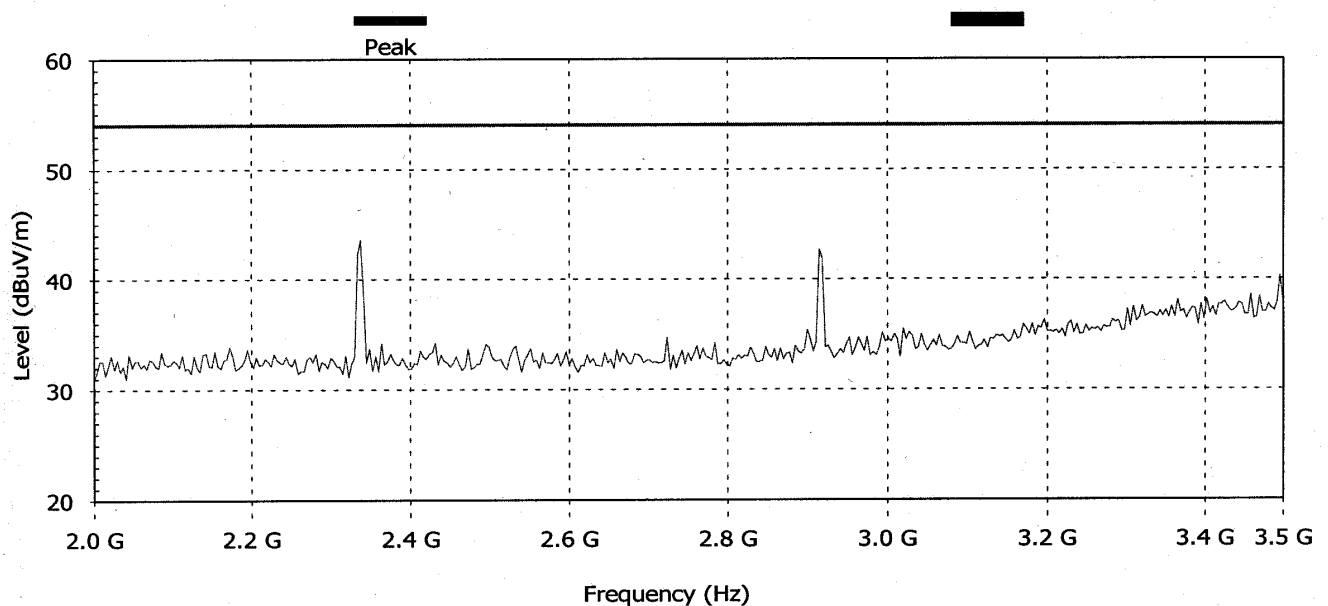
Contact Person: Lev Rosman

**Radiated Emission**

Description: 50) RE FCC 15.109 2226mhz

From 2000 MHz to 3500 MHz

**Graph:**



**Detected Peaks:**

| Nr | Frequency (MHz) | PK (dBuV/m) | Pass | Angle (degrees) | Height (m) |
|----|-----------------|-------------|------|-----------------|------------|
| 1  | 2337.5          | 43.5        | Pass | 270             | 1          |
| 2  | 2915            | 42.7        | Pass | 270             | 1          |
| 3  | 3496.25         | 40.3        | Pass | 270             | 1          |

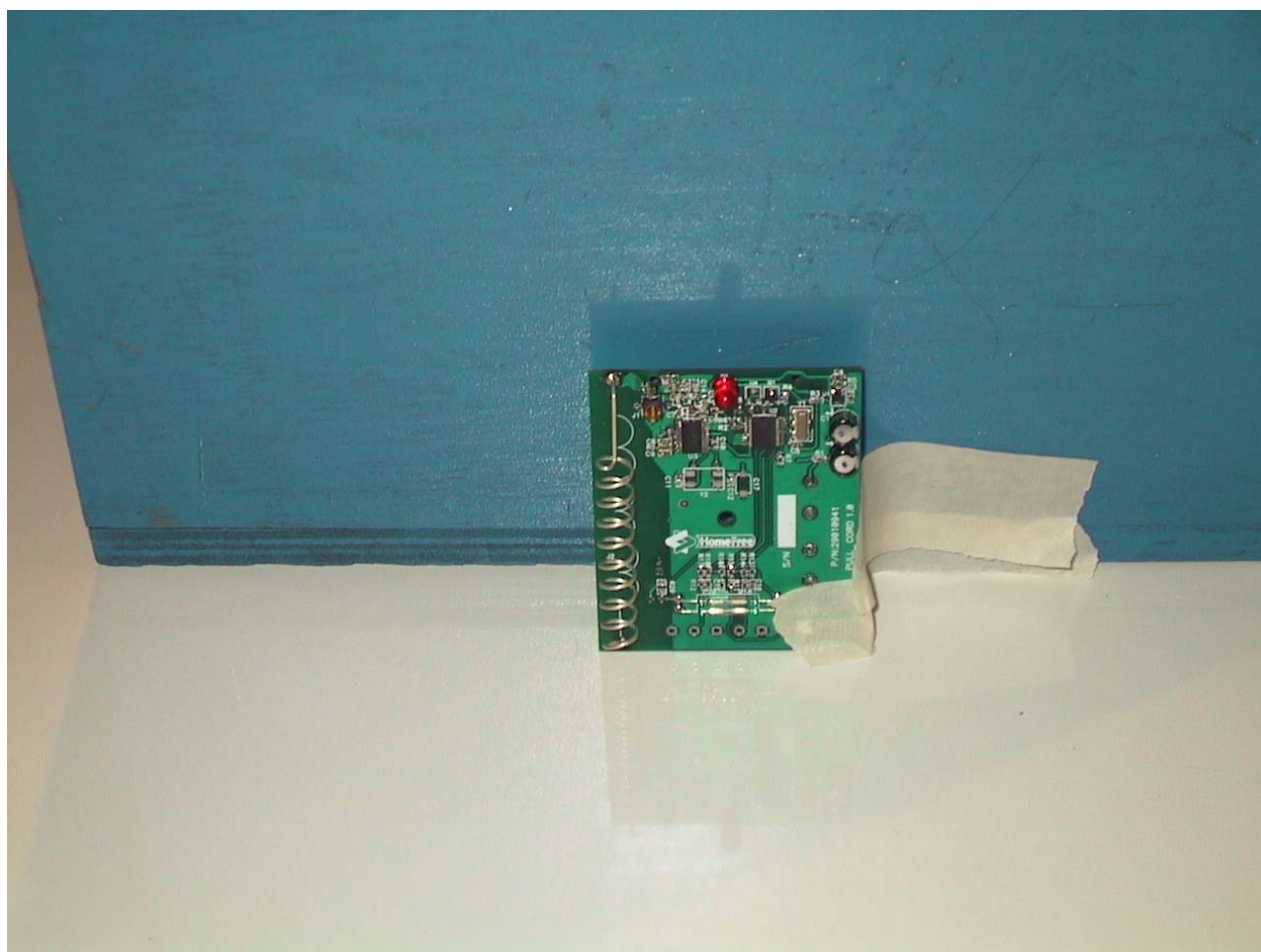
**Settings:**

Antenna: Both Polarizations at 3 m

Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 1000 kHz. VBW: 1000 kHz. Sweep time: 20 ms.

Detect all peaks above 15 dB below the limit lines with a maximum of 6 peaks.

**Plot RE/12**



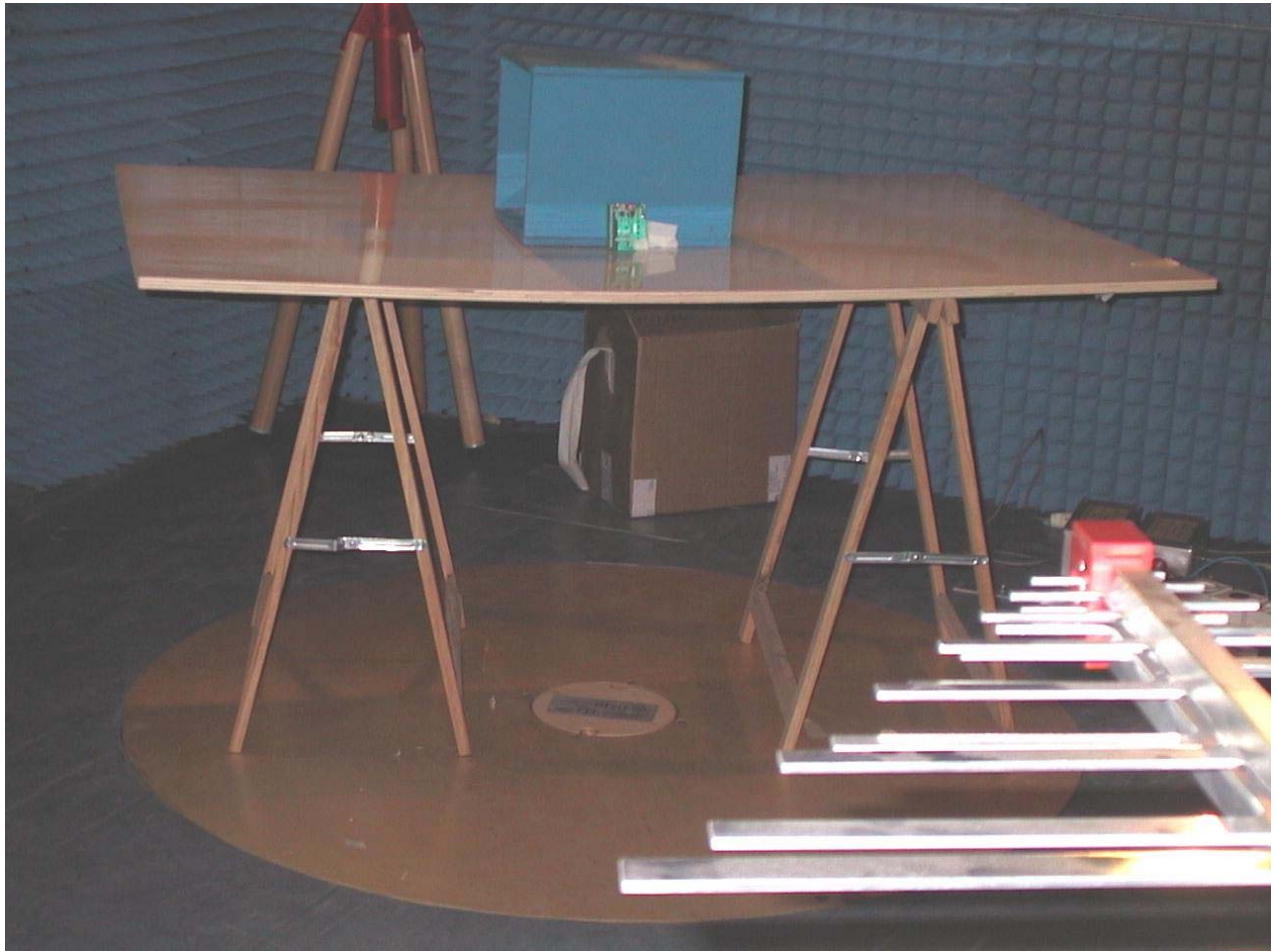
**Picture RE/1**

**E.U.T**



**Picture RE/2**

**Radiated Emission Setup 9KHz-30MHz**



**Picture RE/3**

**Radiated Emission Setup 30MHz-1000MHz**



**Picture RE/3**

**Radiated Emission Setup 1GHz-3.5GHz**