REV	Δ	Description	Sheet 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

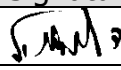
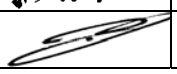
	Function/Title	Name	Signature	Date
Prepared by	Test Engineer	D.Lanuel		15.06.03
Approved by	EMC Lab. Manager	S.Cohen		15.06.03

Table of Contents

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 frequwency:	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 following applicant's personnel:	LEV ROSMAN

c. Test Performance:

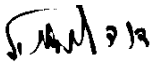
Date of reception for testing:	02.06.03
Dates of testing	15.06.03
Test Laboratory Location	TADIRAN EMC LAB , Hashoftim 26 Holon 58102 ISRAEL Tel: 972-3-5574476 Fax: 972-3-5575320
Applicable EMC Specification:	Federal Communication Commission (FCC), Code of Federal Regulations 47, FCC Docket 89-103,Part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

2 TEST SUMMARY AND SIGNATURES.

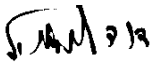
TADIRAN EMC Laboratory has completed testing of E.U.T in accordance with the requirements of the FCC Part 15 Regulations for Class B equipment.

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.

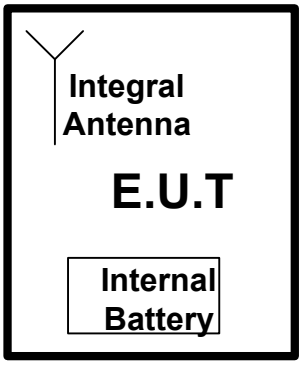
5 E.U.T INFORMATION

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 transmitmits 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.UT. test configuration is shown in figure bellow



c. E.U.T Mode of Operation description

Al lthe tests was 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

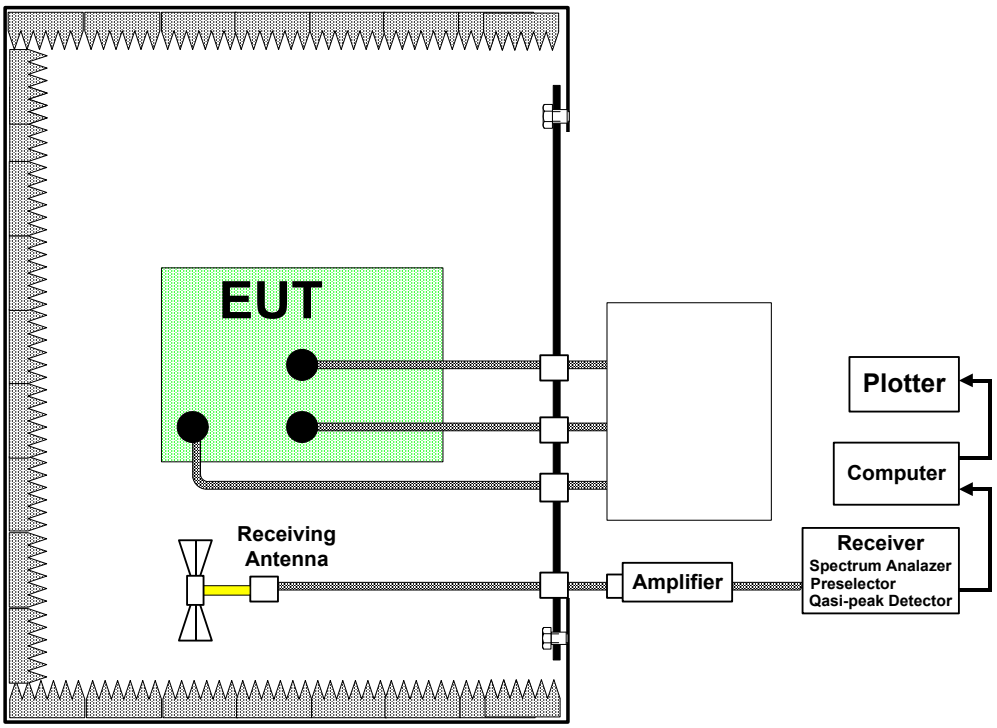


Figure 6a.1

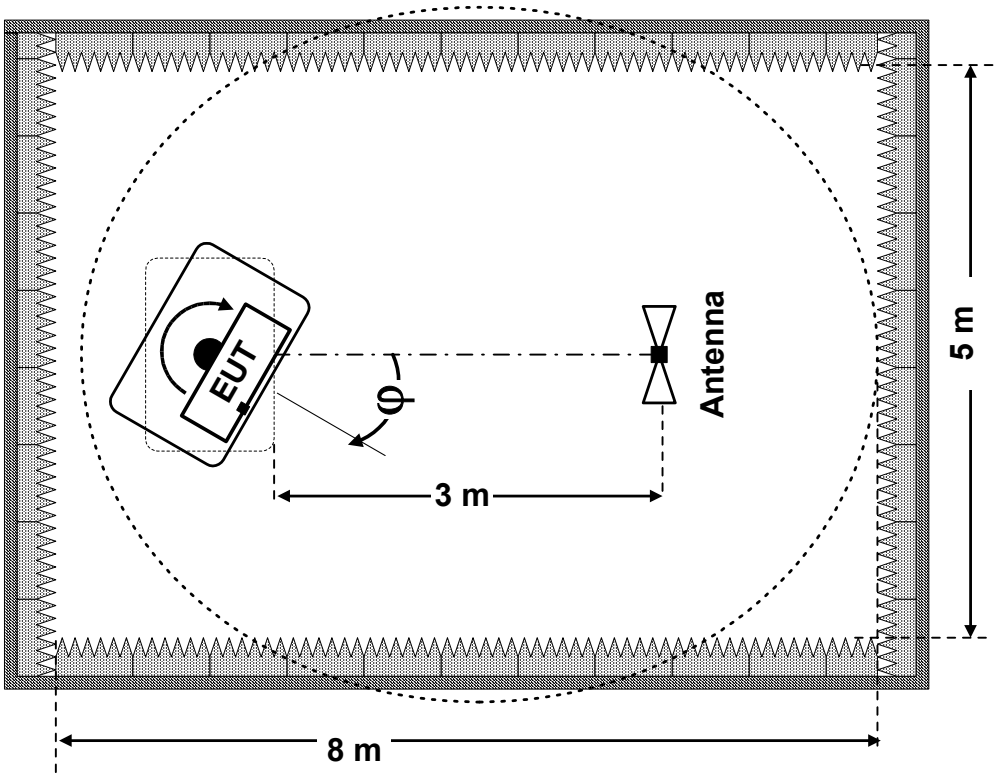


Figure 6.a.2

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

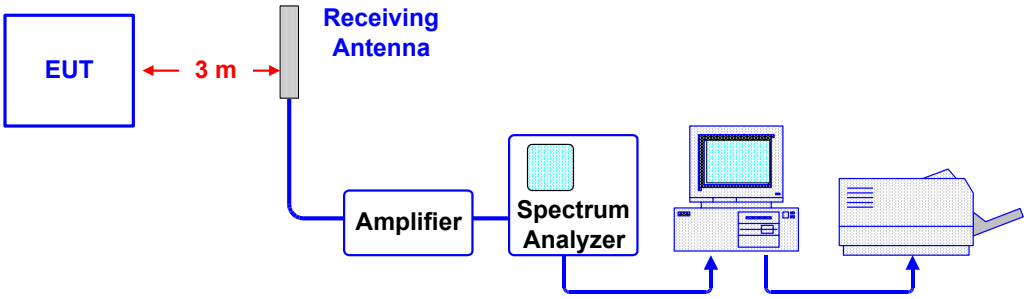


Figure 6.c.1

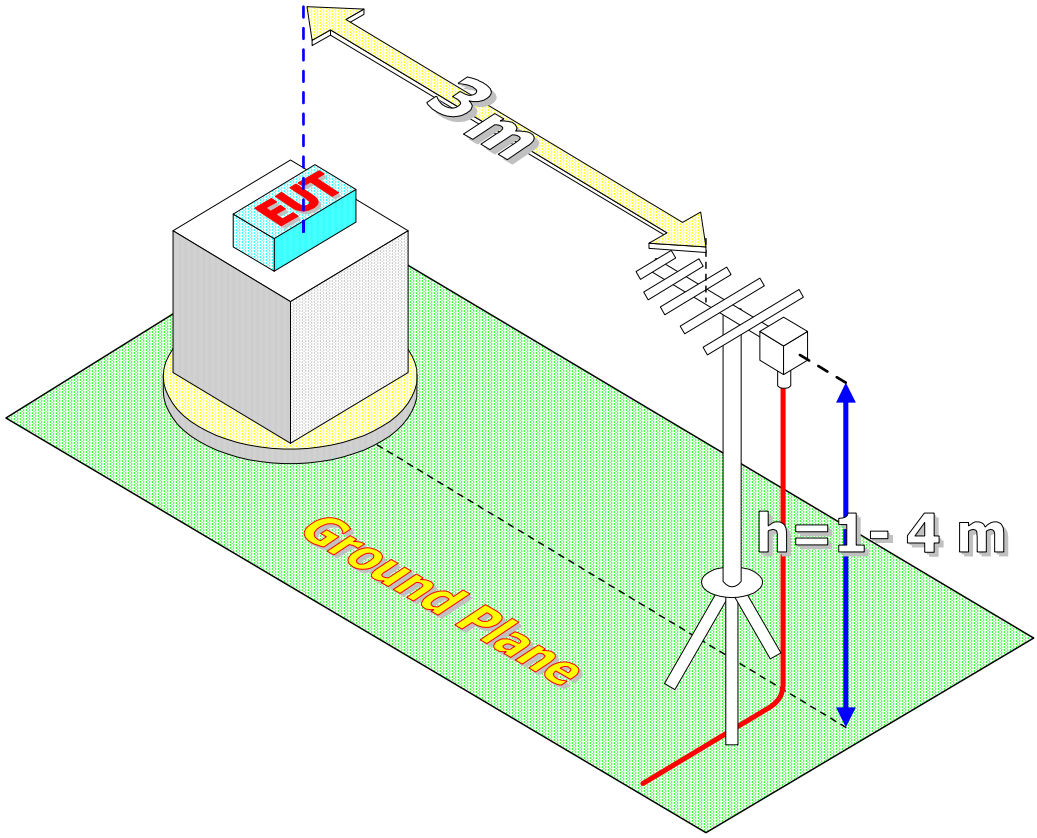


Figure 6.c.2

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 Himidity:	34%
Ambient Temprature:	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 fudamental 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 Himidity:	34%
Ambient Temprature:	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 fidamental 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 (dBμV/m)	Peak Max Limits (dBμV/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	20log0.112=-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 (dBμV/m)	peak Limits (dBμV/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 (dBμV/m)	Average Factor	Calculation Results	Average Limits (dBμV/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 Himidity:	34%
Ambient Temprature:	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 (dBμV/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 (*) (dBμV/m)	Limit dBμV/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 Himidity:	34%
Ambient Temprature:	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 (dBμV/m)	peak Limits (dBμV/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

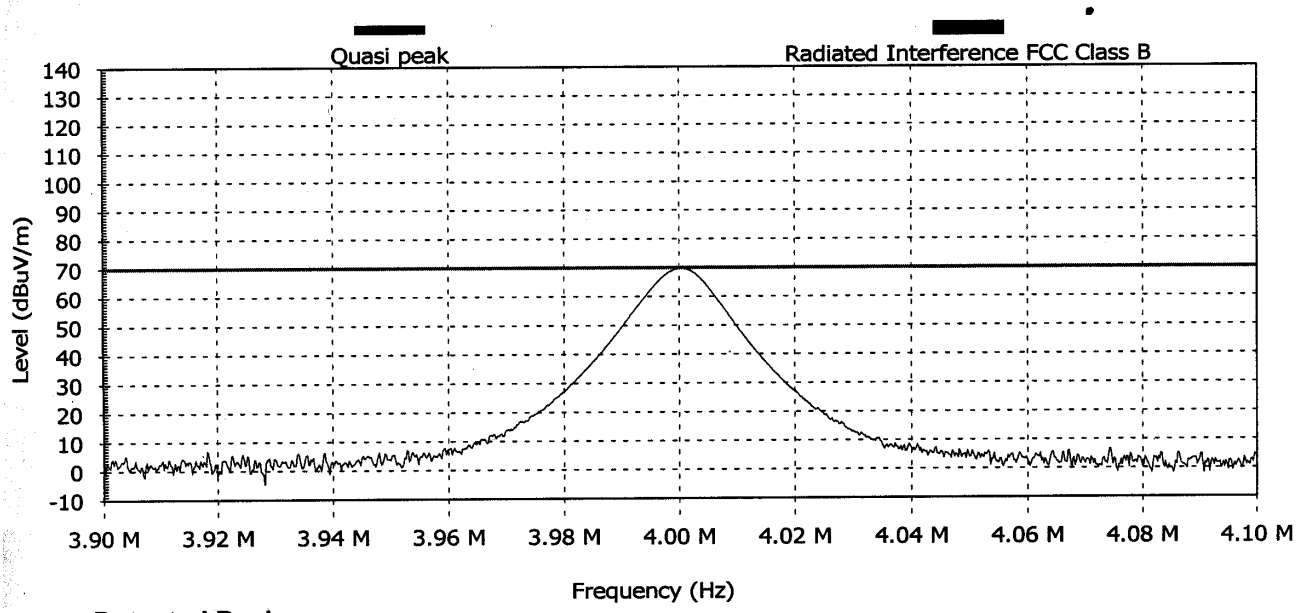
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

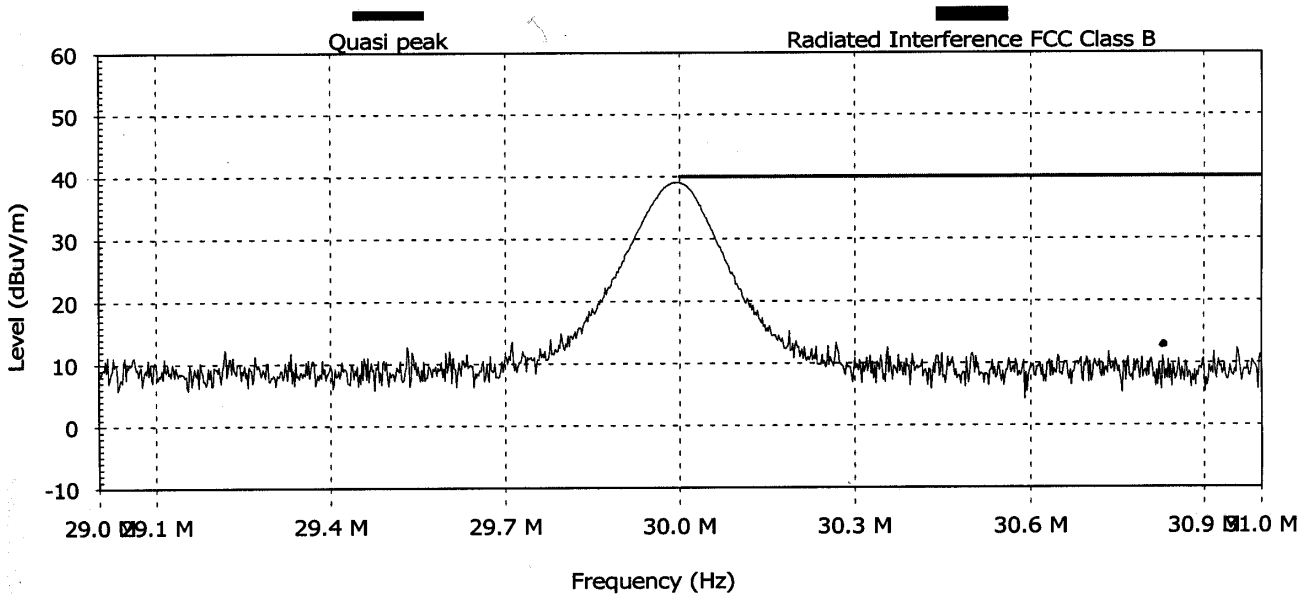
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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:
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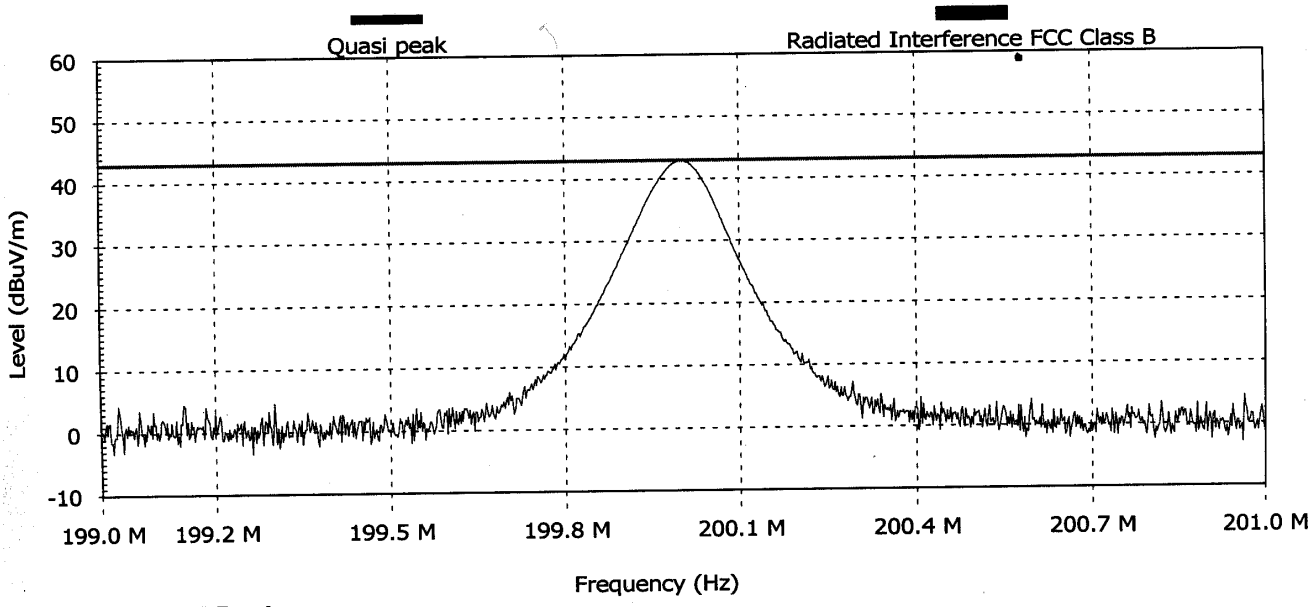
Order Number:

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

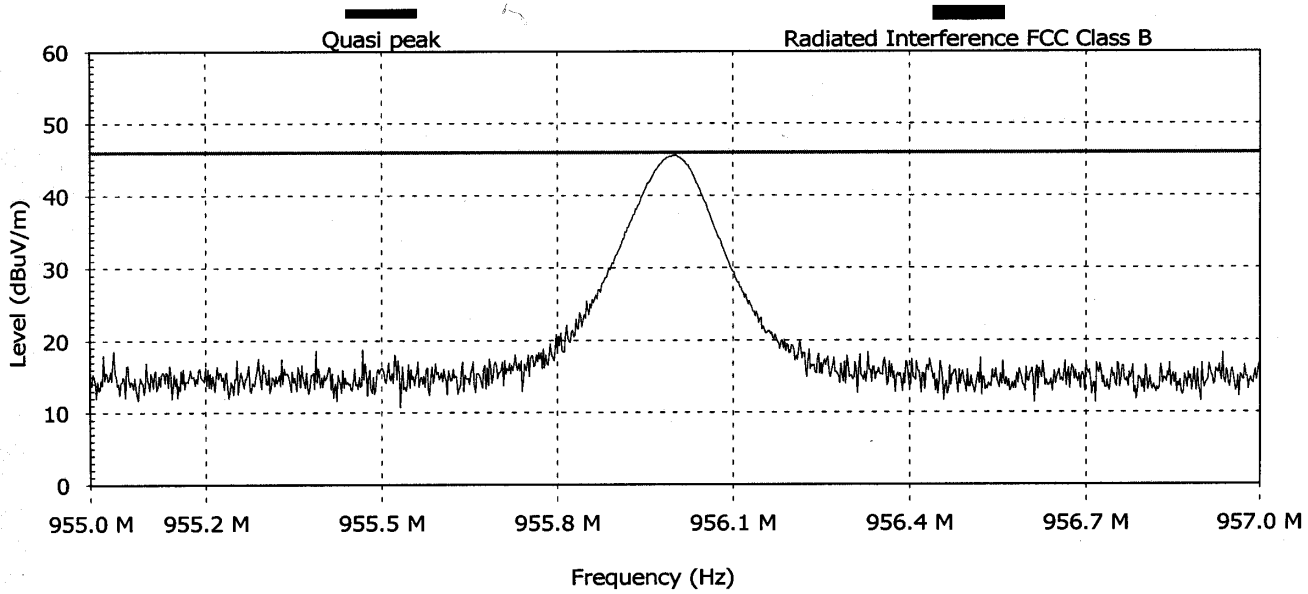
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

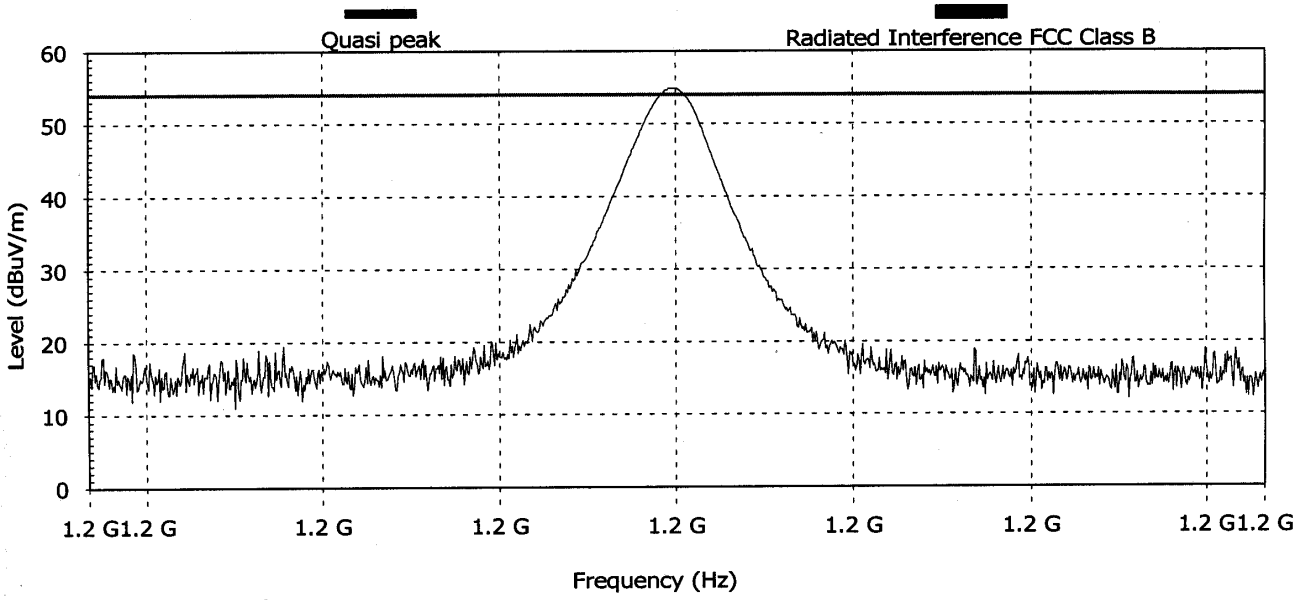
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

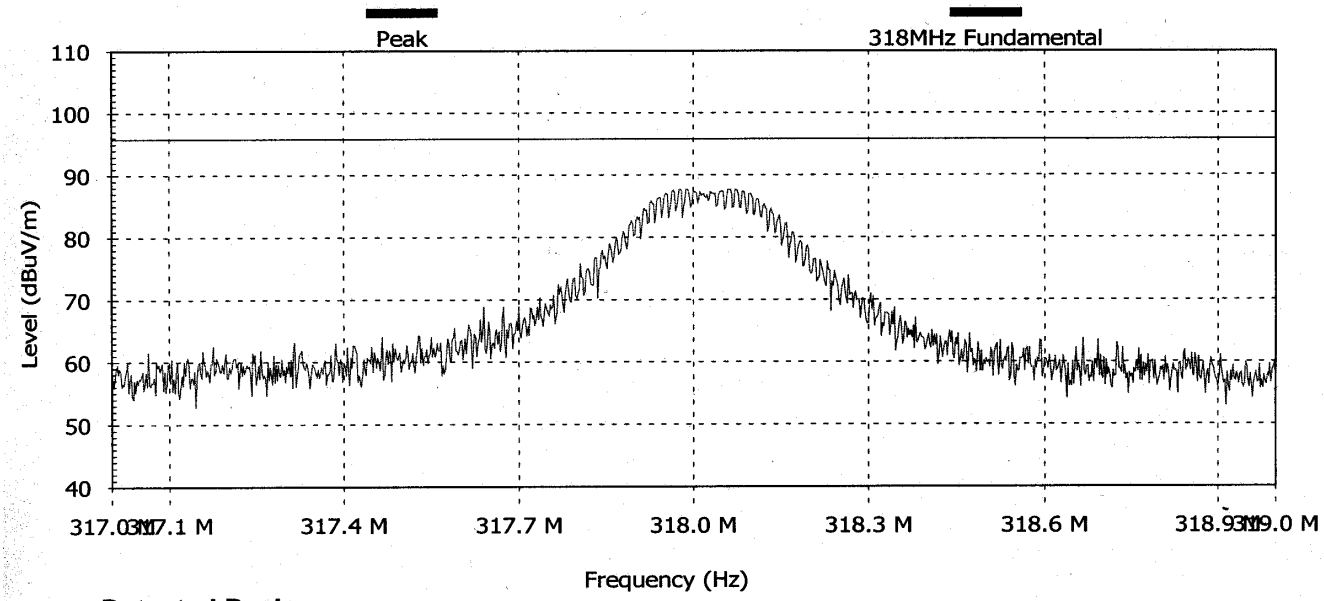
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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:

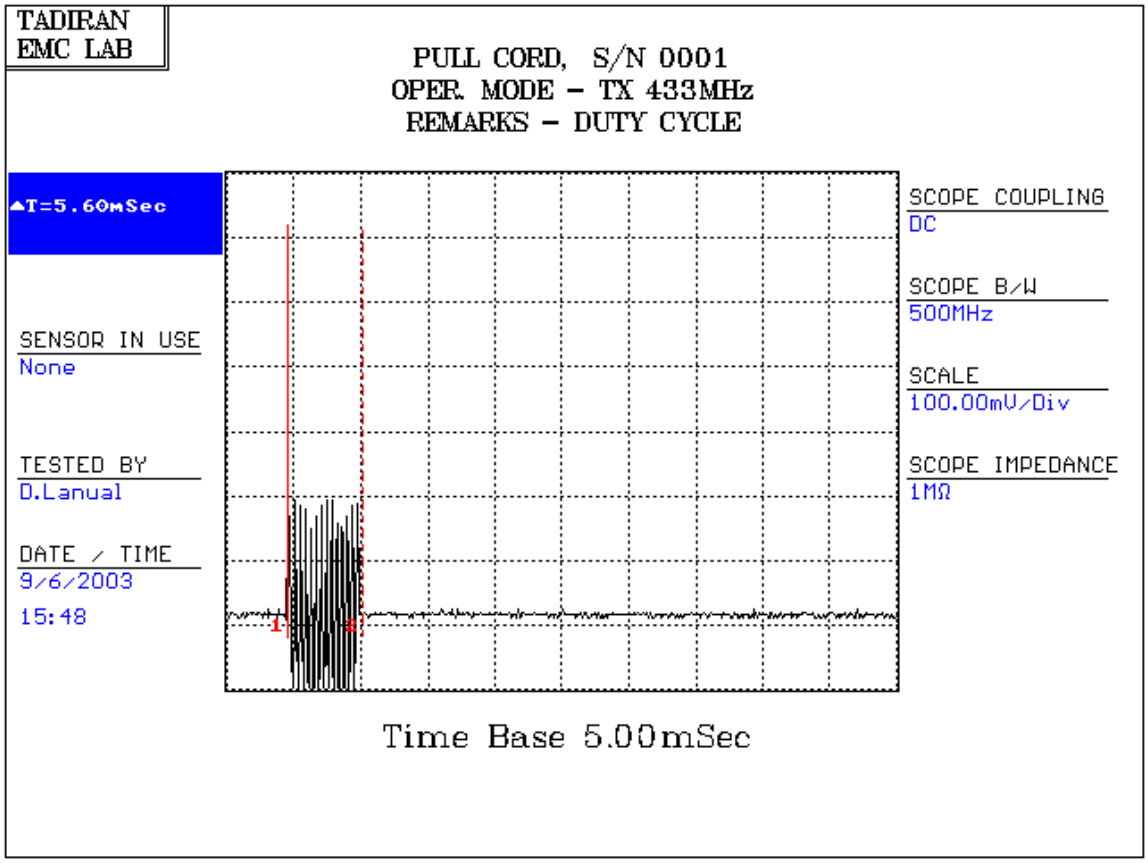


Detected Peaks:

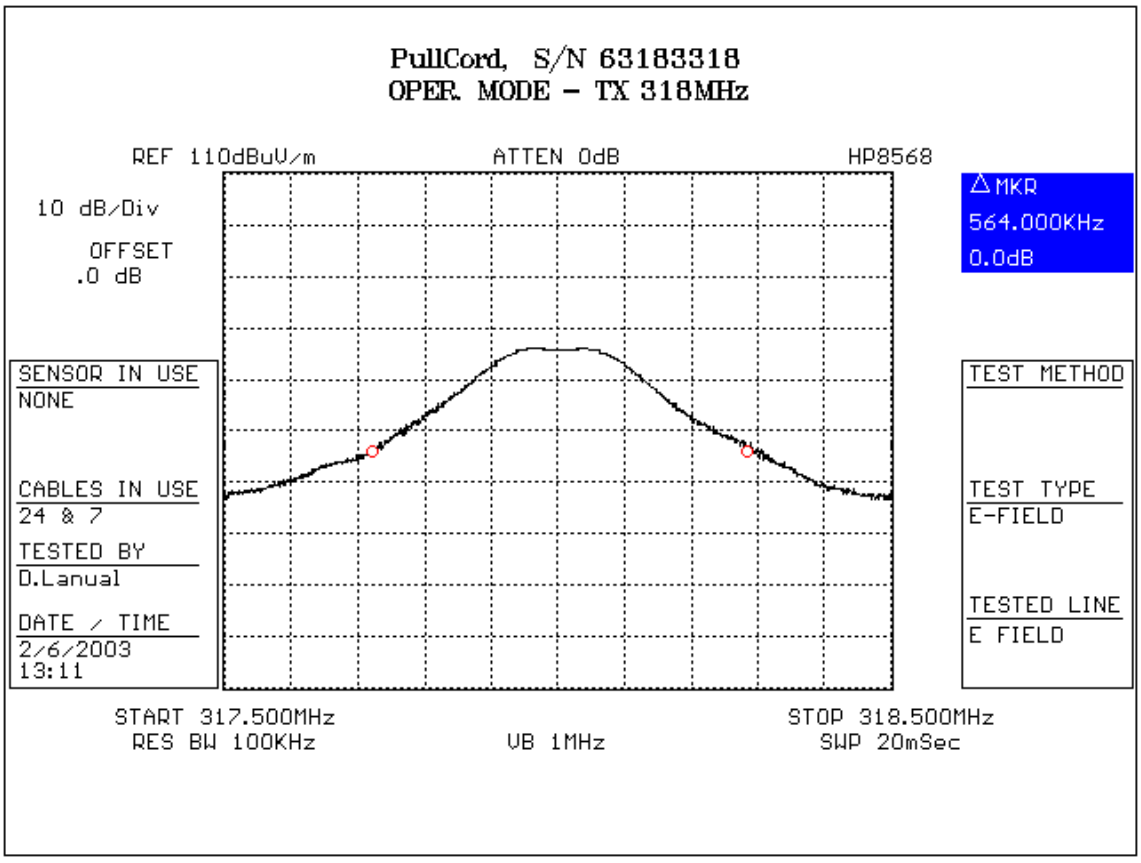
Nr	Frequency (MHz)	PK (dBuV/m)	PK Limit (dBuV/m)	PK Diff (dBuV/m)	PK Pass	Pass	Angle (degrees)	Height (m)
1	318.072	87.6	95.8	-8.2	Pass	Pass	270	1

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

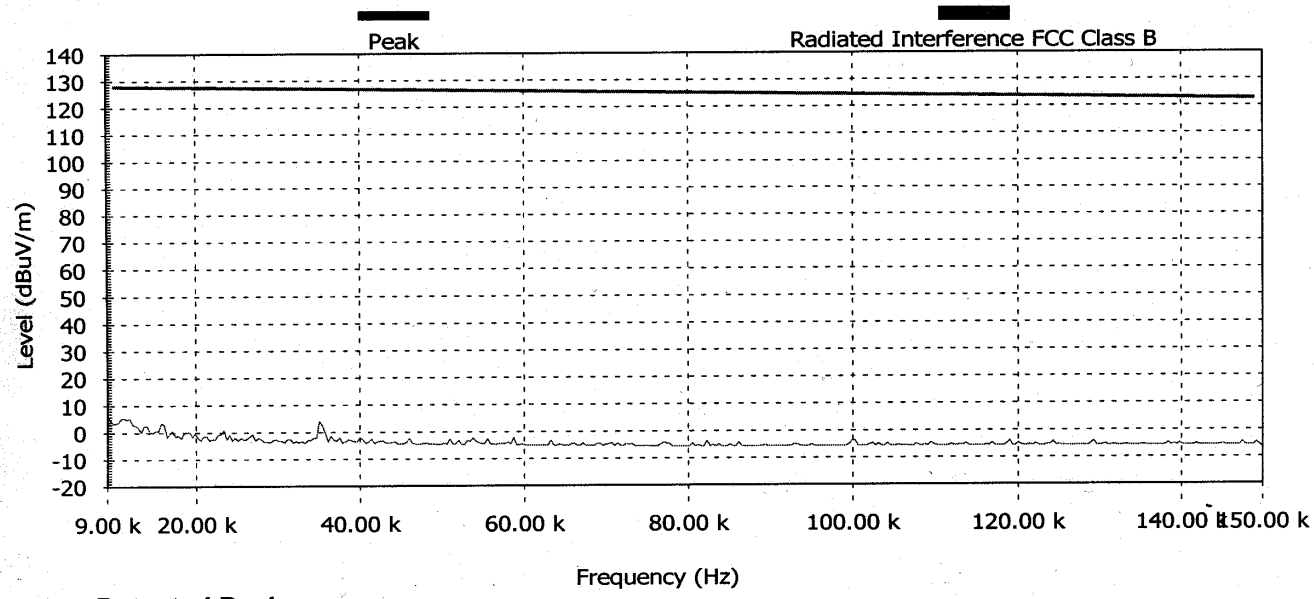
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

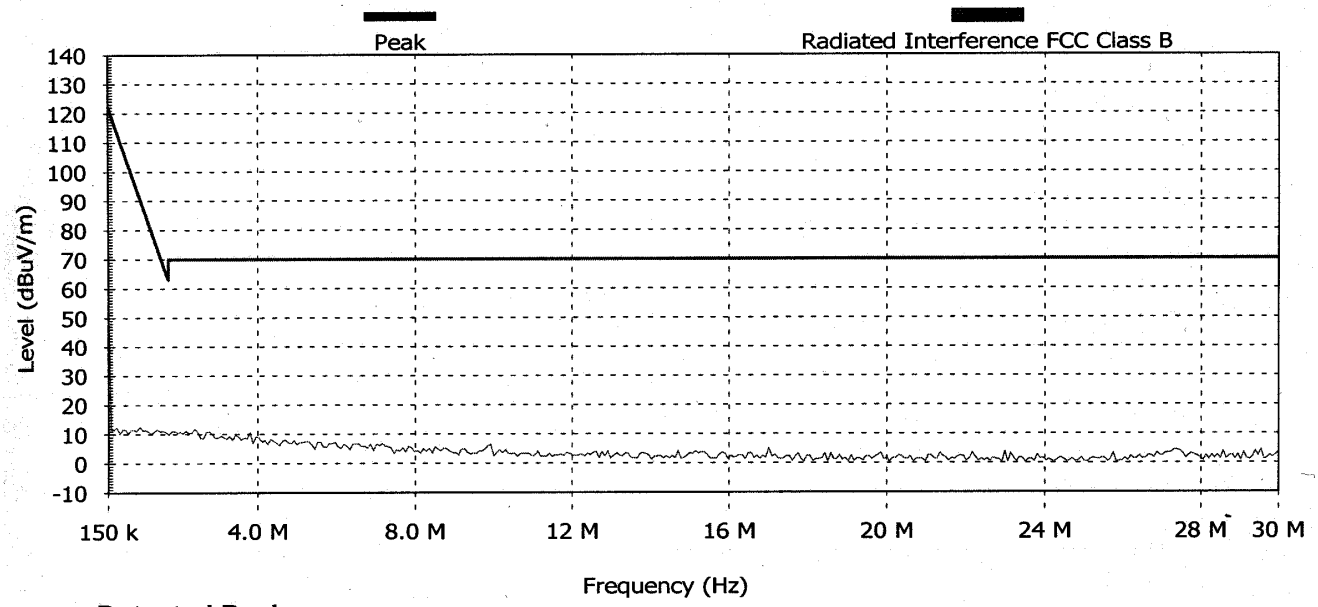
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

EUT
Name: PULLCORD
Serial Number: 0001

Client
Name: Dmatek
Contact Person: Lev Rosman

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

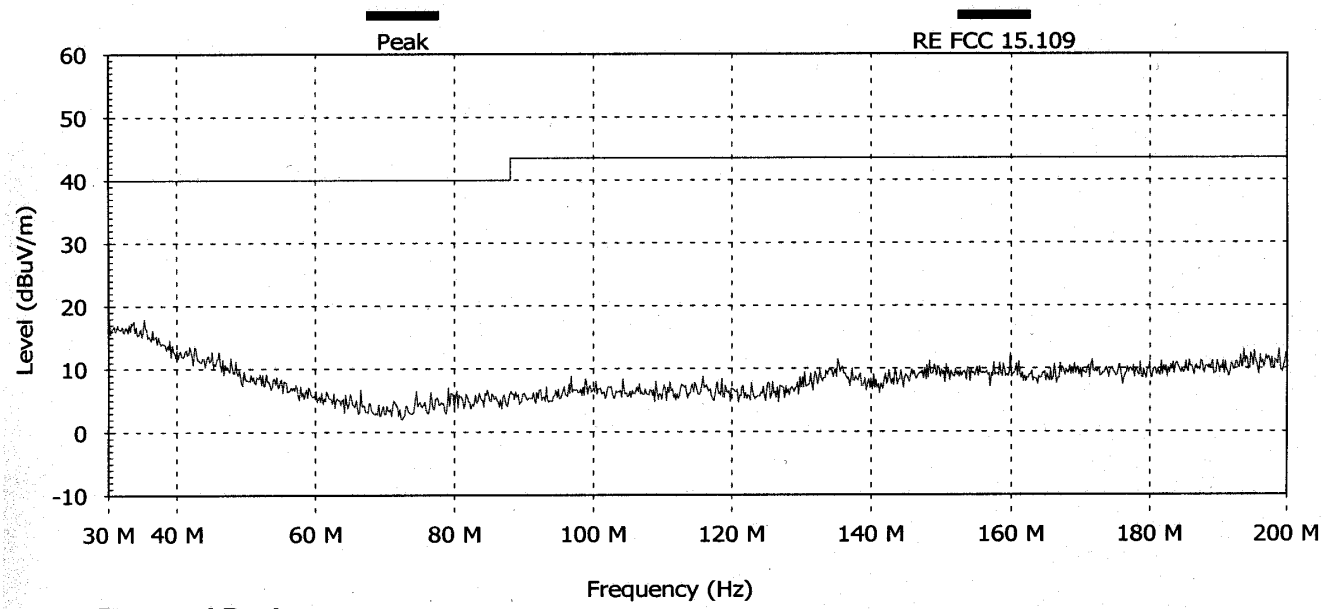
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

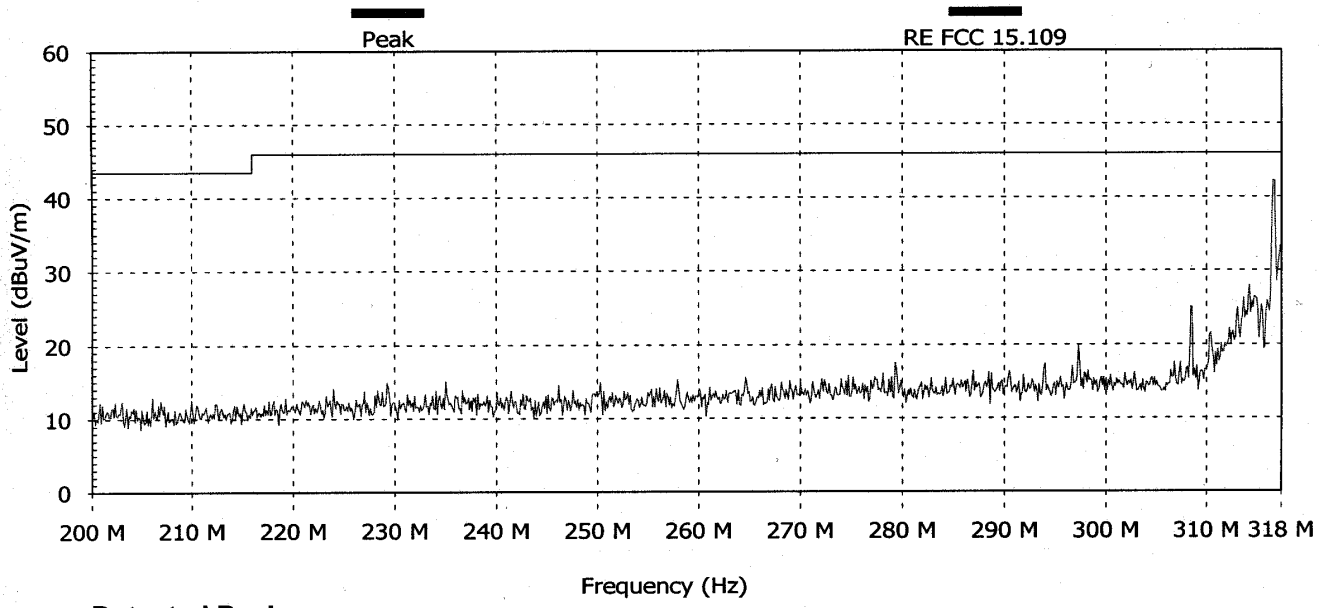
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

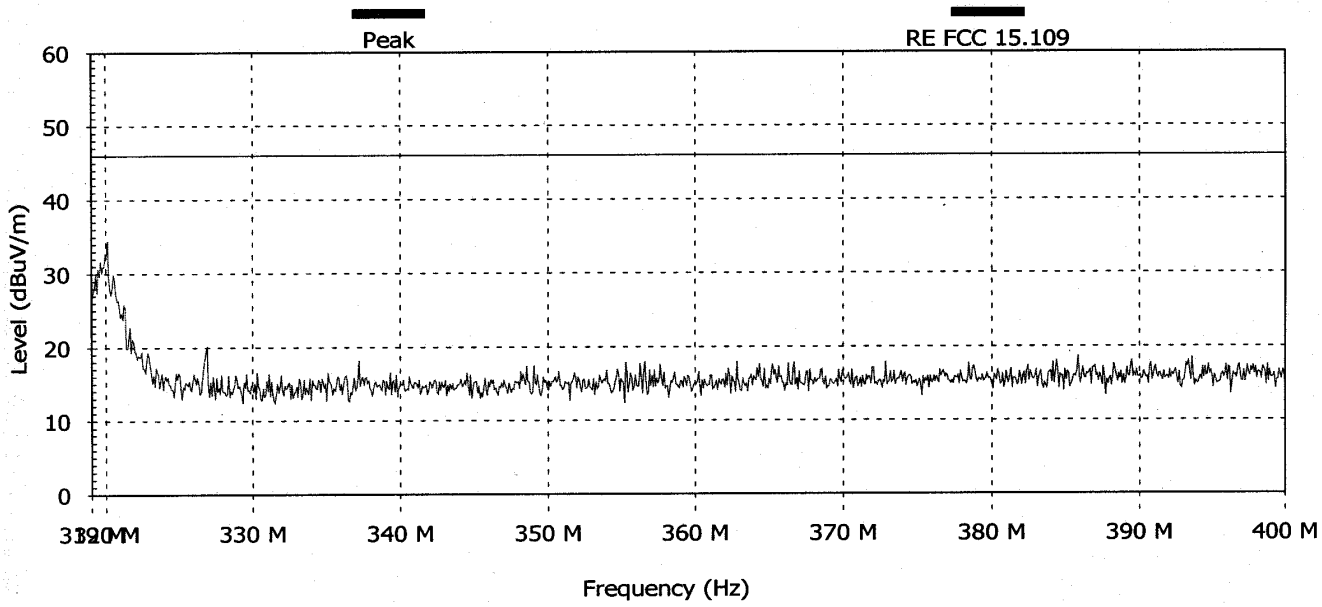
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

Plot RE/8

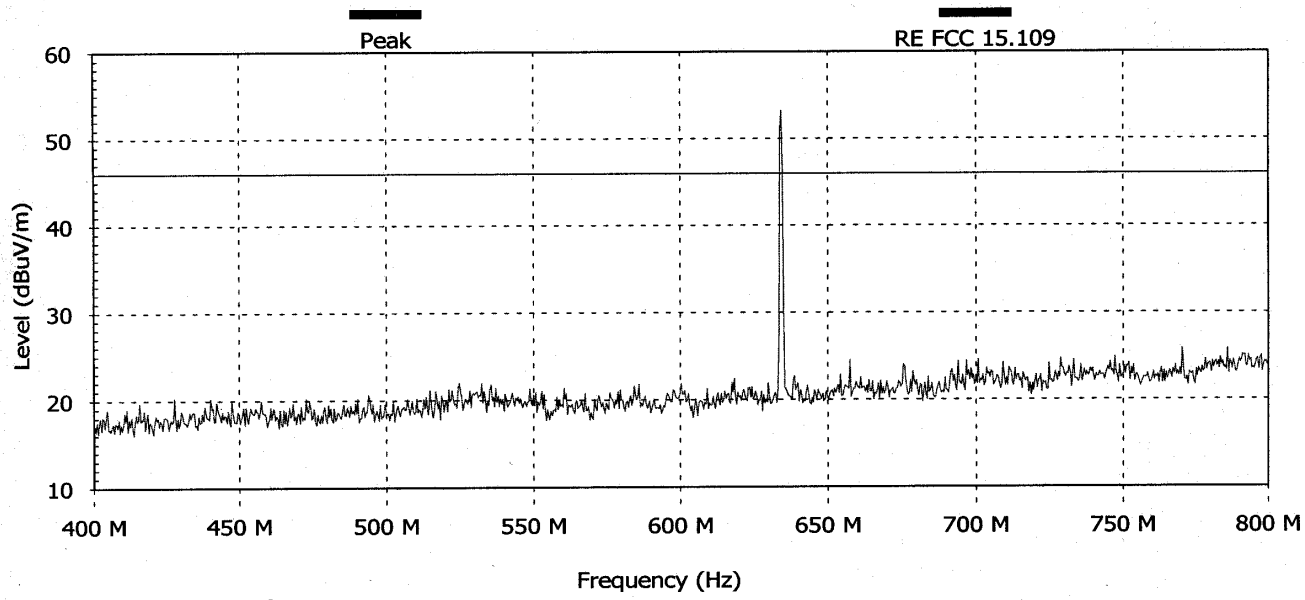
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

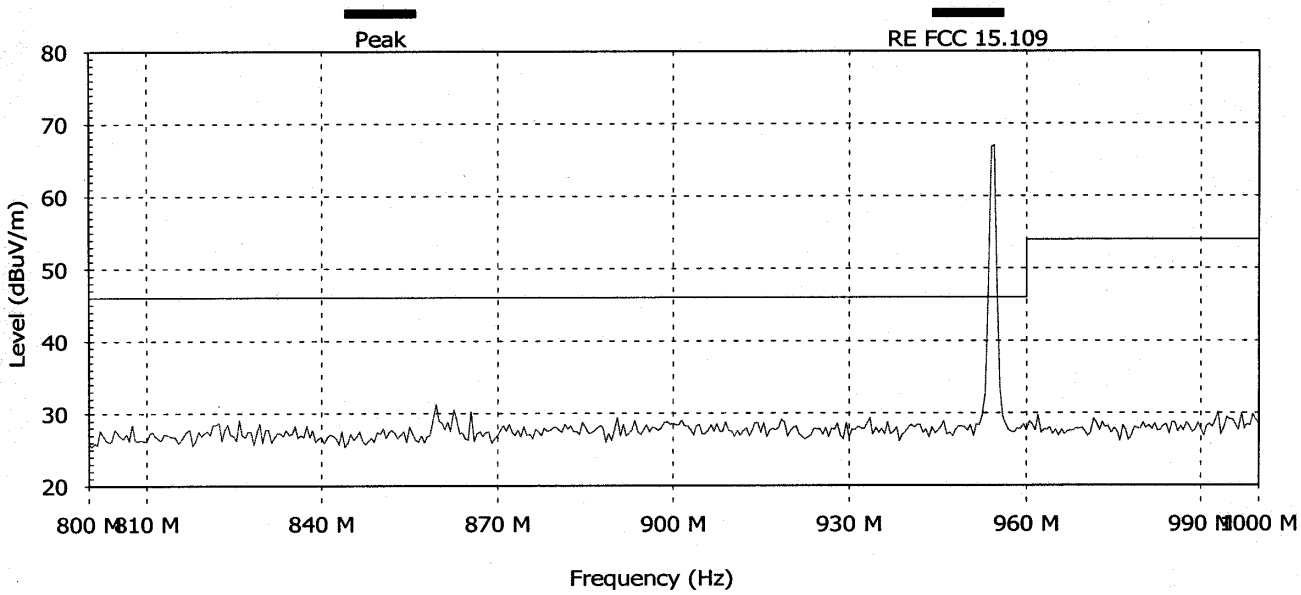
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

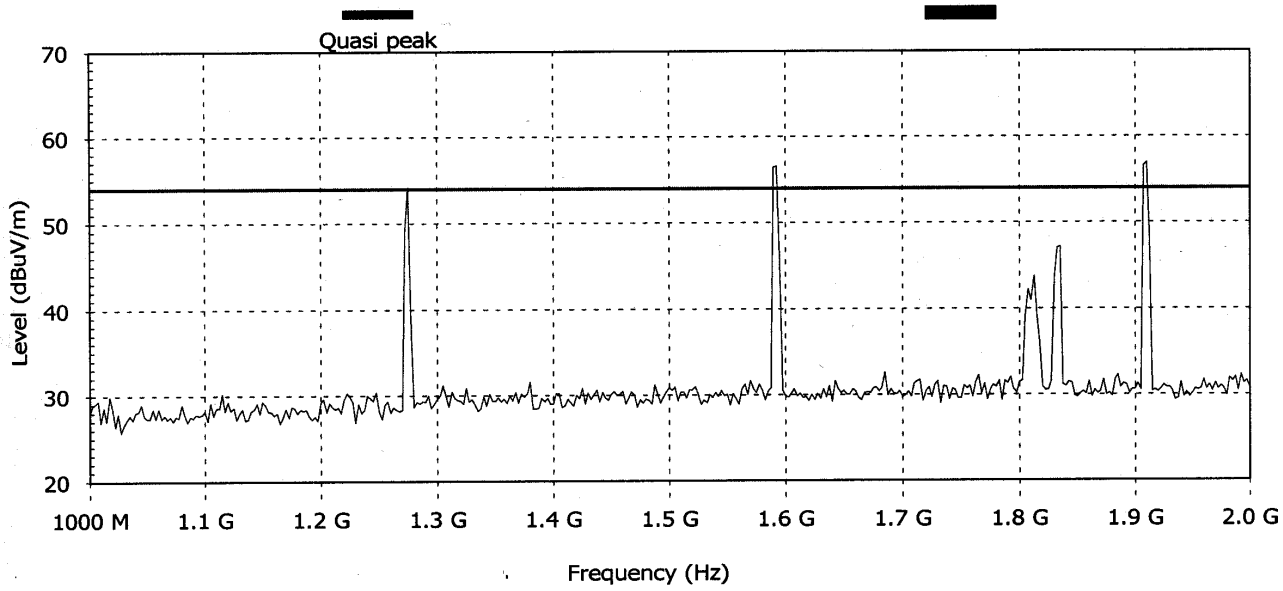
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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

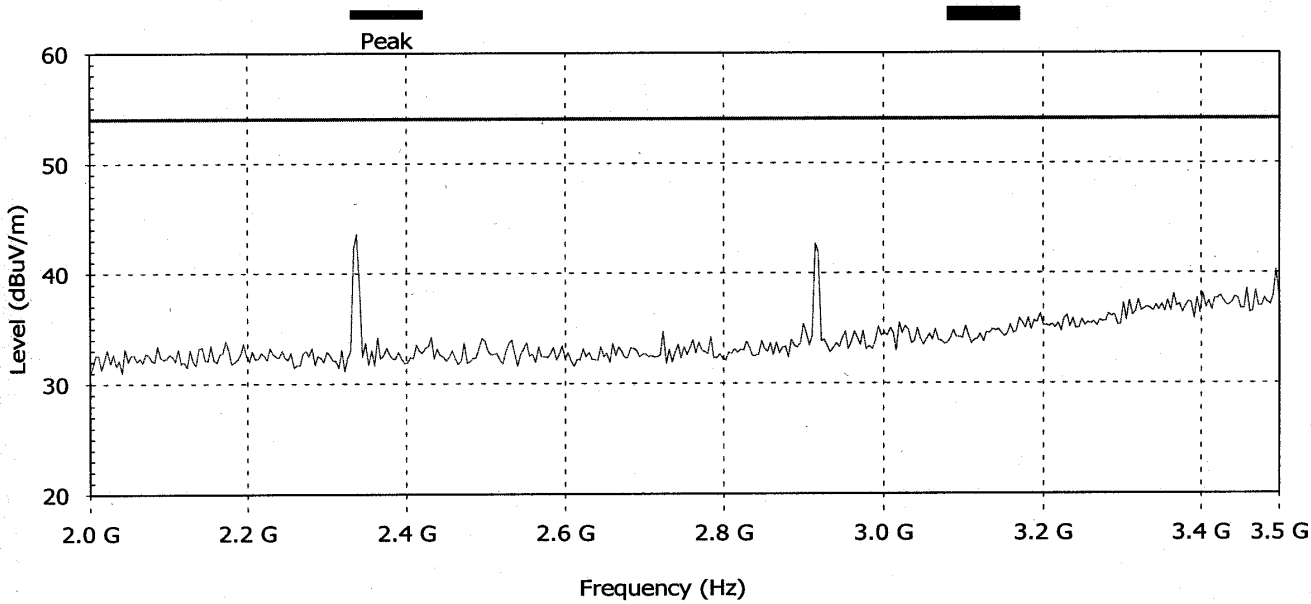
EUT File:
S:\EMC_LAB\common\DAMATEC\PullCord\Data\Fcc.eut
Order Number:

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:

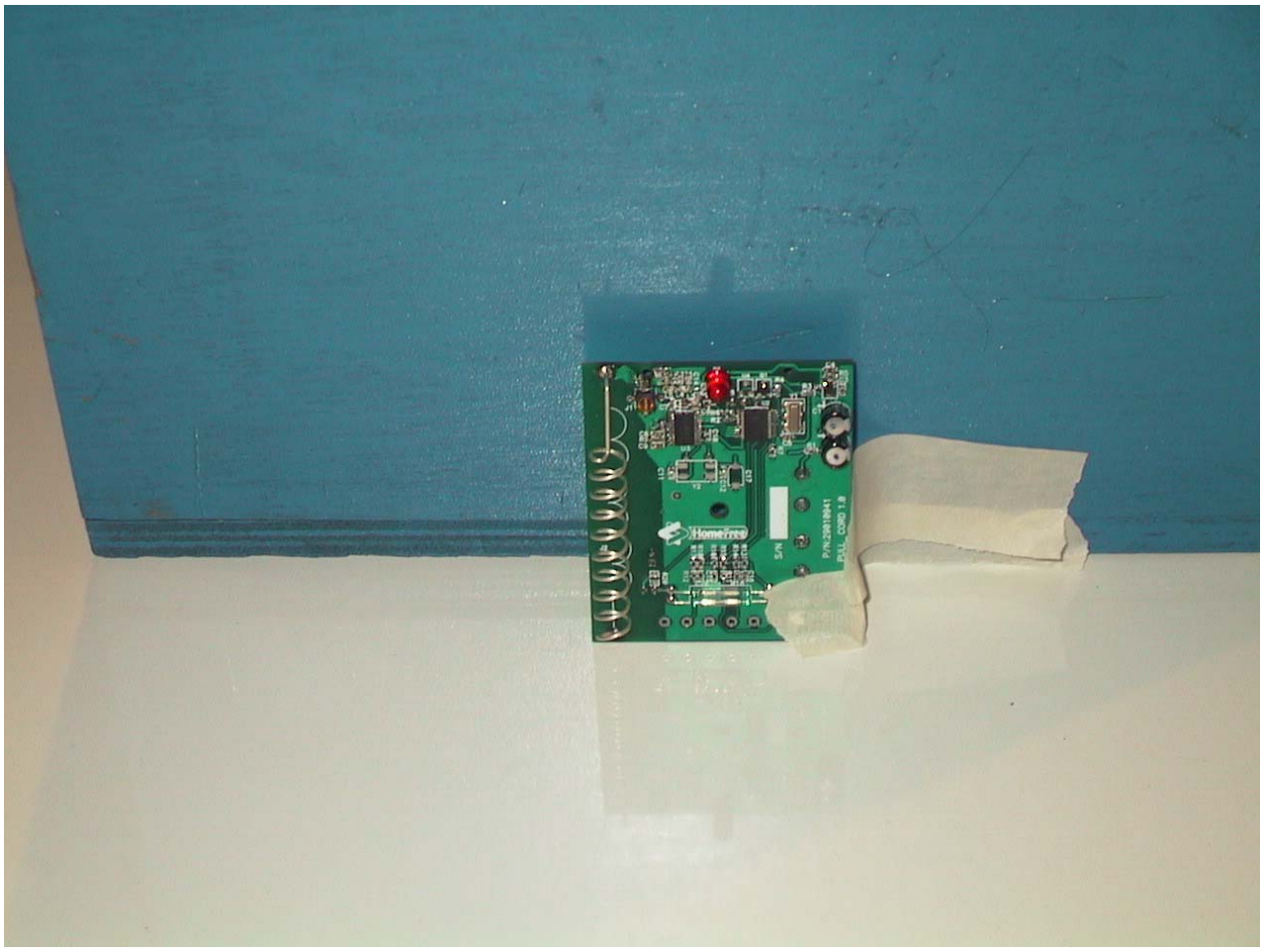


Detected Peaks:

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

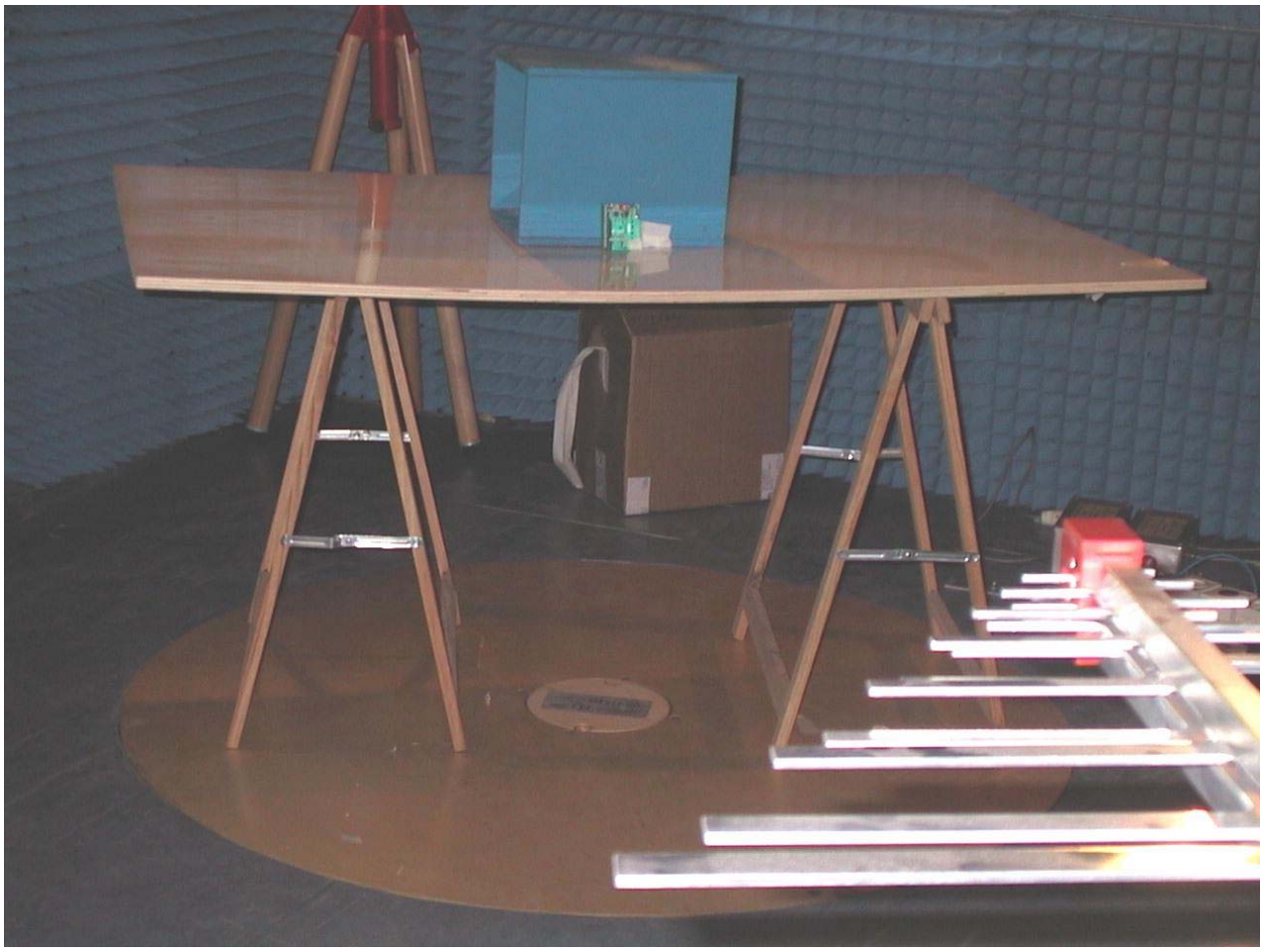
Settings:
Antenna: Both Polarizations at 3 m
Ref. Level: 70.0 dBuV/m Att: 0 dB. RBW: 1000 kHz. VBW: 1000 kHz. Sweep time: 20 ms.
Detect all peaks above 15 dB below the limit lines with a maximum of 6 peaks.

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