

(19)
(12)

(KR)
(Y1)

(51) 。 Int. Cl.⁷
H05B 3/56

(45)
(11)
(24)

2003 06 25
20-0317437
2003 06 11

(21) 20-2003-0007233 ()
(22) 2003 03 11
(62) 2003-0015170
: 2003 03 11

2003 03 11

(73) 566 가 202

(72) 566 가 202

(74)

:

가 :

(54)

가 가 (2); 가 (2)
(2) (4) (10); 가 가
(14) (12); (12) 가 (12)
가, (20); 가 가
(30) (10) (20)

1 ,
 2 ,
 3 ,
 4a 4c ,
 5 ,
 6 ,
 7 6 .
 * *

10 :
 20 :
 30 :

가 가 , 가 , 가
 가 , 가
 가 가 가 , 가 가
 가 가 . 가 / /
 가 가 가 가 가
 , 1,400 , 1,000 / ,
 / , 1,400 , 1,000 / ,

가
 192649 (10) (10) (12) ,
 1 (12) (14) , A (16) , A (16)
 (18) (18) (20) .
 (10) 3 15 가 (12)
 가 가 , A (16) (12)
 (10) (10)
 (16) , (18) , (18) A (20)
 (18)
 , A (16) (16) (12) (10)
 , A (16) 가 ,
 가
 192649 2 20 30 249031
 (11) (12-1) (11)
 (13) (13) (12)
 (14) , (14) PVC (15)
 가 (11) (13) (13)
 (14) 가 , (13) (12-1) 가 (13)
 (13)
 249031 10 20dBpW
 가 가 (60) (70) 233539 3
 (70) (20) (20) (70) (60)
 (30) (40) , (30) (40) (50)
 (60)가 2400 가 (40) 가
 233539 (40) 가 (60)
 (40)
 , 4a (60)(70)
 (40) , 4b 4c , (10)
 (30) , (10)

전자기장인증 시험성적서

접수번호 : EMF - 11

접수일자 : 2003. 1. 25

회 사 명 : 상암 메디텍

대 표 자 : 이 태 하

주 소 : 경기도 김포시 통진면 서암리 650-3

제 품 명 : 발열선

모 델 명 : SA-301

시험규격 : 전자기장 환경인증 시험기준



시 험 결 과

| 시 험 항 목 | 시 험 기 준 | 시 험 결 과 |
|---------------------|-------------|-----------|
| 전기장(electric field) | 10V/m이하일 것. | 적합함(불임참조) |
| 자기장(magnetic field) | 2mG이하일 것. | 적합함(불임참조) |

위 신청업체로부터 접수한 시료에 대하여 시험한 성적서임

2003 년 1 월 30 일

한국전기전자시험연구원
품질보증팀장

| | | | |
|------------|---|------|------------|
| 전자기장 환경인증용 | 결 | 팀 | 김영환 |
| | 재 | 시험담당 | |



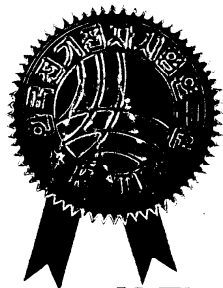
전자기장환경인증서

Electromagnetic Field Certificate

인증번호 : EMF-0301-0015
업체명 : 상암메디텍
대표자 : 이태하
주소 : 경기도 김포시 통진면 서암리 650-3
제품명 : 발열선
모델명 : SA-301
유효기간 : 2003. 01. 30. ~ 2004. 01. 29.



위 업체의 제품은 전기용품에서 발생하는 전기장, 자기장, 전자파의 발생이 우리연구원 "전자기장환경 인증운영요령"에 적합하므로 이에 인증서를 드립니다.



2003년 01월 30일

한국전기전자시험연구원장



측정결과 종합

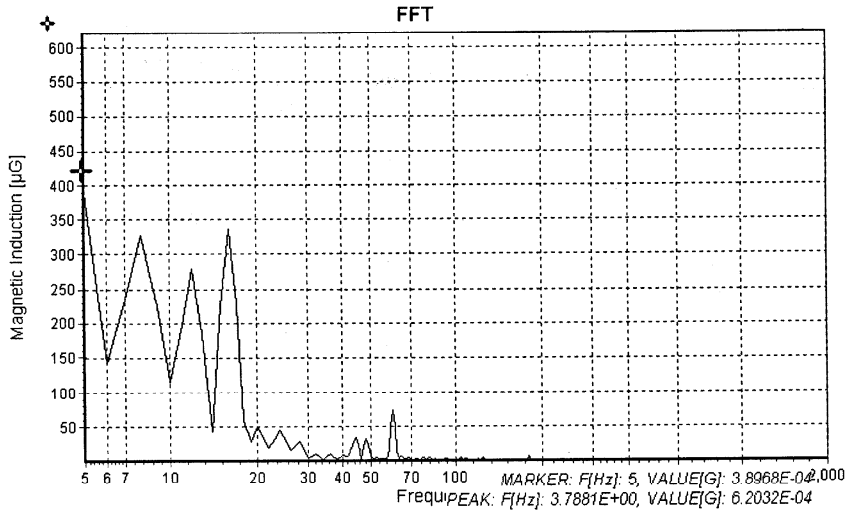
| 구 분 | 자기장[uG] | 전기장[V/m] | 비 고 |
|--|---------|----------|------|
| 중앙위치 | 620.32 | 5.3649 | Peak |
| 상좌위치 | 593.65 | 6.5026 | " |
| 상우위치 | 626.28 | 1.3055 | " |
| 하좌위치 | 609.02 | 3.4744 | " |
| 하우위치 | 634.94 | 6.2724 | " |
| 평균값 | 616.84 | 4.5839 | - |
| 시험방법 : 불임과 같이 16m의 발열선을 사각안에 설치한후 시험한 결과임 | | | |

1
4.5839[V/m] , 3 616.84[uG]
(:10V/m , :2mG)

4-1 , 4-2 4-1
620.32[uG] , 3.7881 Hz

4-1

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 20, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:17:16
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG



4-2

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 20, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:17:16
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG

| Peaks | Frequency | |
|---------|-----------|-----------|
| Peak 1: | 3.7881 Hz | 620.32 µG |
| Peak 2: | 16.006 Hz | 336.28 µG |
| Peak 3: | 7.9732 Hz | 327.71 µG |
| Peak 4: | 11.958 Hz | 279.27 µG |
| Peak 5: | 60.006 Hz | 73.541 µG |
| Peak 6: | 20 Hz | 49.027 µG |
| Peak 7: | 23.961 Hz | 44.771 µG |
| Peak 8: | 43.994 Hz | 33.949 µG |
| Peak 9: | 48.029 Hz | 32.403 µG |

5-1

5-2 5-1

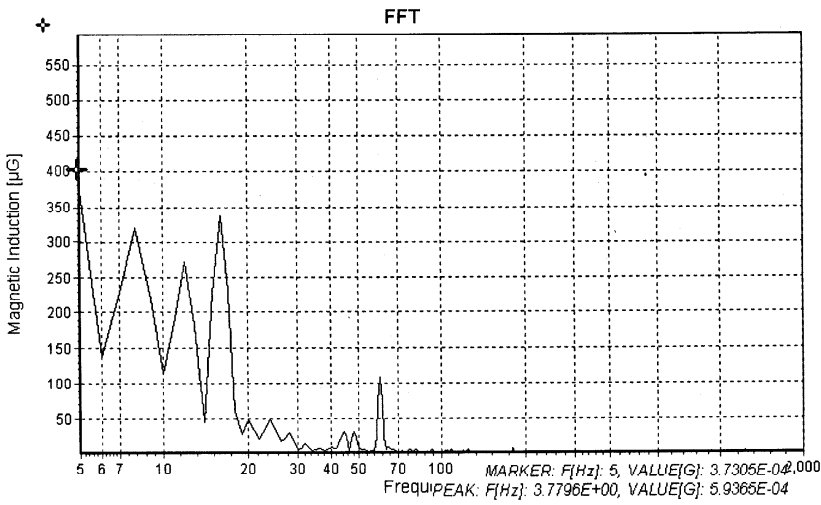
593

65[µG]

3.7796 Hz

5-1

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 21, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:23:58
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG



5-2

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 21, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:23:58
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG

| Peaks | Frequency | |
|---------|-----------|-----------|
| Peak 1: | 3.7796 Hz | 593.65 uG |
| Peak 2: | 16.005 Hz | 336.87 uG |
| Peak 3: | 7.9776 Hz | 320.09 uG |
| Peak 4: | 11.956 Hz | 273.64 uG |
| Peak 5: | 60.018 Hz | 109.35 uG |
| Peak 6: | 23.988 Hz | 47.959 uG |
| Peak 7: | 20 Hz | 47.276 uG |
| Peak 8: | 43.991 Hz | 32.199 uG |
| Peak 9: | 48.018 Hz | 31.521 uG |

6-1

26.28[uG]

6-2

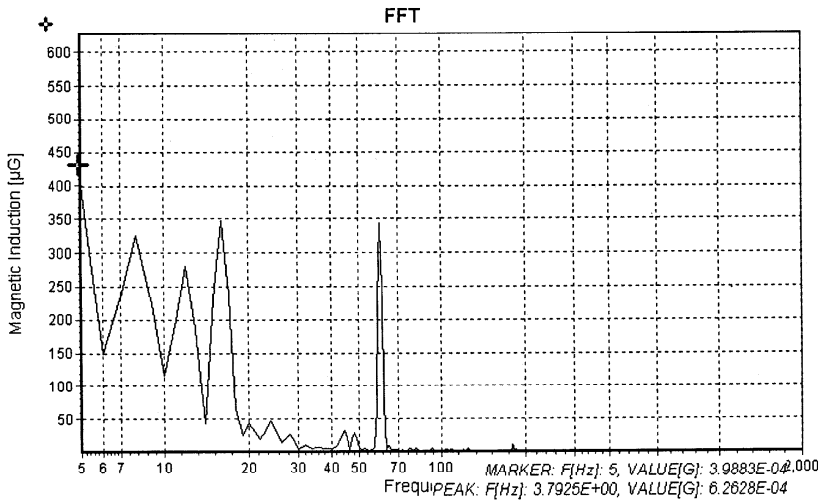
3.7925 Hz

6-1

6

6-1

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 22, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:25:26
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[Hz]: 1, DET: AVG



6-2

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 22, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:25:26
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[Hz]: 1, DET: AVG

| Peaks | Frequency | |
|---------|-----------|-----------|
| Peak 1: | 3.7925 Hz | 626.28 μG |
| Peak 2: | 16.011 Hz | 345.34 μG |
| Peak 3: | 60.024 Hz | 344.43 μG |
| Peak 4: | 7.9666 Hz | 325.51 μG |
| Peak 5: | 11.954 Hz | 280.96 μG |
| Peak 6: | 23.963 Hz | 45.741 μG |
| Peak 7: | 20 Hz | 43.093 μG |
| Peak 8: | 43.957 Hz | 33.388 μG |
| Peak 9: | 48.031 Hz | 30.069 μG |

7-1

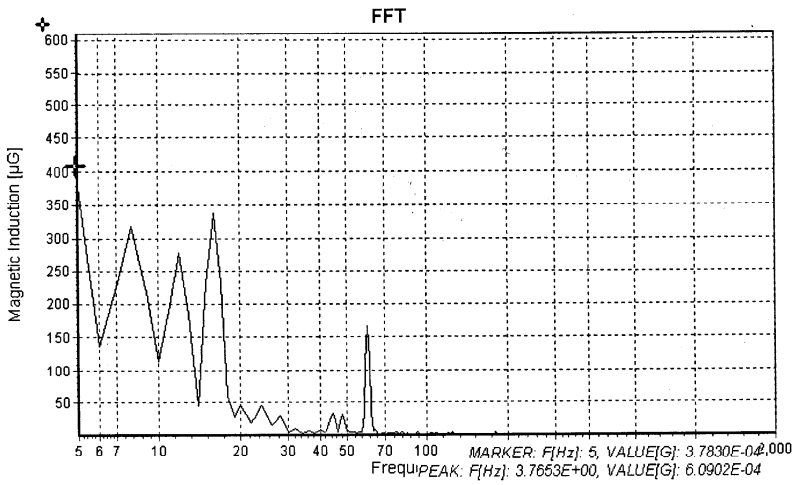
09.02[uG]

7-2 7-1
 3.7653 Hz

6

7-1

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 23, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:26:50
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG



7-2

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 23, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:26:50
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG

| Peaks | Frequency | |
|---------|-----------|----------------|
| Peak 1: | 3.7653 Hz | 609.02 μ G |
| Peak 2: | 16.001 Hz | 337.35 μ G |
| Peak 3: | 7.9707 Hz | 317.41 μ G |
| Peak 4: | 11.953 Hz | 278.05 μ G |
| Peak 5: | 60.022 Hz | 167.54 μ G |
| Peak 6: | 20 Hz | 45.816 μ G |
| Peak 7: | 23.978 Hz | 44.851 μ G |
| Peak 8: | 43.989 Hz | 33.659 μ G |
| Peak 9: | 48.003 Hz | 32.004 μ G |

8-1

34.94[uG]

8-2

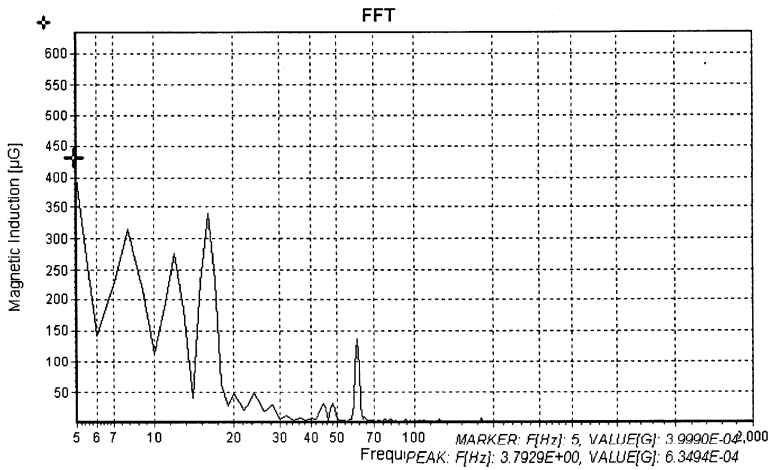
3.7929 Hz

8-1

6

8-1

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 24, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:28:46
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[Hz]: 1, DET: AVG



8-2

Device: EFA-300 F-0034, PROBE: EXT_PRB_2, CHN: ALL
 MEM# 24, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 11:28:46
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[Hz]: 1, DET: AVG

| Peaks | Frequency | |
|---------|-----------|-----------|
| Peak 1: | 3.7929 Hz | 634.94 uG |
| Peak 2: | 16.014 Hz | 341.36 uG |
| Peak 3: | 7.9687 Hz | 315.77 uG |
| Peak 4: | 11.958 Hz | 276.35 uG |
| Peak 5: | 60.004 Hz | 136.96 uG |
| Peak 6: | 20 Hz | 47.859 uG |
| Peak 7: | 24.034 Hz | 47.294 uG |
| Peak 8: | 48.014 Hz | 32.298 uG |
| Peak 9: | 43.982 Hz | 32.007 uG |

9-1

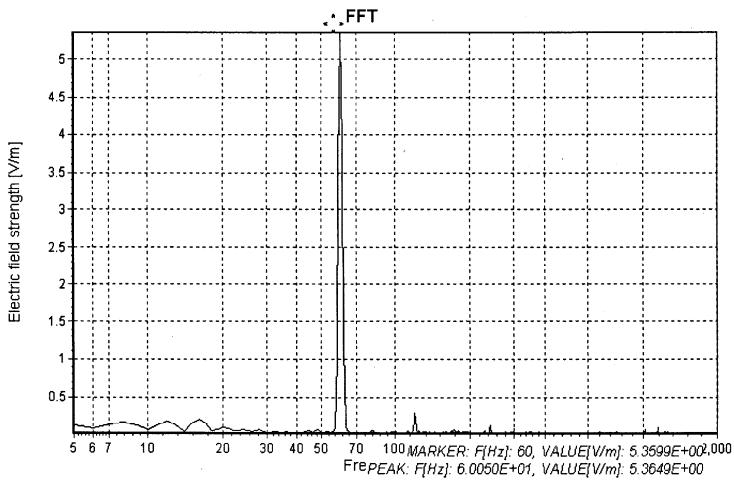
3649[uG]

9-2 9-1
 60.05 Hz

5.

9-1

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM#: 2, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:39:06
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[Hz]: 1, DET: AVG



9-2

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM#: 2, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:39:06
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[Hz]: 1, DET: AVG

| Peaks | Frequency | |
|---------|------------|-------------|
| Peak 1: | 60.05 Hz | 5.3649 V/m |
| Peak 2: | 120.11 Hz | 301.15 mV/m |
| Peak 3: | 15.993 Hz | 213.44 mV/m |
| Peak 4: | 11.928 Hz | 176.94 mV/m |
| Peak 5: | 7.9264 Hz | 168.63 mV/m |
| Peak 6: | 240.2 Hz | 119.83 mV/m |
| Peak 7: | 20.08 Hz | 107.7 mV/m |
| Peak 8: | 1.1409 kHz | 104.7 mV/m |
| Peak 9: | 300.26 Hz | 81.414 mV/m |

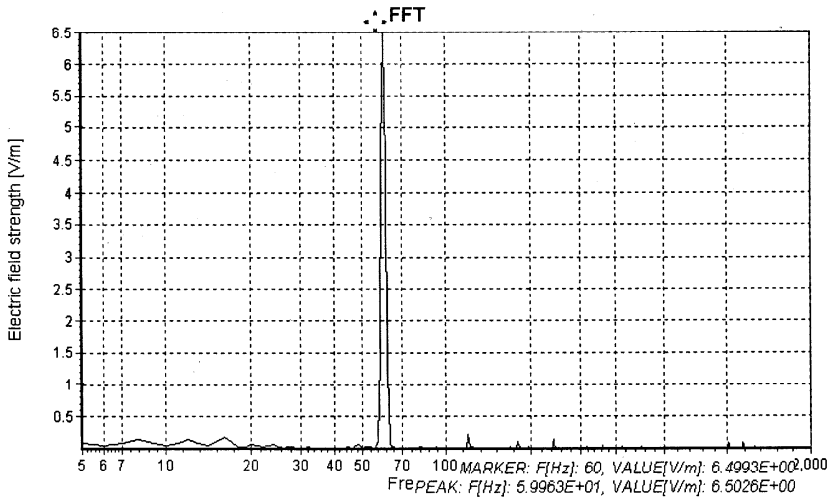
10-1
 .5026[uG]

10-2
 59.963 Hz

6

10-1

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM# 3, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:42:42
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG



10-2

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM# 3, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:42:42
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG

| Peaks | Frequency | |
|---------|------------|-------------|
| Peak 1: | 59.963 Hz | 6.5026 V/m |
| Peak 2: | 119.94 Hz | 233.25 mV/m |
| Peak 3: | 15.978 Hz | 197.69 mV/m |
| Peak 4: | 239.87 Hz | 153.59 mV/m |
| Peak 5: | 12.075 Hz | 149.83 mV/m |
| Peak 6: | 7.9824 Hz | 144.31 mV/m |
| Peak 7: | 179.9 Hz | 136.51 mV/m |
| Peak 8: | 1.0194 kHz | 112.16 mV/m |
| Peak 9: | 1.1393 kHz | 105.28 mV/m |

11-1

11-2

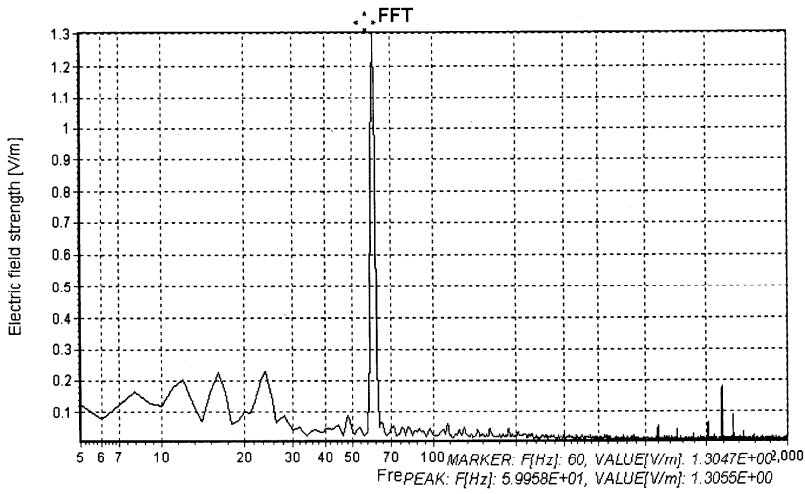
11-1

1.3055[uG]

59.958 Hz

11-1

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM# 8, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:48:36
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[Hz]: 1, DET: AVG



11-2

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM# 8, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:48:36
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[Hz]: 1, DET: AVG

| Peaks | Frequency | |
|---------|------------|-------------|
| Peak 1: | 59.958 Hz | 1.3055 V/m |
| Peak 2: | 23.737 Hz | 233.6 mV/m |
| Peak 3: | 16 Hz | 223.21 mV/m |
| Peak 4: | 11.723 Hz | 208.85 mV/m |
| Peak 5: | 1.1396 kHz | 189.4 mV/m |
| Peak 6: | 8.0283 Hz | 163.12 mV/m |
| Peak 7: | 20.342 Hz | 100.93 mV/m |
| Peak 8: | 1.2594 kHz | 97.828 mV/m |
| Peak 9: | 48.144 Hz | 93.029 mV/m |

12-1

12-2 12-1

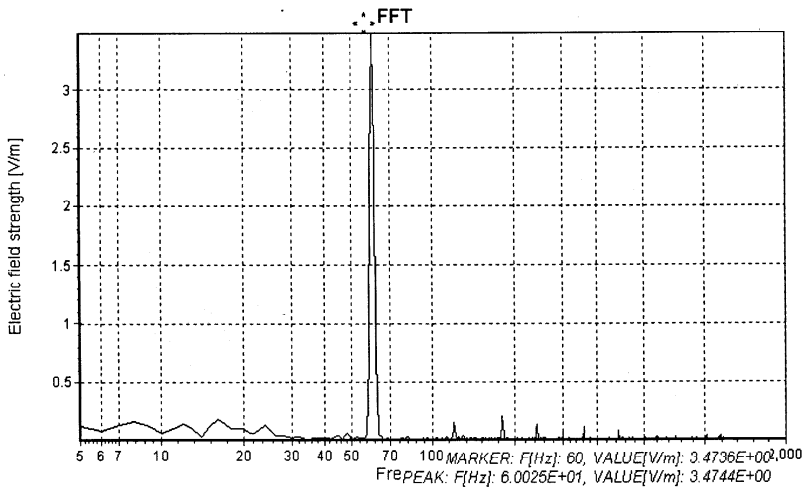
3

.4744[uG]

60.025 Hz

12-1

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM# 4, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:44:00
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG



12-2

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM# 4, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:44:00
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG

| Peaks | Frequency | |
|---------|-----------|-------------|
| Peak 1: | 60.025 Hz | 3.4744 V/m |
| Peak 2: | 180.07 Hz | 209.27 mV/m |
| Peak 3: | 16.153 Hz | 186.26 mV/m |
| Peak 4: | 7.9399 Hz | 170.78 mV/m |
| Peak 5: | 120.06 Hz | 161.01 mV/m |
| Peak 6: | 11.959 Hz | 148.89 mV/m |
| Peak 7: | 240.05 Hz | 136.15 mV/m |
| Peak 8: | 23.846 Hz | 132.46 mV/m |
| Peak 9: | 360.07 Hz | 118.2 mV/m |

13-1

13-2

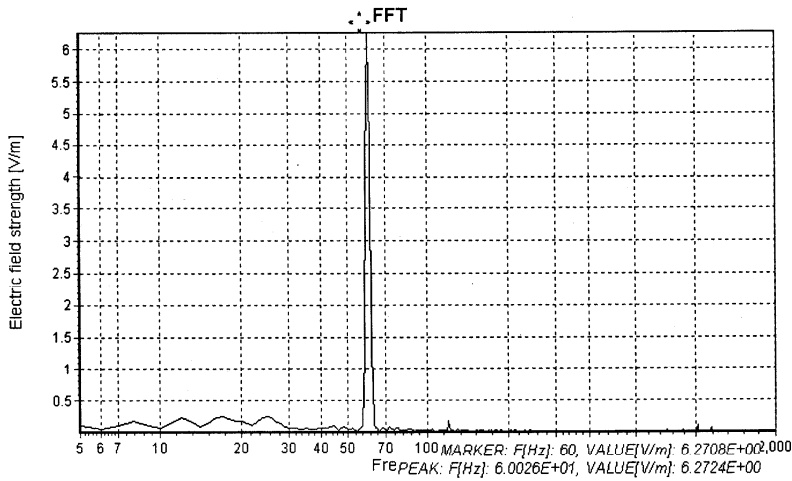
13-1

6.2724[uG]

60.026 Hz

13-1

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM# 7, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:47:03
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG



13-2

Device: EFA-300 F-0034, PROBE: EF_PRB, CHN: ALL
 MEM# 7, D: V, MODE: FFT
 DATE/TIME: 2003-01-25/오전 10:47:03
 F_RANGE: 5Hz..2KHz, MAX: LIVE, VALID: OK, DF[HZ]: 1, DET: AVG

| Peaks | Frequency | |
|---------|------------|-------------|
| Peak 1: | 60.026 Hz | 6.2724 V/m |
| Peak 2: | 16.915 Hz | 264.8 mV/m |
| Peak 3: | 24.85 Hz | 250.89 mV/m |
| Peak 4: | 12.062 Hz | 243.8 mV/m |
| Peak 5: | 120.03 Hz | 179.67 mV/m |
| Peak 6: | 7.9253 Hz | 171.66 mV/m |
| Peak 7: | 1.0203 kHz | 136.52 mV/m |
| Peak 8: | 43.882 Hz | 127.51 mV/m |
| Peak 9: | 48.029 Hz | 111.26 mV/m |

가 , 가 , 가 ,

(57)

1. 가 가 (2) , (2) , (2)
 (4) (10);
- 가 가 (12) , (12)
 (12) (14) (20);
- 가 가 ,

(10)

(20)

(30)

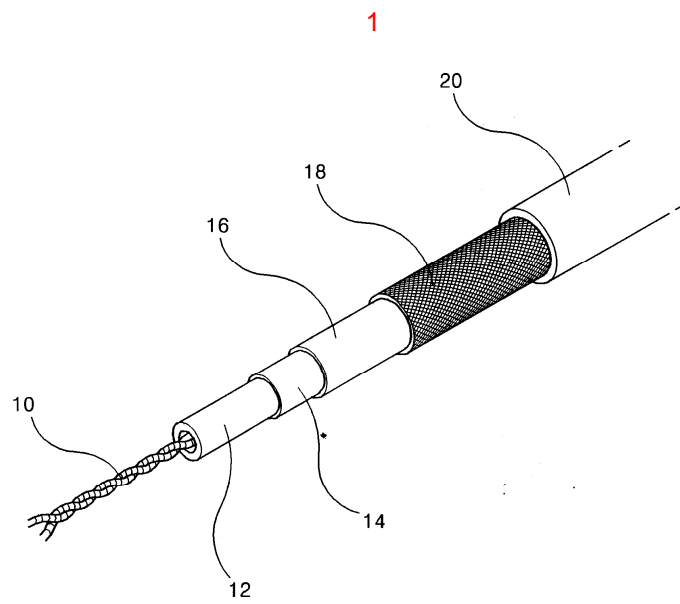
2.

1 , (10) (20) (30) ,
(40)

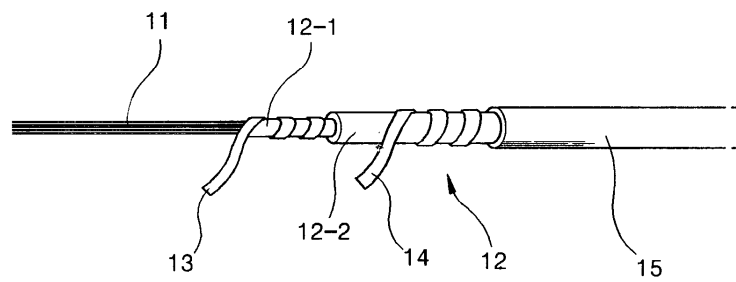
3.

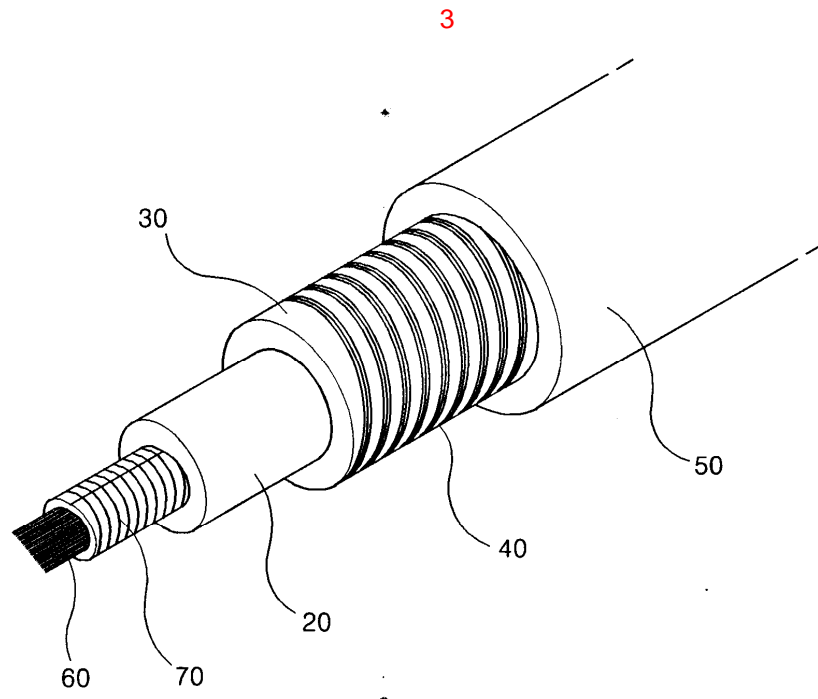
1 , (30) ,

3mm

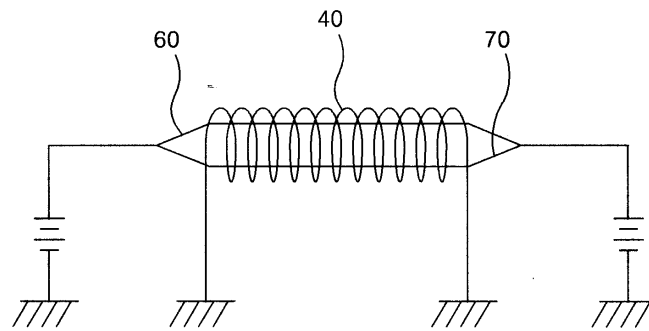


2

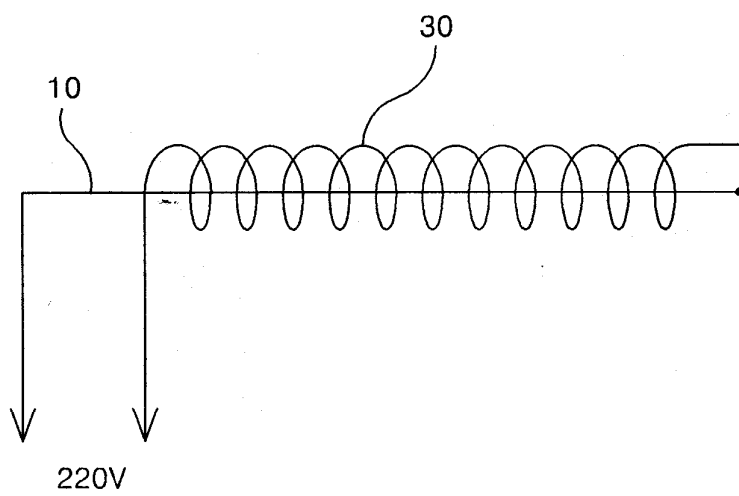




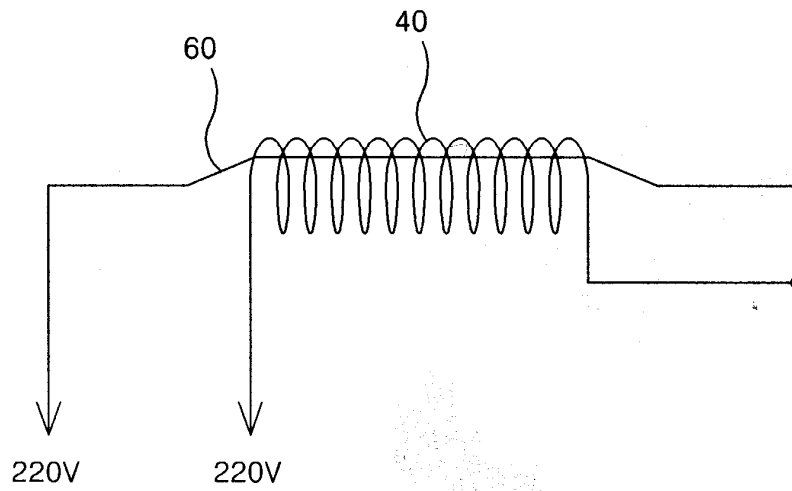
4a



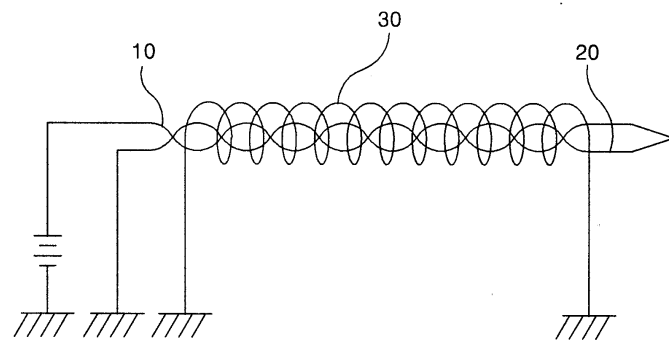
4b



4c



5



6

