

## TABLE OF CONTENTS

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

### TEST REPORT CONTAINING:

|      |          |                                        |
|------|----------|----------------------------------------|
| PAGE | 1-4..... | TEST EQUIPMENT LIST                    |
| PAGE | 5.....   | TEST PROCEDURE                         |
| PAGE | 6-7..... | RADIATION INTERFERENCE TEST DATA       |
| PAGE | 8.....   | CALCULATION OF DUTY CYCLE              |
| PAGE | 9.....   | DUTY CYCLE PLOT - SHORT PULSES         |
| PAGE | 10.....  | DUTY CYCLE PLOT - LONG PULSES          |
| PAGE | 11.....  | DUTY CYCLE PLOT - COMPLETE PULSE TRAIN |
| PAGE | 12.....  | OCCUPIED BANDWIDTH                     |
| PAGE | 13.....  | OCCUPIED BANDWIDTH PLOT                |

### EXHIBIT ATTACHMENTS:

|         |        |                                 |
|---------|--------|---------------------------------|
| EXHIBIT | 1..... | BLOCK DIAGRAM                   |
| EXHIBIT | 2..... | SCHEMATIC                       |
| EXHIBIT | 3..... | INSTRUCTION MANUAL              |
| EXHIBIT | 4..... | FCC ID LABEL SAMPLE             |
| EXHIBIT | 5..... | SKETCH OF FCC ID LABEL LOCATION |
| EXHIBIT | 6..... | EXTERNAL PHOTOS                 |
| EXHIBIT | 7..... | INTERNAL PHOTOS                 |
| EXHIBIT | 8..... | TEST SET UP PHOTO               |
| EXHIBIT | 9..... | CIRCUIT DESCRIPTION             |

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

REPORT #: T:\C\CAMEM48\582UT2\Extra\582UT2TestReport.doc

TABLE OF CONTENTS LIST

## Equipment List

|   | DEVICE                                              | MFGR            | MODEL         | SERNO                    | CAL/CHAR<br>DATE   | DUE DATE<br>or STATUS |
|---|-----------------------------------------------------|-----------------|---------------|--------------------------|--------------------|-----------------------|
| X | 3-Meter<br>OATS                                     | TEI             | N/A           | N/A                      | Listed<br>12/22/99 | 12/22/02              |
|   | 3/10-Meter<br>OATS                                  | TEI             | N/A           | N/A                      | Listed<br>3/26/01  | 3/26/04               |
| X | Receiver, Beige Tower<br>Spectrum Analyzer<br>(Tan) | HP              | 8566B Opt 462 | 3138A07786<br>3144A20661 | CAL<br>8/31/01     | 8/31/02               |
| X | RF Preselector<br>(Tan)                             | HP              | 85685A        | 3221A01400               | CAL<br>8/31/01     | 8/31/02               |
| X | Quasi-Peak Adapter<br>(Tan)                         | HP              | 85650A        | 3303A01690               | CAL<br>8/31/01     | 8/31/02               |
|   | Receiver, Blue Tower<br>Spectrum Analyzer<br>(Blue) | HP              | 8568B         | 2928A04729<br>2848A18049 | CHAR<br>10/22/01   | 10/22/02              |
|   | RF Preselector<br>(Blue)                            | HP              | 85685A        | 2926A00983               | CHAR<br>10/22/01   | 10/22/02              |
|   | Quasi-Peak Adapter<br>(Blue)                        | HP              | 85650A        | 2811A01279               | CHAR<br>10/22/01   | 10/22/02              |
|   | Biconnical Antenna                                  | Electro-Metrics | BIA-25        | 1171                     | CAL<br>4/26/01     | 4/26/03               |
| X | Biconnical Antenna                                  | Eaton           | 94455-1       | 1096                     | CAL<br>10/1/01     | 10/1/02               |
|   | Biconnical Antenna                                  | Eaton           | 94455-1       | 1057                     | CHAR<br>3/15/00    | 3/15/01               |
|   | BiconiLog Antenna                                   | EMCO            | 3143          | 9409-1043                |                    |                       |
| X | Log-Periodic<br>Antenna                             | Electro-Metrics | LPA-25        | 1122                     | CAL<br>10/2/01     | 10/2/02               |
|   | Log-Periodic<br>Antenna                             | Electro-Metrics | EM-6950       | 632                      | CHAR<br>10/15/01   | 10/15/02              |
|   | Log-Periodic<br>Antenna                             | Electro-Metrics | LPA-30        | 409                      | CHAR<br>10/16/01   | 10/16/02              |
|   | Dipole Antenna<br>Kit                               | Electro-Metrics | TDA-30/1-4    | 152                      | CAL<br>3/21/01     | 3/21/02               |
|   | Dipole Antenna<br>Kit                               | Electro-Metrics | TDA-30/1-4    | 153                      | CHAR<br>11/24/00   | 11/24/01              |
|   | Double-Ridged Horn<br>Antenna                       | Electro-Metrics | RGA -180      | 2319                     | CAL<br>12/19/01    | 12/19/02              |
|   | Horn Antenna                                        | Electro-Metrics | EM-6961       | 6246                     | CAL<br>3/21/01     | 3/21/02               |
|   | Horn Antenna                                        | ATM             | 19-443-6R     | None                     | No Cal<br>Required |                       |

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

REPORT #: T:\C\CAMEM48\582UT2\Extra\582UT2TestReport.doc

|                                       |                                  |            |            |                  |           |
|---------------------------------------|----------------------------------|------------|------------|------------------|-----------|
| Passive Loop Antenna                  | EMC Test Systems                 | EMCO 6512  | 9706-1211  | CHAR<br>7/10/01  | 7/10/02   |
| Line Impedance<br>Stabilization . . . | Electro-Metrics                  | ANS-25/2   | 2604       | CAL<br>10/9/01   | 10/9/02   |
| Line Impedance Stabilization<br>. . . | Electro-Metrics                  | EM-7820    | 2682       | CAL<br>3/16/01   | 3/16/02   |
| Termaline Wattmeter                   | Bird Electronic<br>Corporation   | 611        | 16405      | CAL<br>5/25/99   | (5/25/00) |
| Termaline Wattmeter                   | Bird Electronic<br>Corporation   | 6104       | 1926       | CAL<br>12/12/01  | 12/12/02  |
| Oscilloscope                          | Tektronix                        | 2230       | 300572     | CHAR<br>2/1/01   | 2/1/02    |
| Temperature Chamber                   | Tenney Engineering               | TTRC       | 11717-7    | CHAR<br>1/22/02  | 1/22/03   |
| AC Voltmeter                          | HP                               | 400FL      | 2213A14499 | CAL<br>10/9/01   | 10/9/02   |
| AC Voltmeter                          | HP                               | 400FL      | 2213A14261 | CHAR<br>10/15/01 | 10/15/02  |
| AC Voltmeter                          | HP                               | 400FL      | 2213A14728 | CHAR<br>10/15/01 | 10/15/02  |
| Digital Multimeter                    | Fluke                            | 77         | 35053830   | CHAR<br>1/8/02   | 1/8/03    |
| Digital Multimeter                    | Fluke                            | 77         | 43850817   | CHAR<br>1/8/02   | 1/8/03    |
| Digital Multimeter                    | HP                               | E2377A     | 2927J05849 | CHAR<br>1/8/02   | 1/8/03    |
| Multimeter                            | Fluke                            | FLUKE-77-3 | 79510405   | CAL<br>9/26/01   | 9/26/02   |
| Peak Power Meter                      | HP                               | 8900C      | 2131A00545 | CHAR<br>1/26/01  | 1/26/02   |
| Digital Thermometer                   | Fluke                            | 2166A      | 42032      | CAL<br>1/16/02   | 1/16/03   |
| Thermometer                           | Traulsen                         | SK-128     |            | CHAR<br>1/22/02  | 1/22/03   |
| Temp/Humidity gauge                   | EXTech                           | 44577F     | E000901    | CHAR<br>1/22/02  | 1/22/03   |
| Frequency Counter                     | HP                               | 5352B      | 2632A00165 | CAL<br>11/28/01  | 11/28/02  |
| Power Sensor                          | Agilent<br>Technologies          | 84811A     | 2551A02705 | CAL<br>1/26/01   | 1/26/02   |
| Injection Probe                       | Fischer Custom<br>Communications | F-120-9A   | 270        | CAL<br>6/1/01    | 6/1/02    |
| Service Monitor                       | IFR                              | FM/AM 500A | 5182       | CAL<br>11/22/00  | 11/22/01  |

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

REPORT #: T:\C\CAMEM48\582UT2\Extra\582UT2TestReport.doc

|                                            |                                  |                          |               |                  |          |
|--------------------------------------------|----------------------------------|--------------------------|---------------|------------------|----------|
| Comm. Serv. Monitor                        | IFR                              | FM/AM 1200S              | 6593          | CAL<br>11/12/99  | 11/12/00 |
| Signal Generator                           | HP                               | 8640B                    | 2308A21464    | CAL<br>11/15/01  | 11/15/02 |
| Modulation Analyzer                        | HP                               | 8901A                    | 3435A06868    | CAL<br>9/5/01    | 9/5/02   |
| Power Line Coupling/<br>Decoupling Network | Fischer Custom<br>Communications | FCC-801-M2-<br>16A       | 01048         | CAL<br>8/29/01   | 8/29/02  |
| Power Line Coupling/<br>Decoupling Network | Fischer Custom<br>Communications | FCC-801-M3-<br>16A       | 01060         | CAL<br>8/29/01   | 8/29/02  |
| VHF/UHF Current Probe                      | Fischer Custom<br>Communications | F-52                     | 130           | CAL<br>8/30/01   | 8/30/02  |
| Passive Impedance Adapter                  | Fischer Custom<br>Communications | FCC-801-150-50-<br>CDN   | 01117 & 01118 | CAL<br>8/29/01   | 8/29/02  |
| Radiating Field Coil                       | Fischer Custom<br>Communications | F-1000-4-8/9/10-<br>L-1M | 9859          | CAL<br>10/15/98  | 10/15/99 |
| Near Field Probe                           | HP                               | HP11940A                 | 2650A02748    | CHAR<br>2/1/01   | 2/1/02   |
| BandReject Filter                          | Lorch Microwave                  | 5BR4-2400/<br>60-N       | Z1            | CHAR<br>3/2/01   | 3/2/02   |
| BandReject Filter                          | Lorch<br>Microwave               | 6BR6-2442/<br>300-N      | Z1            | CHAR<br>3/2/01   | 3/2/02   |
| BandReject Filter                          | Lorch<br>Microwave               | 5BR4-10525/<br>900-S     | Z1            | CHAR<br>3/2/01   | 3/2/02   |
| High Pas Filter                            | Microlab                         | HA-10N                   |               | CHAR<br>10/4/01  | 10/4/02  |
| Audio Oscillator                           | HP                               | 653A                     | 832-00260     | CHAR<br>3/1/01   | 3/1/02   |
| Frequency Counter                          | HP                               | 5382A                    | 1620A03535    | CHAR<br>3/2/01   | 3/2/02   |
| Frequency Counter                          | HP                               | 5385A                    | 3242A07460    | CHAR<br>12/11/01 | 12/11/02 |
| Preamplifier                               | HP                               | 8449B-H02                | 3008A00372    | CHAR<br>3/4/01   | 3/4/02   |
| Amplifier                                  | HP                               | 11975A                   | 2738A01969    | CHAR<br>3/1/01   | 3/1/02   |
| Egg Timer                                  | Unk                              |                          |               | CHAR<br>2/28/01  | 2/28/02  |
| Measuring Tape, 20M                        | Kraftixx                         | 0631-20                  |               | CHAR<br>2/28/01  | 2/28/02  |
| Measuring Tape, 7.5M                       | Kraftixx                         | 7.5M PROFI               |               | CHAR<br>2/28/01  | 2/28/02  |
| EMC Immunity Test System                   | Keytek                           | CEMASTER                 | 9810210       |                  |          |
| AC Power Source                            | California<br>Instruments        | 1251RP                   | L05865        |                  |          |

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

REPORT #: T:\C\CAMEM48\582UT2\Extra\582UT2TestReport.doc

|                       |                        |               |                |                 |         |
|-----------------------|------------------------|---------------|----------------|-----------------|---------|
| AC Power Source       | California Instruments | PACS-1        | X71484         |                 |         |
| Isotropic Field Probe | Amplifier Research     | FP5000        | 22839          |                 |         |
| Isotropic Field Probe | Amplifier Research     | FP5000        | 300103         |                 |         |
| Capacitor Clamp       | Keytek                 | CM-CCL        | 9811359        | No Cal Required |         |
| Amplifier             | Amplifier Research     | 10W1000B      | 23117          | No Cal Required |         |
| Field Monitor         | Amplifier Research     | FM5004        | 22288          | No Cal Required |         |
| ELF Meter             | F. W. Bell             | 4060          | Not serialized |                 |         |
| Coaxial Cable #51     | Insulated Wire Inc.    | NPS 2251-2880 | Timco #51      | CHAR 1/23/02    | 1/23/03 |
| Coaxial Cable #64     | Semflex Inc.           | 60637         | Timco #64      | CHAR 1/24/02    | 1/24/03 |
| Coaxial Cable #65     | General Cable Co.      | E9917 RG233/U | Timco #65      | CHAR 1/23/02    | 1/23/03 |
| Coaxial Cable #106    | Unknown                | Unknown       | Timco #106     | CHAR 1/23/02    | 1/23/03 |

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

REPORT #: T:\C\CAMEM48\582UT2\Extra\582UT2TestReport.doc

Page 4 of 13

## TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of TIMCO ENGINEERING, INC.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz. The ambient temperature of the UUT was 90°F with a humidity of 50%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

|            |                                        |
|------------|----------------------------------------|
| Freq (MHz) | METER READING + ACF = FS               |
| 33         | 20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m |

ANSI STANDARD C63.4-1992 10.1.7 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The UUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings were converted to average readings based on the duration of "ON" time.

Measurements were made by TIMCO ENGINEERING INC. at the registered open field test site located at 849 N.W. State Road 45, Newberry, FL 32669.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

NOTE: This transmitter will be sold as 2 models - a 4 button version And a 2 button version. The 4 button version was tested and the Transmitters are electronically identical except for the buttons.

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

NAME OF TEST: RADIATION INTERFERENCE

RULES PART NO.: 15.231

**REQUIREMENTS:**

| Fundamental<br>Frequency<br>MHz | Field Strength<br>of Fundamental<br>dBuV | Field Strength of<br>Harmonics and Spurious<br>Emissions (dBuV/m @ 3m) |
|---------------------------------|------------------------------------------|------------------------------------------------------------------------|
| 40.66 to 40.70                  | 67.04                                    | 47.04                                                                  |
| 70 to 130                       | 61.94                                    | 41.94                                                                  |
| 130 to 174                      | 61.94 to 71.48                           | 41.94 to 51.48                                                         |
| 174 to 260                      | 71.48                                    | 51.48                                                                  |
| 260 to 470                      | 71.48 to 81.94                           | 51.48 to 61.94                                                         |
| 470 and above                   | 81.94                                    | 61.94                                                                  |

THE LIMIT FOR AVERAGE FIELD STRENGTH dBuV/m FOR THE FUNDAMENTAL FREQUENCY= 80.82 dBuV/m. NO FUNDAMENTAL IS ALLOWED IN THE RESTRICTED BANDS.

THE LIMIT FOR AVERAGE FIELD STRENGTH dBuV/m FOR THE HARMONICS AND SPURIOUS FREQUENCIES = 60.82 dBuV/m. SPURIOUS IN THE RESTRICTED BANDS MUST BE LESS THAN 54dBuV/m OR 15.209.

**TEST DATA:**

| Emission<br>Frequency<br>MHz |    | Meter<br>Reading<br>dBuv | Ant.<br>Polarity | Coax<br>Loss<br>dB | Correction<br>Factor<br>dB | Duty<br>Cycle<br>Factor<br>dB | Field<br>Strength<br>dBuv/m | Margin<br>dB |
|------------------------------|----|--------------------------|------------------|--------------------|----------------------------|-------------------------------|-----------------------------|--------------|
| 433.90                       |    | 50.5                     | V                | 2.90               | 17.14                      | 14.90                         | 55.64                       | 25.18        |
| 433.90                       |    | 48.1                     | H                | 2.90               | 17.14                      | 14.90                         | 53.24                       | 27.58        |
| 433.90                       |    | 51.1                     | V                | 2.90               | 17.14                      | 14.90                         | 56.24                       | 24.58        |
| 433.90                       |    | 42.6                     | V                | 2.90               | 17.14                      | 14.90                         | 47.74                       | 33.08        |
| 433.90                       |    | 54.1                     | H                | 2.90               | 17.14                      | 14.90                         | 59.24                       | 21.58        |
| 433.90                       |    | 55.9                     | H                | 2.90               | 17.14                      | 14.90                         | 61.04                       | 19.78        |
| 867.80                       |    | 15.3                     | H                | 4.14               | 22.62                      | 14.90                         | 27.16                       | 33.67        |
| 867.80                       |    | 11.4                     | V                | 4.14               | 22.62                      | 14.90                         | 23.26                       | 37.57        |
| 867.80                       |    | 13.0                     | V                | 4.14               | 22.62                      | 14.90                         | 24.86                       | 35.97        |
| 867.80                       |    | 12.1                     | H                | 4.14               | 22.62                      | 14.90                         | 23.96                       | 36.87        |
| 867.80                       |    | 14.9                     | V                | 4.14               | 22.62                      | 14.90                         | 26.76                       | 34.07        |
| 867.80                       |    | 6.7                      | H                | 4.14               | 22.62                      | 14.90                         | 18.56                       | 42.27        |
| 1,301.70                     | ** | 24.9                     | H                | 2.27               | 26.53                      | 14.90                         | 38.80                       | 15.20        |
| 1,301.70                     | ** | 22.3                     | V                | 2.27               | 26.53                      | 14.90                         | 36.20                       | 17.80        |
| 1,301.70                     | ** | 25.5                     | V                | 2.27               | 26.53                      | 14.90                         | 39.40                       | 14.60        |
| 1,301.70                     | ** | 16.3                     | H                | 2.27               | 26.53                      | 14.90                         | 30.20                       | 23.80        |
| 1,301.70                     | ** | 19.1                     | H                | 2.27               | 26.53                      | 14.90                         | 33.00                       | 21.00        |
| 1,301.70                     | ** | 22.3                     | V                | 2.27               | 26.53                      | 14.90                         | 36.20                       | 17.80        |

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

REPORT #: T:\C\CAMEM48\582UT2\Extra\582UT2TestReport.doc

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

NAME OF TEST: RADIATION INTERFERENCE

**TEST DATA CONTINUED :**

| Emission<br>Frequency<br>MHz | Meter<br>Reading<br>dBuV | Ant.<br>Polarity | Coax<br>Loss<br>dB | Correction<br>Factor<br>dB | Duty<br>Cycle<br>Factor<br>dB | Field<br>Strength<br>dBuV/m | Margin<br>dB |
|------------------------------|--------------------------|------------------|--------------------|----------------------------|-------------------------------|-----------------------------|--------------|
| 1,735.60                     | 15.1                     | H                | 2.72               | 28.36                      | 14.90                         | 31.28                       | 29.54        |
| 1,735.60                     | 18.2                     | H                | 2.72               | 28.36                      | 14.90                         | 34.38                       | 26.44        |
| 1,735.60                     | 14.1                     | H                | 2.72               | 28.36                      | 14.90                         | 30.28                       | 30.54        |
| 1,735.60                     | 17.1                     | V                | 2.72               | 28.36                      | 14.90                         | 33.28                       | 27.54        |
| 1,735.60                     | 17.1                     | V                | 2.72               | 28.36                      | 14.90                         | 33.28                       | 27.54        |
| 1,735.60                     | 16.4                     | V                | 2.72               | 28.36                      | 14.90                         | 32.58                       | 28.24        |
| 2,169.60                     | 19.0                     | V                | 3.14               | 28.70                      | 14.90                         | 35.94                       | 24.89        |
| 2,169.60                     | 12.9                     | H                | 3.14               | 28.70                      | 14.90                         | 29.84                       | 30.99        |
| 2,169.60                     | 10.4                     | H                | 3.14               | 28.70                      | 14.90                         | 27.34                       | 33.49        |
| 2,169.60                     | 16.9                     | H                | 3.14               | 28.70                      | 14.90                         | 33.84                       | 26.99        |
| 2,169.60                     | 22.1                     | V                | 3.14               | 28.70                      | 14.90                         | 39.04                       | 21.79        |
| 2,169.60                     | 18.6                     | V                | 3.14               | 28.70                      | 14.90                         | 35.54                       | 25.29        |
| 2,603.50                     | 15.1                     | V                | 3.48               | 29.35                      | 14.90                         | 33.03                       | 27.79        |
| 2,603.50                     | 6.9                      | H                | 3.48               | 29.35                      | 14.90                         | 24.83                       | 35.99        |
| 2,603.50                     | 7.7                      | H                | 3.48               | 29.35                      | 14.90                         | 25.63                       | 35.19        |
| 2,603.50                     | 11.3                     | H                | 3.48               | 29.35                      | 14.90                         | 29.23                       | 31.59        |
| 2,603.50                     | 13.8                     | V                | 3.48               | 29.35                      | 14.90                         | 31.73                       | 29.09        |
| 2,603.50                     | 14.5                     | V                | 3.48               | 29.35                      | 14.90                         | 32.43                       | 28.39        |
| 3,037.40                     | 5.4                      | V                | 3.84               | 30.80                      | 14.90                         | 25.14                       | 35.69        |
| 3,037.40                     | 6.3                      | V                | 3.84               | 30.80                      | 14.90                         | 26.04                       | 34.79        |
| 3,037.40                     | 7.0                      | V                | 3.84               | 30.80                      | 14.90                         | 26.74                       | 34.09        |
| 3,037.40                     | 5.7                      | H                | 3.84               | 30.80                      | 14.90                         | 25.44                       | 35.39        |
| 3,037.40                     | 5.7                      | H                | 3.84               | 30.80                      | 14.90                         | 25.44                       | 35.39        |
| 3,037.40                     | 6.5                      | H                | 3.84               | 30.80                      | 14.90                         | 26.24                       | 34.59        |

**SAMPLE CALCULATION OF LIMIT @ 303 MHz:**

(470 - 260)Mhz = 210 MHz

(12500 - 3750)uV/m = 8750 uV/m

8750uV/m/210MHz = 41.67 uV/m/MHz

(303-260)MHz = 43 MHz

43 MHz \* 41.67 uV/m/MHz = 1791.81 uV/m

(1791.81 + 3750)uV/m = 5541.81 uV/m limit @ 303 MHz

The transmitter ceases transmitting when the button is released.

TEST RESULTS: The unit DOES meet the FCC requirements.

PERFORMED BY: JOSEPH SCOGLIO

DATE TESTED: JULY 26, 2002

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

REPORT #: T:\C\CAMEM48\582UT2\Extra\582UT2TestReport.doc

APPLICANT: CAME S.P.A.

FCC ID: M48432SA

#### CALCULATION OF DUTY CYCLE:

The period of the pulse train is determined by observing it on an oscilloscope or a spectrum analyzer with zero(0) frequency span. A plot is then made of the pulse train with a sweep time of 100milliseconds. This sweep determines the duration of the pulse train, which in this case is milliseconds. This sweep allows the determination of the number of and type of pulses, i.e. long & short. Plots are then made showing the duration of each type of pulse and its duration. From the 100millisecond Plot the number of a given type of pulse is then multiplied by the duration of that type pulse. This allows the calculation of the amount of time the UUT is on within 100milliseconds. If the pulse train is longer than 100milliseconds then this number is multiplied by 100 to determine the percentage ON TIME. If the pulse train is less than 100milliseconds the total on-time is divided by the length of the pulse train and then multiplied by 100 to determine the percentage ON TIME. In this case there were 8 short pulses 250 microseconds long and 5 long pulses 600 microseconds long for a total of 27.8 milliseconds on time within either the 100milliseconds or the pulse train. The average field strength is determined by multiplying the peak field strength by the percent on time. In this case the percentage ON time was 27.8% percent.

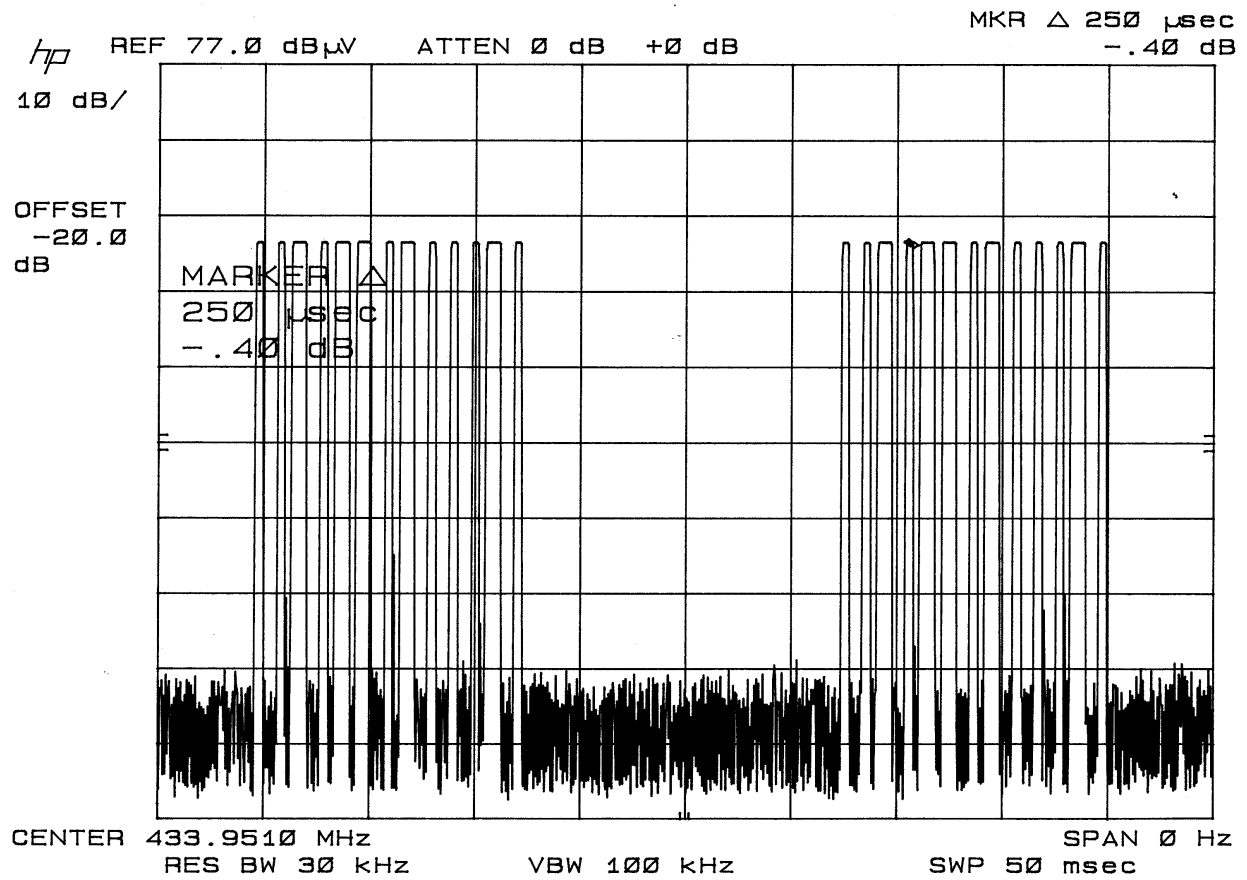
APPLICANT: CAME S.P.A.

FCC ID: M48432SA

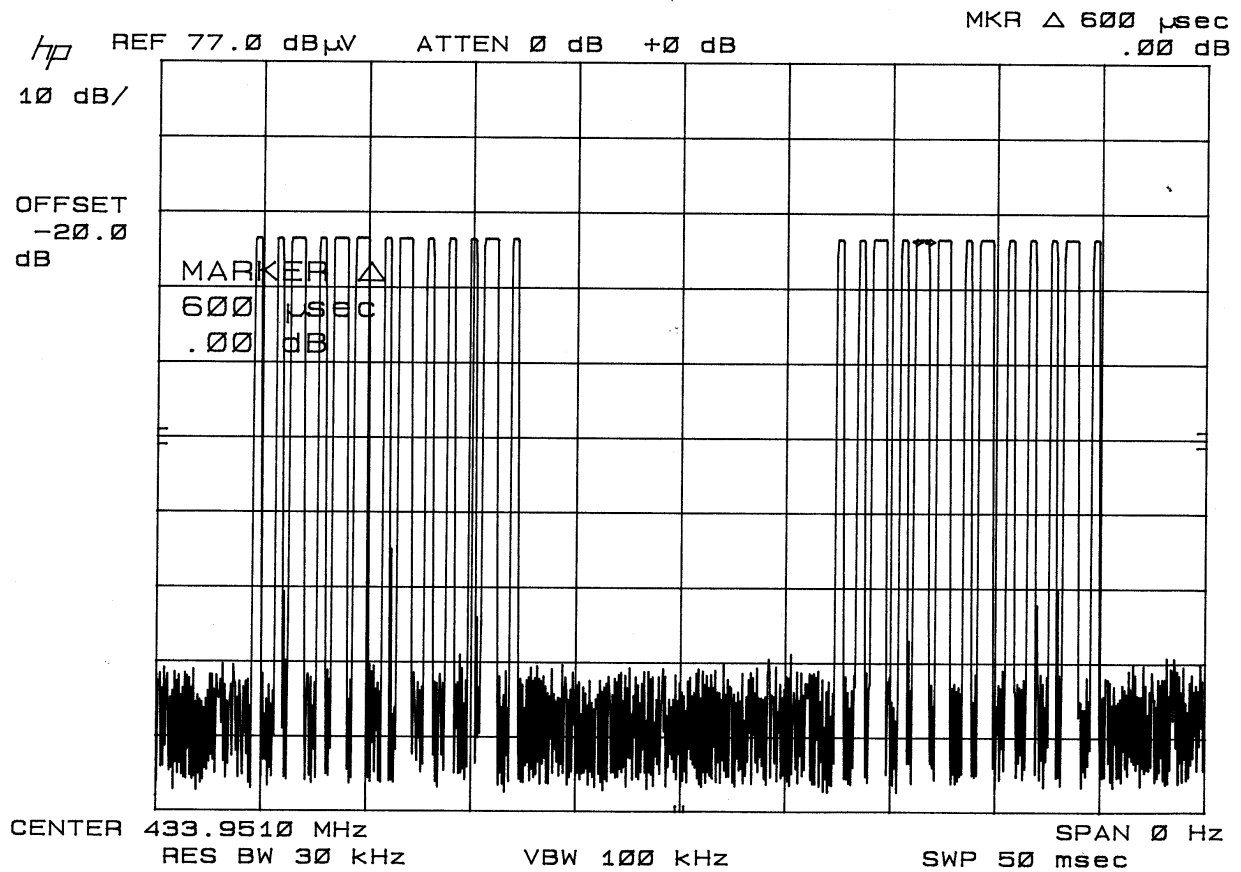
REPORT #: T:\C\CAMEM48\582UT2\Extra\582UT2TestReport.doc

Page 8 of 13

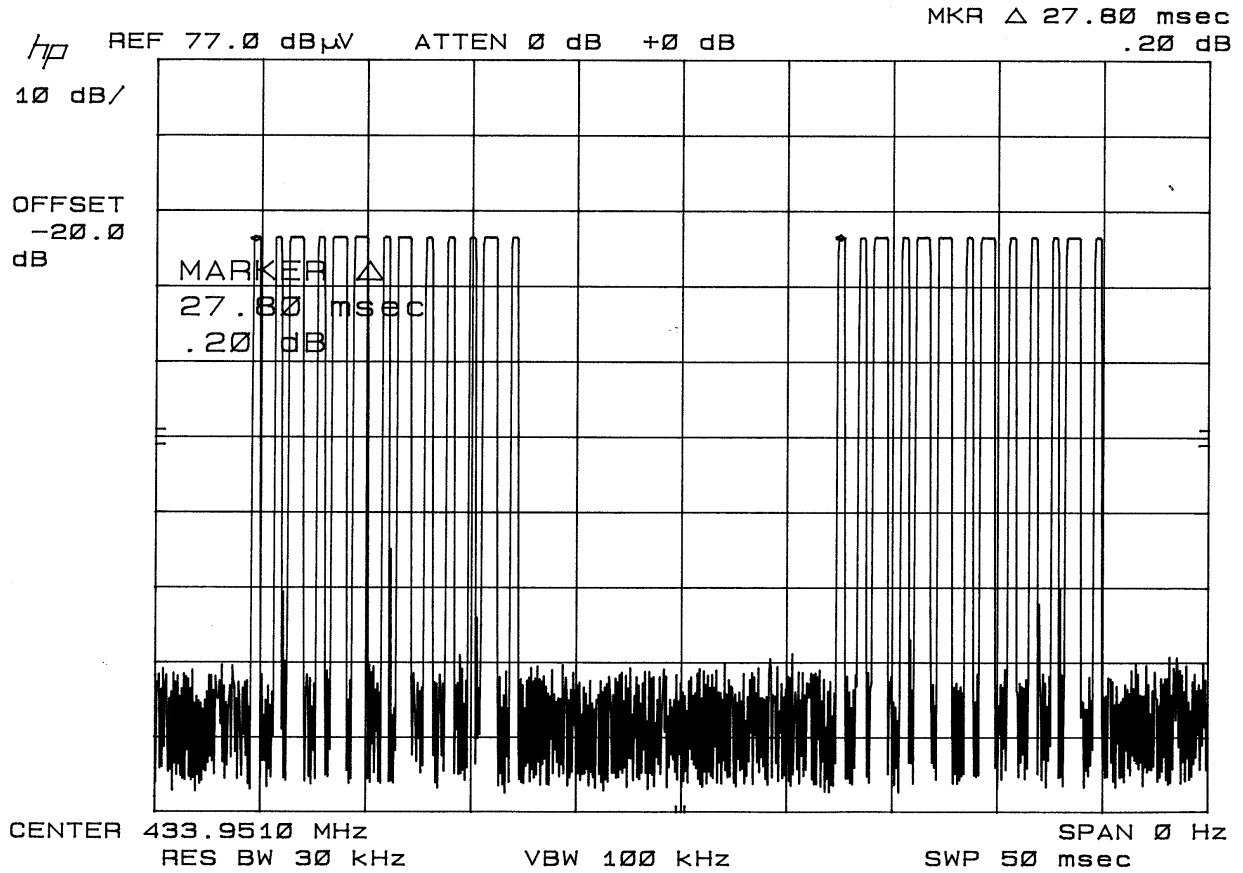
# DUTY CYCLE PLOT - SHORT PULSES



# DUTY CYCLE PLOT - LONG PULSES



# DUTY CYCLE PLOT - COMPLETE PULSE TRAIN



APPLICANT: CAME S.P.A.

FCC ID: M48432SA

NAME OF TEST: Occupied Bandwidth

RULES PART NO.: 15.231(C)

REQUIREMENTS: The bandwidth of the emission shall be no wider than .25% of the center frequency for devices operating between 70 and 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

$$433.90 \text{ MHz} * .0025 = 1.08475 \text{ MHz}$$
$$1.08475 \text{ MHz} / 2 = +/- 542.375 \text{ kHz}$$

THE GRAPH ON THE FOLLOWING PAGE REPRESENTS THE EMISSIONS TAKEN FOR THE DEVICE.

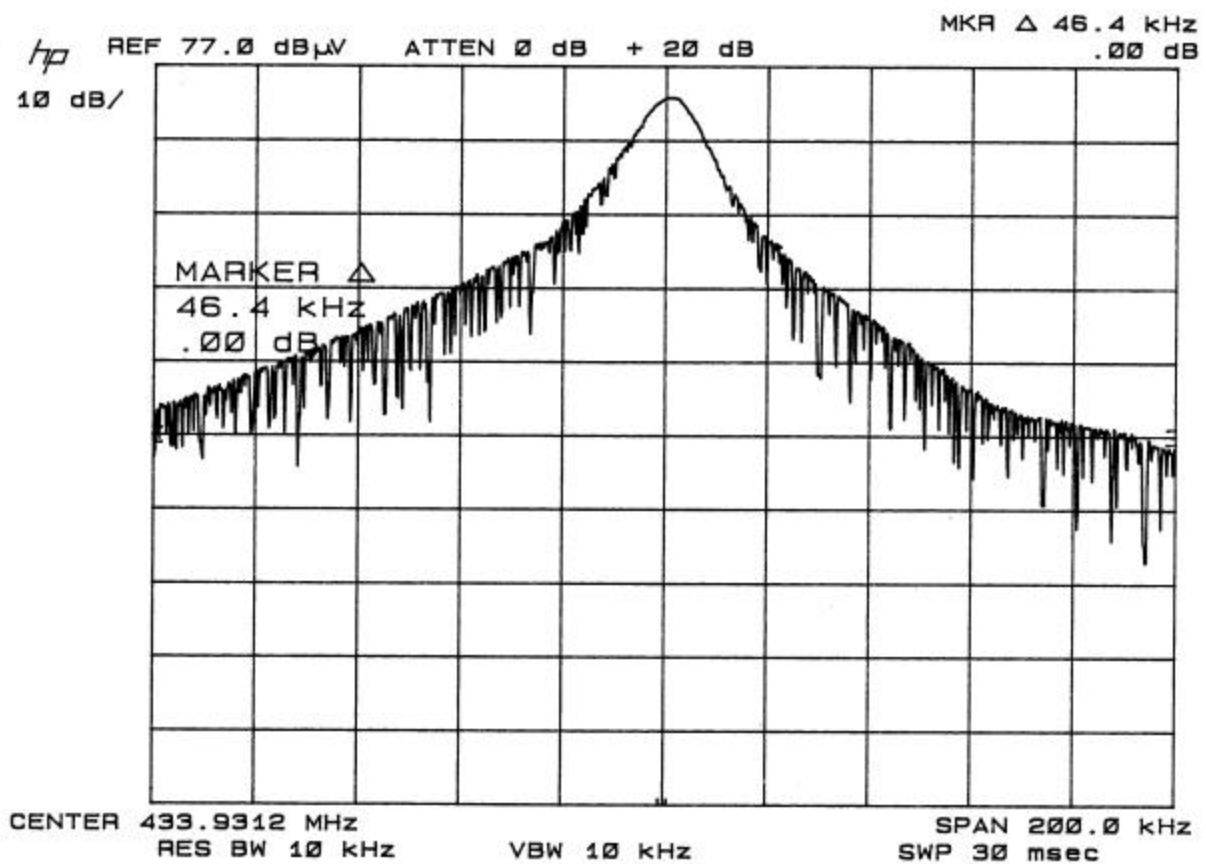
METHOD OF MEASUREMENT: A small sample of the transmitter output was fed into the spectrum analyzer and the plot in exhibit 9 was generated. The vertical scale is set to 10 dB per division: the horizontal scale is set to 20 kHz per division.

TEST RESULTS: The unit meets the FCC requirements.

PERFORMED BY: JOSEPH SCOGLIO

DATE: JULY 26, 2002

# OCCUPIED BANDWIDTH PLOT



THE BANDWIDTH IS 46.4 kHz