



**Ultratech's
Accreditations:**



0685



C-1376



SL2-IN-E-1119R

Korea MIC-RRL
2005-82 & 83

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Oakville, Ontario,
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June 20, 2008

Comprod Communications
3405 North Benzing Road
Orchard Park, NY 14127
U.S.A.

Attn.: Mr. Jesse Roberts

**Subject: Verification Testing in accordance with FCC CFR 47, Part 15,
Subpart B - Class A Unintentional Radiators and Radio Receivers.**

Product: VHF Signal Booster Class B
Model: 08US1008

Dear Mr. Roberts,

The product sample has been tested and found to comply with **FCC CFR 47, Part 15, Subpart B - Class A Unintentional Radiators and Radio Receivers**, with the following modifications:

The Schaffner EMI filter, Part No.: FN2060-1-06, was installed at the AC mains of the UPS.

The results and observation were recorded in the engineering report, Our File No.: CMPR-002F15B

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Enclosed you will find copies of the engineering report. If you have any queries, please do not hesitate to contact us.

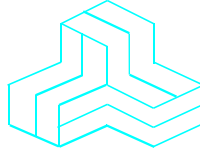
Yours truly,



Tri Minh Luu, P.Eng
Vice President - Engineering

Encl.

CERTIFICATE OF COMPLIANCE



Comprod Communications
6370 Nancy Ridge Drive, Suite 109
San Diego, CA
USA 92121-3212

Our File No.: CMPR-002F15B
June 20, 2008

NOT TRANSFERABLE

This Verification Certificate is hereby issued to the named GRANTEE and is VALID ONLY for the equipment identified hereon for use under the rules and regulations listed below:

GRANTEE'S NAME: Comprod Communications
EQUIPMENT TYPE/ENVIRONMENT: Radio Receivers
TRADE NAME / MODEL NO.: VHF Signal Booster Class B, Model 08US1008

STANDARD(S) TO WHICH COMPLIANCE IS MET: FCC Part 15, Subpart B, Sections:

- FCC 15.111 - Receiver Antenna Power Conducted Emissions
- FCC 15.107(a) - Powerline Conducted Emissions
- FCC 15.109(a) - Radiated Emissions

Note(s): See attached report, UltraTech's File No.: CMPR-002F15B, dated June 20, 2008 for details and conditions of Verification Compliance.



Approved by: Tri M. Luu, P.Eng.
V.P. – Engineering

UltraTech

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31040/SIT



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46390-2049



200093-0

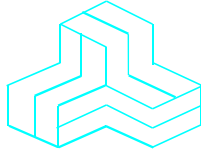


SL2-IN-E-1119R



2005-82 & 83

ENGINEERING TEST REPORT



VHF Signal Booster Class B Model No.: 08US1008

Applicant: Comprod Communications
3405 North Benzing Road
Orchard Park, NY 14127
U.S.A.

Tested in Accordance With

**Federal Communications Commission (FCC)
CFR 47, Part 15, Subpart B
Class A Unintentional Radiators & Radio Receivers**

UltraTech's File No.: CMPR-002F15B

This Test report is Issued under the Authority of
Tri M. Luu, Professional Engineer,
Vice President of Engineering
UltraTech Group of Labs



Date: June 20, 2008

Report Prepared by: Dharmajit Solanki

Tested by: Hung Trinh, RFI Technician

Issued Date: June 20, 2008

Test Dates: June 17 - 19, 2008

- *The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.*
- *This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government.*

UltraTech

3000 Bristol Circle, Oakville, Ontario, Canada, L6H 6G4
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C-1376



46390-2049



200093-0



SL2-IN-E-1119R

**Korea
MIC-RRL
2005-82 & 83**

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EXHIBIT 1. INTRODUCTION

1.1. SCOPE

| | |
|--------------------------------------|--|
| Reference: | FCC Part 15, Subpart B, Sections 15.107, 15.109 & 15.111 |
| Title | Telecommunication - Code of Federal Regulations, CFR 47, Part 15 |
| Purpose of Test: | To gain FCC Verification Authorization for Radio Receivers and Class A Unintentional Radiators. |
| Test Procedures | Both conducted and radiated emissions measurements were conducted in accordance with American National Standards Institute ANSI C63.4 - American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz. |
| Environmental Classification: | <ul style="list-style-type: none"> • Light-industry, Commercial • Industry |

1.2. RELATED SUBMITTAL(S)/GRANT(S)

None

1.3. NORMATIVE REFERENCES

| Publication | Year | Title |
|-----------------------|--------------|---|
| FCC CFR Parts 0-15 | 2007 | Code of Federal Regulations – Telecommunication |
| ANSI C63.4 | 2003 | American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz |
| CISPR 22 EN 55022 | 2006 2006 | Limits and Methods of Measurements of Radio Disturbance Characteristics of Information Technology Equipment |
| CISPR 16-1-1 | 2004 | Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-1: Measuring Apparatus |
| CISPR 16-2-1 | 2004 | Specification for radio disturbance and immunity measuring apparatus and methods. Part 2-1: Conducted disturbance measurement |
| CISPR 16-2-3 | 2004 | Specification for radio disturbance and immunity measuring apparatus and methods. Part 2-3: Radiated disturbance measurement |

EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT INFORMATION

| APPLICANT | |
|------------------------|--|
| Name: | Comprod Communications |
| Address: | 3405 North Benzing Road Orchard Park, NY 14127 USA |
| Contact Person: | Mr. Jesse Roberts Phone #: 716-825-2007 Fax #: 716-825-4030 Email Address: Jesseroberts@comprodcom.com |

| MANUFACTURER | |
|------------------------|--|
| Name: | Comprod Communications |
| Address: | 3405 North Benzing Road Orchard Park, NY 14127 USA |
| Contact Person: | Mr. Jesse Roberts Phone #: 716-825-2007 Fax #: 716-825-4030 Email Address: Jesseroberts@comprodcom.com |

2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

| | |
|---|---|
| Brand Name: | Comprod Communications |
| Product Name: | VHF Signal Booster Class B |
| Model Name or Number: | 08US1008 |
| Type of Equipment: | Zone Enhancers for the Land Mobile Service |
| Power Supply: | 100-240 V, 50 / 60 Hz |
| Transmitting/Receiving Antenna Type: | Non-Integral |
| Application of EUT | Extends RF coverage area of radio communications indoor/outdoor environments. |

2.3. EUT'S TECHNICAL SPECIFICATIONS

| RECEIVER | |
|--|---|
| Equipment Type: | Base station (fixed use) |
| Intended Operating Environment: | Commercial, Light Industry & Heavy Industry |
| Power Supply Requirement: | 100-240 V, 50/60 Hz |
| RF Input Power Rating: | <ul style="list-style-type: none"> o Single input: -53 dBm to -12.9 dBm (Minimum to Maximum) o 2 inputs: Automatic gain controlled to ensure 28.0 dBm output per channel o 3 inputs: Automatic gain controlled to ensure 26.3 dBm output per channel |
| Operating Frequency Range: | <ul style="list-style-type: none"> • 138 – 174 MHz |

2.4. LIST OF EUT'S PORTS

| Port Number | EUT's Port Description | Number of Identical Ports | Connector Type | Cable Type (Shielded/Non-shielded) |
|-------------|-------------------------------|---------------------------|-------------------|------------------------------------|
| 1 | AC Power Input | 1 | 3-prong male plug | Non-shielded |
| 2 | Low Frequency RF Input Port | 1 | N-type Female | Shielded |
| 3 | High Frequency RF Input Port | 1 | N-type Female | Shielded |
| 4 | Low Frequency RF Output Port | 1 | N-type Female | Shielded |
| 5 | High Frequency RF Output Port | 1 | N-type Female | Shielded |

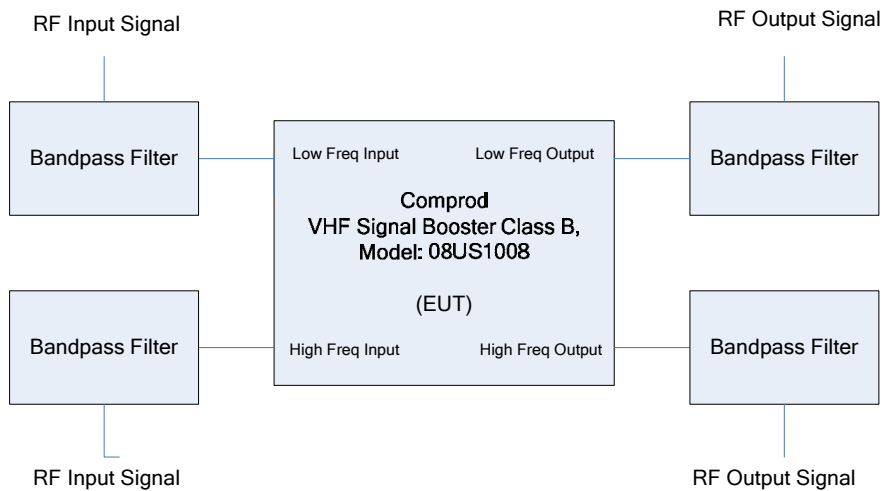
2.5. ASSOCIATED EQUIPMENT

Procom Bandpass Filters with the 20 dB bandwidth of 3.5 MHz.

2.6. ANCILLARY EQUIPMENT

N/A

2.7. DRAWING OF TEST SETUP



2.8. PHOTOGRAPHS OF TEST SETUP FOR AC CONDUCTED EMISSION MEASUREMENTS

Photo #1:



Photo #2:



2.9. PHOTOGRAPHS OF TEST SETUP FOR RADIATED EMISSION MEASUREMENTS

Photo #3:



Photo #4:



EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS

3.1. CLIMATE TEST CONDITIONS

The climate conditions of the test environment are as follows:

| | |
|---------------------|--------------|
| Temperature: | 22°C |
| Humidity: | 54% |
| Pressure: | 100 kPa |
| Power input source: | 120 V, 60 Hz |

3.2. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TEST SIGNALS

The device under test was operated in receiving mode at lowest, middle and highest frequencies of the receiver's band.

EXHIBIT 4. SUMMARY OF TEST RESULTS

4.1. LOCATION OF TESTS

All of the measurements described in this report were performed at Ultratech Group of Labs located in the city of Oakville, Province of Ontario, Canada.

- AC Powerline Conducted Emissions were performed in UltraTech's shielded room, 16'(L) by 12'(W) by 12'(H).
- Radiated Emissions were performed at the Ultratech's 3-10 TDK Semi-Anechoic Chamber situated in the Town of Oakville, province of Ontario. This test site been calibrated in accordance with ANSI C63.4, and found to be in compliance with the requirements of Sec. 2.948 of the FCC Rules. The descriptions and site measurement data of the Oakville 3-10 TDK Semi-Anechoic Chamber has been filed with FCC office (FCC File No.: 31040/SIT 1300B3) and Industry Canada office (Industry Canada File No.: IC2049-1). Last Date of Site Calibration: May 17, 2007.

4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS

| FCC PART 15, SUBPART B | TEST REQUIREMENTS | COMPLIANCE (YES/NO) |
|------------------------|--|---------------------|
| 15.107(a), Class A | AC Power Line Conducted Emissions Measurements | Yes |
| 15.111(a) | Receiver Antenna Power Conducted Emissions for Non-Integral Antenna Port | Yes |
| 15.109(a) | Radiated emissions from Radio Receivers | Yes |

4.3. MODIFICATIONS REQUIRED FOR COMPLIANCE

The product sample has been tested and found to comply with **FCC CFR 47, Part 15, Subpart B - Class A Unintentional Radiators and Radio Receivers**, with the following modifications:

The Schaffner EMI filter, Part No.: FN2060-1-06, was installed at the AC mains of the UPS.

EXHIBIT 5. MEASUREMENTS, EXAMINATIONS & TEST DATA FOR EMC EMISSIONS

5.1. TEST PROCEDURES

Please refer to Ultratech Test Procedures, File# ULTR-P001-2004, ANSI C63.4, CISPR 22 / EN 55022, CISPR 16-1-2 and CISPR 16-2-3 for Test Procedures.

5.2. MEASUREMENT UNCERTAINTIES

The measurement uncertainties stated were calculated in accordance with requirements of UKAS Document LAB 34 with a confidence level of 95%. Please refer to Exhibit 6 for Measurement Uncertainties.

5.3. MEASUREMENT EQUIPMENT USED

The measurement equipment used complied with the requirements of the Standards referenced in the Methods & Procedures ANSI C63.4 and CIPSR 16-1-1.

5.4. AC POWERLINE CONDUCTED EMISSIONS @ FCC PART 15, SUBPART B, PARA.15.107(A)

5.4.1. Limits

The equipment shall meet the limits of the following table:

| Test Frequency Range (MHz) | CLASS A LIMITS | | Measuring Bandwidth |
|----------------------------|-------------------|-----------------|---|
| | Quasi-Peak (dBµV) | Average* (dBµV) | |
| 0.15 to 0.5 | 66 to 56* | 56 to 46* | RBW = 9 kHz VBW ≥ 9 kHz for QP VBW = 1 Hz for Average |
| 0.5 to 5 | 56 | 46 | RBW = 9 kHz VBW ≥ 9 kHz for QP VBW = 1 Hz for Average |
| 5 to 30 | 60 | 50 | RBW = 9 kHz VBW ≥ 9 kHz for QP VBW = 1 Hz for Average |

* Decreasing linearly with logarithm of frequency

5.4.2. Method of Measurements

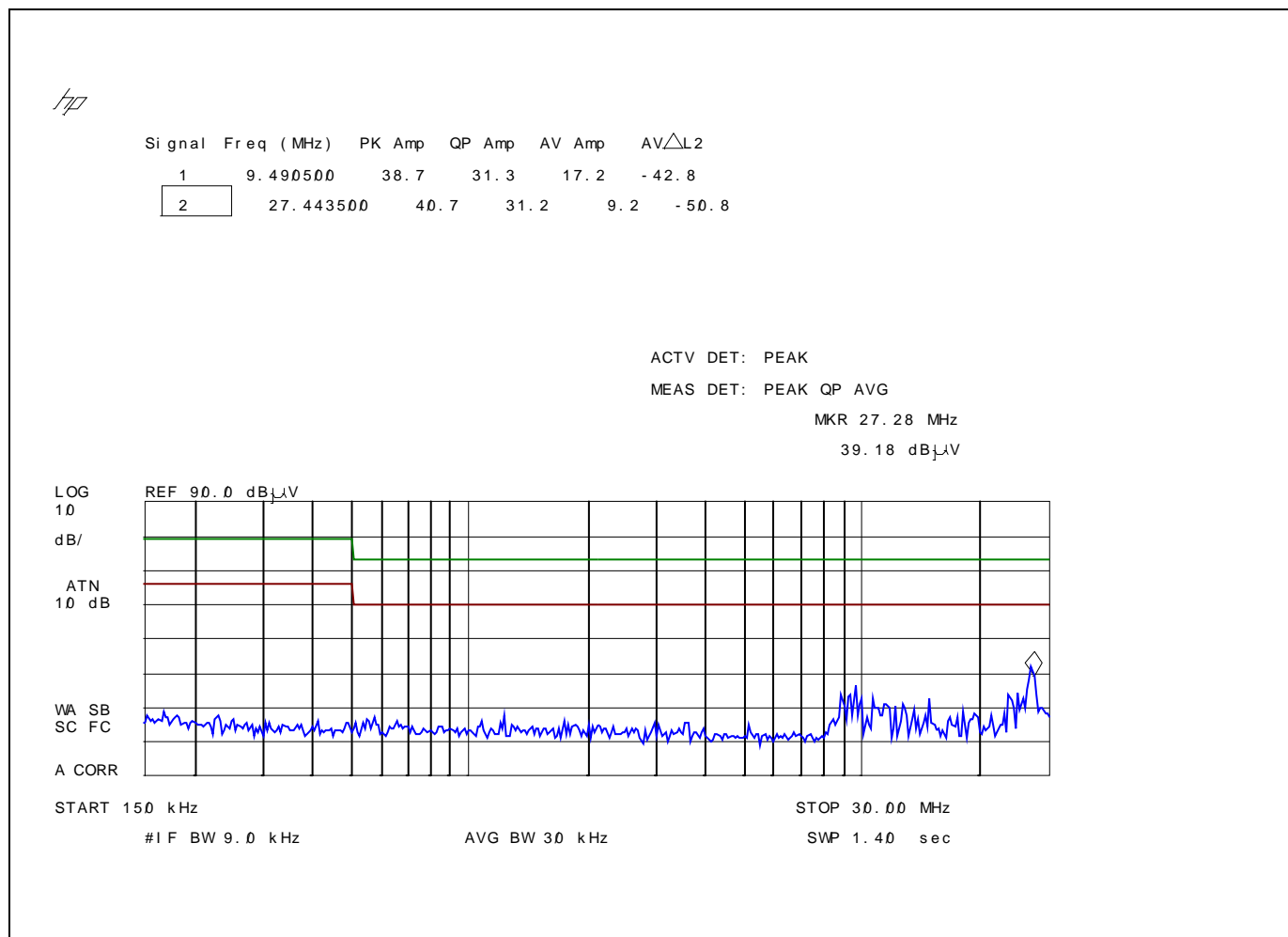
Refer to Ultratech Test Procedures ULTR-P001-2004 & ANSI C63.4 for method of measurements.

5.4.3. Test Equipment List

| Test Instruments | Manufacturer | Model No. | Serial No. | Frequency Range |
|---|-----------------|-----------|------------|--------------------------------------|
| EMI Receiver System/Spectrum Analyzer with built-in Amplifier | Hewlett Packard | HP 8546A | 3520A00248 | 9KHz-5.6GHz, 50 Ohms |
| Transient Limiter | Hewlett Packard | 11947A | .. | 9 kHz – 200 MHz 10 dB attenuation |
| L.I.S.N. | EMCO | 3825/2 | ... | 9 kHz – 200 MHz 50 Ohms / 50 µH |
| 12'x16'x12' RF Shielded Chamber | RF Shielding | ... | .. | ... |

5.4.4. Test Data

| Plot #1: AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT PLOT | | | |
|--|---|---------------|------------------------|
| Detector: <input checked="" type="checkbox"/> PEAK <input checked="" type="checkbox"/> QUASI-PEAK <input type="checkbox"/> AVERAGE | | Temp: 22°C | Humidity:22% |
| Line Tested: L1 | Line Voltage :120VAC | Test Tech:Wei | Test Date: Jun 17 2008 |
| Standard : FCC Part 15 Class A | Comments: AC input OFF. UPS Power ON Amplifier On. Filter Schaffner FN2060-1-06 | | |

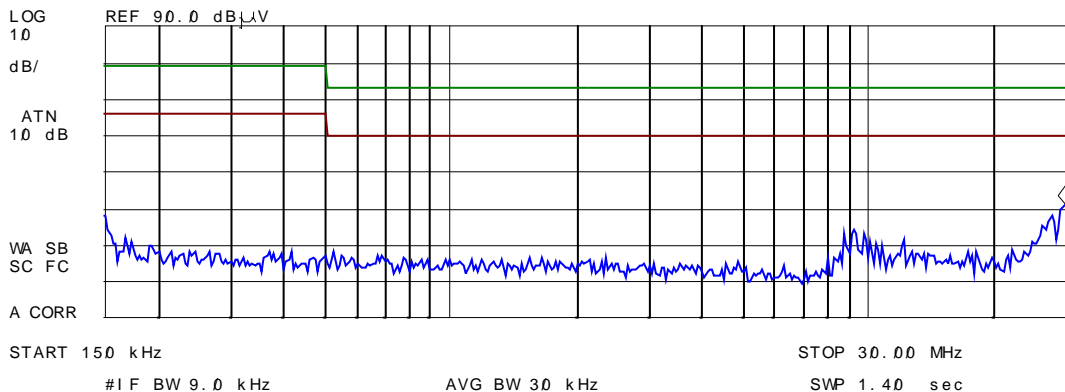


| Plot #2: AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT PLOT | | | |
|---|---|---------------|------------------------|
| Detector: <input checked="" type="checkbox"/> PEAK <input checked="" type="checkbox"/> QUASI-PEAK <input checked="" type="checkbox"/> AVERAGE | | Temp: 22°C | Humidity:22% |
| Line Tested: L1 | Line Voltage :120VAC | Test Tech:Wei | Test Date: Jun 17 2008 |
| Standard : FCC Part 15 Class A | Comments: UPS Power OFF Amplifier off. Filter Schaffner FN2060-1-06 | | |

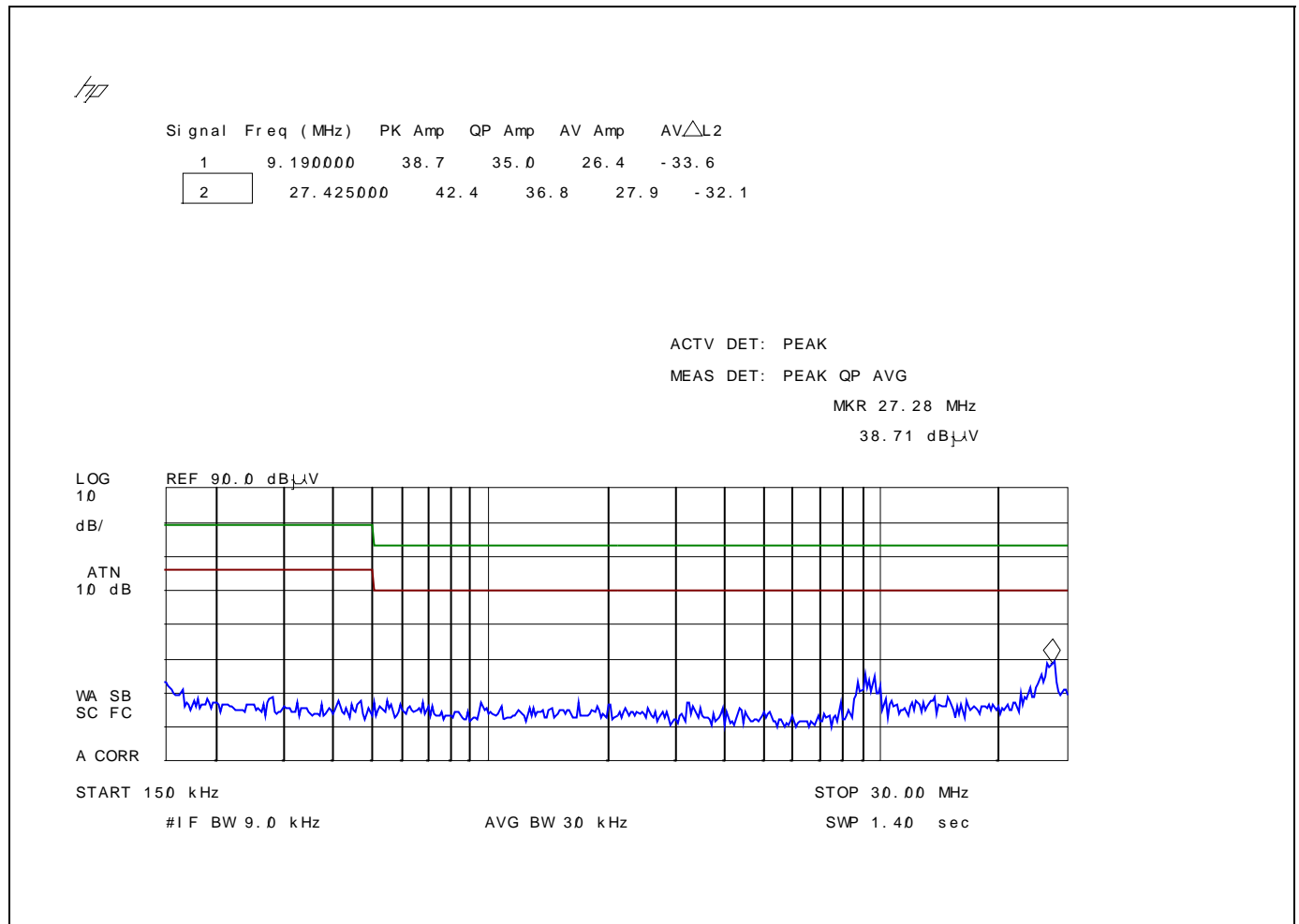
W

| Signal | Freq (MHz) | PK Amp | QP Amp | AV Amp | AV Δ L2 |
|--------|------------|--------|--------|--------|----------------|
| 1 | 0.150000 | 41.7 | 39.2 | 35.8 | -30.2 |
| 2 | 9.241625 | 38.8 | 35.5 | 26.1 | -33.9 |
| 3 | 29.934548 | 42.9 | 38.4 | 28.3 | -31.7 |

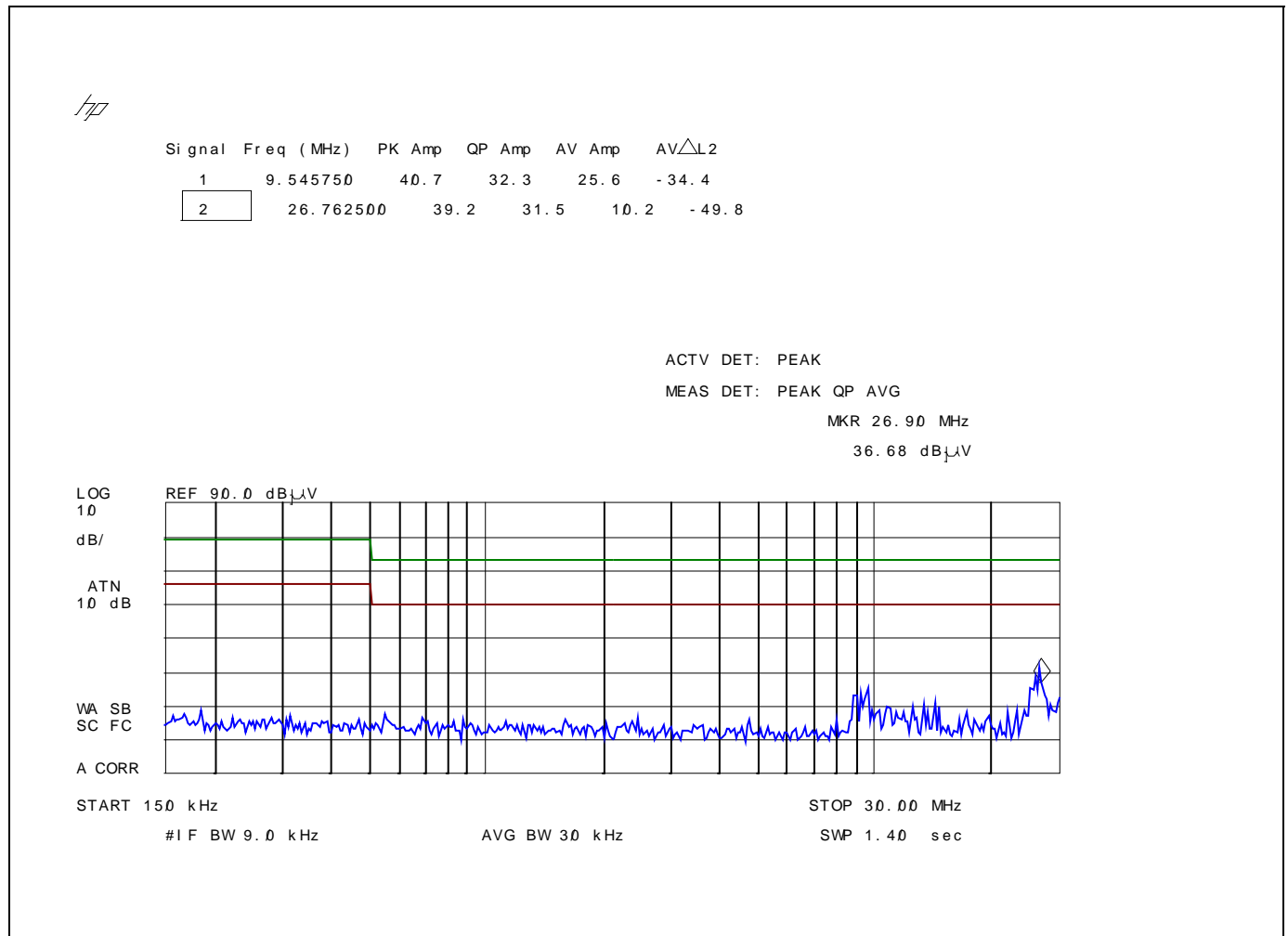
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 30.00 MHz
39.87 dB μ V



| | | | |
|---|---|---------------|------------------------|
| Plot #3: AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT PLOT | | | |
| Detector: <input checked="" type="checkbox"/> PEAK <input checked="" type="checkbox"/> QUASI-PEAK <input checked="" type="checkbox"/> AVERAGE | | Temp: 22°C | Humidity:22% |
| Line Tested: L1 | Line Voltage :120VAC | Test Tech:Wei | Test Date: Jun 17 2008 |
| Standard : FCC Part 15 Class A | Comments: UPS Power ON Amplifier ON. Filter Schaffner FN2060-1-06 | | |



| | | | |
|---|---|---------------|------------------------|
| Plot #4: AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT PLOT | | | |
| Detector: <input checked="" type="checkbox"/> PEAK <input checked="" type="checkbox"/> QUASI-PEAK <input checked="" type="checkbox"/> AVERAGE | | Temp: 22°C | Humidity:22% |
| Line Tested: L2 | Line Voltage :120VAC | Test Tech:Wei | Test Date: Jun 17 2008 |
| Standard : FCC Part 15 Class A | Comments: AC input OFF. UPS Power ON Amplifier On. Filter Schaffner FN2060-1-06 | | |

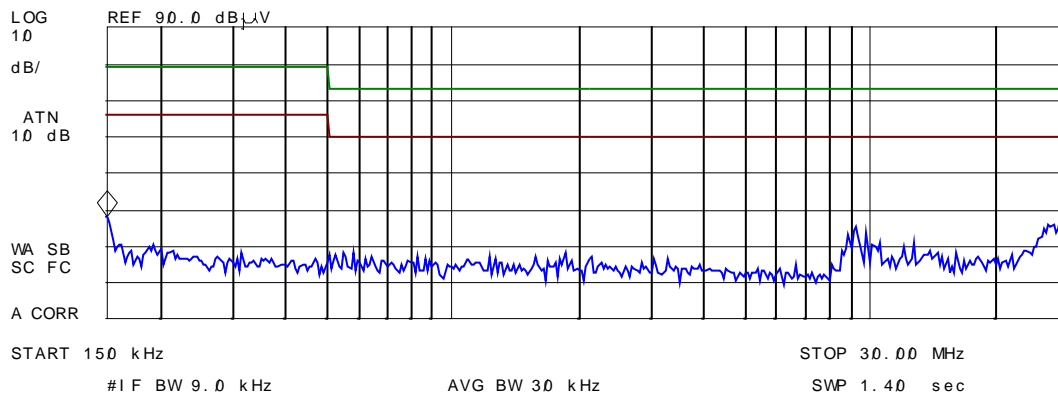


| | | | |
|---|---|---------------|------------------------|
| Plot #5: AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT PLOT | | | |
| Detector: <input checked="" type="checkbox"/> PEAK <input checked="" type="checkbox"/> QUASI-PEAK <input checked="" type="checkbox"/> AVERAGE | | Temp: 22°C | Humidity:22% |
| Line Tested: L2 | Line Voltage :120VAC | Test Tech:Wei | Test Date: Jun 17 2008 |
| Standard : FCC Part 15 Class A | Comments: UPS Power OFF Amplifier off. Filter Schaffner FN2060-1-06 | | |

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| Signal | Freq (MHz) | PK Amp | QP Amp | AV Amp | AV Δ L2 |
|--------|------------|--------|--------|--------|----------------|
| 1 | 0.150000 | 41.5 | 39.2 | 35.8 | -30.2 |
| 2 | 9.246000 | 38.8 | 35.5 | 26.8 | -33.2 |
| 3 | 29.803000 | 42.9 | 38.2 | 27.7 | -32.3 |

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 150 kHz
38.12 dB μ V

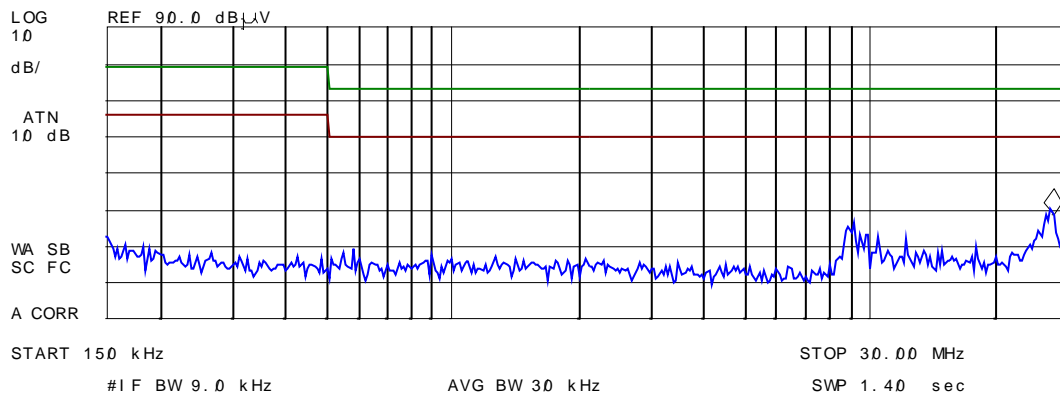


| | | | |
|---|---|---------------|------------------------|
| Plot #6: AC POWER LINE CONDUCTED EMISSIONS MEASUREMENT PLOT | | | |
| Detector: <input checked="" type="checkbox"/> PEAK <input checked="" type="checkbox"/> QUASI-PEAK <input checked="" type="checkbox"/> AVERAGE | | Temp: 22°C | Humidity:22% |
| Line Tested: L2 | Line Voltage :120VAC | Test Tech:Wei | Test Date: Jun 17 2008 |
| Standard : FCC Part 15 Class A | Comments: UPS Power ON Amplifier ON. Filter Schaffner FN2060-1-06 | | |

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| Signal | Freq (MHz) | PK Amp | QP Amp | AV Amp | AV Δ L2 |
|--------|------------|--------|--------|--------|----------------|
| 1 | 9.035000 | 38.7 | 33.6 | 24.4 | -35.6 |
| 2 | 27.167500 | 40.8 | 35.8 | 27.5 | -32.5 |

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 27.28 MHz
38.42 dB μ V



5.5. RECEIVER ANTENNA POWER SPURIOUS/HARMONIC CONDUCTED EMISSIONS @ FCC 15.111(A)

5.5.1. Limits

Receivers that operate (tune) in the frequency range 30 to 960 MHz and CB receivers that provides terminals for the connection of an external antenna may be tested to demonstrate compliance with the provisions of @ 15.109 with the antenna terminals shielded and terminated with a resistive termination equal to the impedance specified for the antenna, provided these receivers also comply with the following:- *With the receiver antenna terminal connected to a resistive termination equal to the impedance specified or employed for the antenna, the power at the antenna terminal at frequency within the range from 30 MHz to 5th harmonic of the highest frequency shall not exceed 2.0 nanowatts (or -57 dBm @ 50 Ohm).*

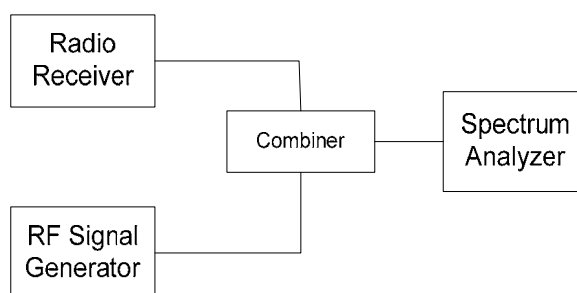
5.5.2. Method of Measurements

Refer to Ultratech Test Procedures ULTR-P001-2004 & ANSI C63.4 for method of measurements.

5.5.3. Test Equipment List

| Test Instruments | Manufacturer | Model No. | Serial No. | Frequency Range |
|------------------------------------|--------------------|-------------------|------------|---------------------------------------|
| Spectrum Analyzer/ EMI Receiver | Rohde & Schawrz | FSEK20/B4/B2 1 | 834157/005 | 9 kHz – 40 GHz with external mixer |
| RF Signal Generator | Hewlett Packard | HP 83752B | 3610A00457 | 0.01 – 20 GHz |

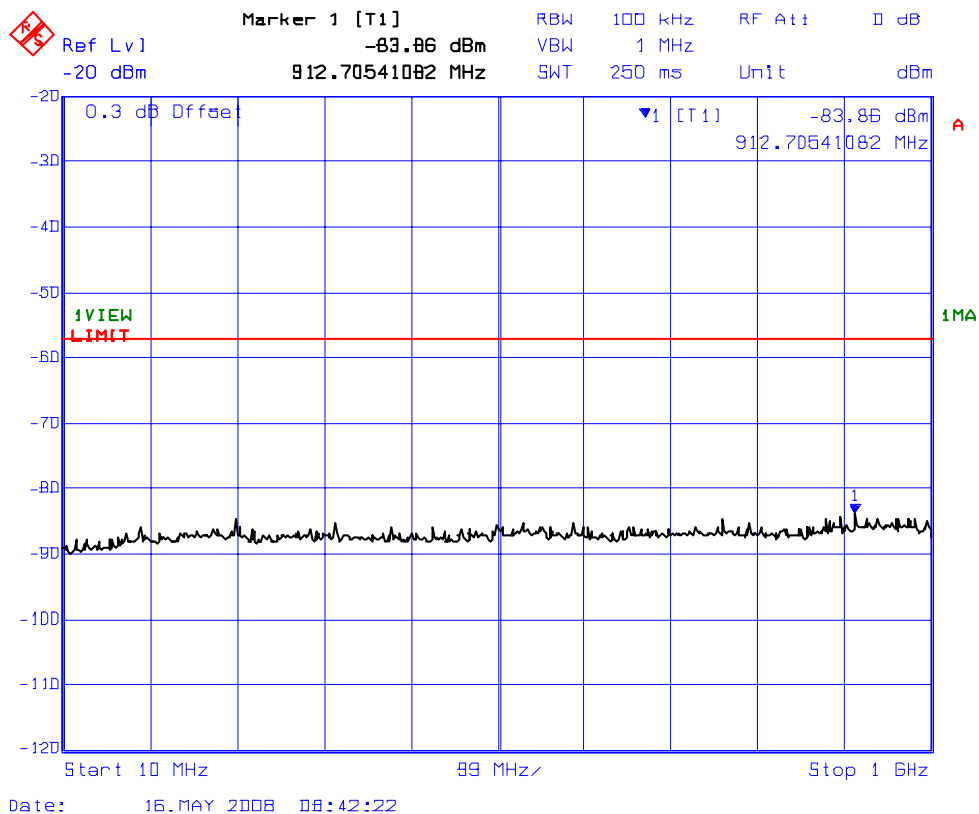
5.5.4. Test Arrangement



5.5.5. Test Data

Conforms. No significant rf emissions found in the frequency range from 30 MHz to 1 GHz.

Plot #7: RF Conducted Emission at the Receiver Antenna Port (138-174 MHz)



5.6. RECEIVER SPURIOUS/HARMONIC RADIATED EMISSIONS @ FCC 15.109(A)

5.6.1. Limits

The equipment shall meet the limits of the following table:

| Test Frequency Range (MHz) | Radio Receiver Limits @3 m (dB μ V/m) | EMI Detector Used | Measuring Bandwidth (kHz) |
|----------------------------|---|-------------------|-----------------------------------|
| 30 – 88 | 40.0 | Quasi-Peak | RBW = 120 kHz, VBW \geq 120 kHz |
| 88 – 216 | 43.5 | Quasi-Peak | RBW = 120 kHz, VBW \geq 120 kHz |
| 216 – 960 | 46.0 | Quasi-Peak | RBW = 120 kHz, VBW \geq 120 kHz |
| Above 960 | 54.0 | Average | RBW = 1 MHz, VBW \geq 1 Hz |

5.6.2. Method of Measurements

Refer to Ultratech Test Procedures ULTR-P001-2004 & ANSI C63.4 for method of measurements.

The spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

| Highest frequency generated or used in the device or on which the device operates or tunes (MHz) | Upper frequency of measurement range (MHz) |
|--|---|
| Below 1.705 | 30 |
| 1.705 - 108 | 1000 |
| 108 – 500 | 2000 |
| 500 -1000 | 5000 |
| Above 1000 | 5 th harmonic of the highest frequency or 40 GHz, whichever is lower |

5.6.3. Test Equipment List

| Test Instruments | Manufacturer | Model No. | Serial No. | Frequency Range |
|------------------------------------|-----------------|-----------|------------|---|
| Spectrum Analyzer/ EMI Receiver | Advantest | R3271 | 15050203 | 100 Hz to 32 GHz with external mixer for frequency above 32 GHz |
| Microwave Amplifier | Hewlett Packard | HP 83017A | | 1 GHz to 26.5 GHz |
| Biconilog Antenna | EMCO | 3143 | 1029 | 20 MHz to 2 GHz |

5.6.4. Test Data

RF Radiated Emission from Radio Receiver at 3 meters distance

The emissions were scanned from 30 MHz to 1 GHz at 3 Meters distance and no significant rf emissions were found.

5.7. RADIATED EMISSIONS FROM CLASS A UNINTENTIONAL RADIATORS (DIGITAL DEVICES) @ FCC 15.109(A)/(B)

5.7.1. Limits

The equipment shall meet the limits of the following table:

| Test Frequency Range (MHz) | Class A Limits @3 m (dB μ V/m) | EMI Detector Used | Measuring Bandwidth (kHz) |
|----------------------------|------------------------------------|-------------------|------------------------------|
| 30 – 88 | 49.5 | Quasi-Peak | RBW = 120 kHz, VBW > 120 kHz |
| 88 – 216 | 54.0 | Quasi-Peak | RBW = 120 kHz, VBW > 120 kHz |
| 216 – 960 | 56.9 | Quasi-Peak | RBW = 120 kHz, VBW > 120 kHz |
| Above 960 | 60.0 | Average | RBW = 1 MHz, VBW= 10 Hz |

5.7.2. Method of Measurements

Refer to Ultratech Test Procedures ULTR-P001-2004 & ANSI C63.4 for method of measurements.

The spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

| Highest frequency generated or used in the device or on which the device operates or tunes (MHz) | Upper frequency of measurement range (MHz) |
|--|---|
| Below 1.705 | 30 |
| 1.705 - 108 | 1000 |
| 108 – 500 | 2000 |
| 500 -1000 | 5000 |
| Above 1000 | 5 th harmonic of the highest frequency or 40 GHz, whichever is lower |

5.7.3. Test Equipment List

| Test Instruments | Manufacturer | Model No. | Serial No. | Frequency Range |
|------------------------------------|-----------------|-------------|------------|---|
| Spectrum Analyzer/ EMI Receiver | Advantest | R3271 | 15050203 | 100 Hz to 32 GHz with external mixer for frequency above 32 GHz |
| Microwave Amplifier | Hewlett Packard | HP 83017A | | 1 GHz to 26.5 GHz |
| Biconilog Antenna | EMCO | 3143 | 1029 | 20 MHz to 2 GHz |
| Horn Antenna | EMCO | 3155 | 9701-5061 | 1 GHz – 18 GHz |
| Horn Antenna | EMCO | 3160-09 | .. | 18 GHz – 26.5 GHz |
| Horn Antenna | EMCO | 3160-10 | .. | 26.5 GHz – 40 GHz |
| Mixer | Tektronix | 118-0098-00 | .. | 18 GHz – 26.5 GHz |
| Mixer | Tektronix | 119-0098-00 | .. | 26.5 GHz – 40 GHz |

5.7.4. Test Data

RF Radiated Emission from Class A Digital Device at 3 meters distance

| FREQUENCY (MHz) | RF LEVEL (dBuV/m) | DETECTOR USED (PEAK/QP) | ANTENNA PLANE (H/V) | Class A LIMIT (dBuV/m) | MARGIN (dB) | PASS/ FAIL |
|--------------------|-------------------------|-------------------------------|---------------------------|------------------------------|----------------|---------------|
| 39.50 | 40.9 | PEAK | V | 49.5 | -8.6 | PASS |
| 39.50 | 29.2 | PEAK | V | 49.5 | -20.3 | PASS |
| 105.50 | 47.7 | PEAK | V | 54.0 | -6.3 | PASS |
| 105.50 | 37.6 | PEAK | H | 54.0 | -16.4 | PASS |
| 125.80 | 46.1 | PEAK | V | 54.0 | -7.9 | PASS |
| 125.80 | 45.8 | PEAK | H | 54.0 | -8.2 | PASS |
| 183.80 | 31.8 | PEAK | H | 54.0 | -22.2 | PASS |
| 194.00 | 38.5 | PEAK | V | 54.0 | -15.5 | PASS |
| 194.00 | 31.8 | PEAK | H | 54.0 | -22.2 | PASS |
| 248.10 | 38.4 | PEAK | V | 56.9 | -18.5 | PASS |
| 248.10 | 32.7 | PEAK | H | 56.9 | -24.2 | PASS |

The emissions were scanned from 30 MHz to 1000 MHz at 3 Meters distance and all emissions less 30 dB below the limits were recorded.

EXHIBIT 6. MEASUREMENT UNCERTAINTY

The measurement uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 and LAB 34

6.1. LINE CONDUCTED EMISSION MEASUREMENT UNCERTAINTY

| CONTRIBUTION (Line Conducted) | PROBABILITY DISTRIBUTION | UNCERTAINTY (dB) | |
|---|-----------------------------|------------------|-------------|
| | | 9-150 kHz | 0.15-30 MHz |
| EMI Receiver specification | Rectangular | ± 1.5 | ± 1.5 |
| LISN coupling specification | Rectangular | ± 1.5 | ± 1.5 |
| Cable and Input Transient Limiter calibration | Normal (k=2) | ± 0.3 | ± 0.5 |
| Mismatch: Receiver VRC $\Gamma_1 = 0.03$ LISN VRC $\Gamma_R = 0.8(9 \text{ kHz}) 0.2 (30 \text{ MHz})$ Uncertainty limits $20\text{Log}(1 \pm \Gamma_1 \Gamma_R)$ | U-Shaped | ± 0.2 | ± 0.3 |
| System repeatability | Std. deviation | ± 0.2 | ± 0.05 |
| Repeatability of EUT | -- | -- | -- |
| Combined standard uncertainty | Normal | ± 1.25 | ± 1.30 |
| Expanded uncertainty U | Normal (k=2) | ± 2.50 | ± 2.60 |

Sample Calculation for Measurement Accuracy in 150 kHz to 30 MHz Band:

$$u_c(y) = \sqrt{\sum_{i=1}^m u_i^2(y)} = \pm \sqrt{(1.5^2 + 1.5^2)/3 + (0.5/2)^2 + (0.05/2)^2 + 0.35^2} = \pm 1.30 \text{ dB}$$

$$U = 2u_c(y) = \pm 2.6 \text{ dB}$$

6.2. RADIATED EMISSION MEASUREMENT UNCERTAINTY

| CONTRIBUTION (Radiated Emissions) | PROBABILITY DISTRIBUTION | UNCERTAINTY (\pm dB) | |
|---|-----------------------------|-------------------------|---------------|
| | | 3 m | 10 m |
| Antenna Factor Calibration | Normal (k=2) | ± 1.0 | ± 1.0 |
| Cable Loss Calibration | Normal (k=2) | ± 0.3 | ± 0.5 |
| EMI Receiver specification | Rectangular | ± 1.5 | ± 1.5 |
| Antenna Directivity | Rectangular | ± 0.5 | ± 0.5 |
| Antenna factor variation with height | Rectangular | ± 2.0 | ± 0.5 |
| Antenna phase center variation | Rectangular | 0.0 | ± 0.2 |
| Antenna factor frequency interpolation | Rectangular | ± 0.25 | ± 0.25 |
| Measurement distance variation | Rectangular | ± 0.6 | ± 0.4 |
| Site imperfections | Rectangular | ± 2.0 | ± 2.0 |
| Mismatch: Receiver VRC $\Gamma_1 = 0.2$ Antenna VRC $\Gamma_R = 0.67(Bi) 0.3 (Lp)$ Uncertainty limits $20\text{Log}(1 \pm \Gamma_1 \Gamma_R)$ | U-Shaped | +1.1 -1.25 | ± 0.5 |
| System repeatability | Std. Deviation | ± 0.5 | +0.5 |
| Repeatability of EUT | | - | - |
| Combined standard uncertainty | Normal | +2.19 / -2.21 | +1.74 / -1.72 |
| Expanded uncertainty U | Normal (k=2) | +4.38 / -4.42 | +3.48 / -3.44 |

Calculation for maximum uncertainty when 3m biconical antenna including a factor of k=2 is used:

$$U = 2u_c(y) = 2x(+2.19) = +4.38 \text{ dB} \quad \text{And} \quad U = 2u_c(y) = 2x(-2.21) = -4.42 \text{ dB}$$

EXHIBIT 7. LABELLING & VERIFICATION REQUIREMENTS

7.1. SECTION 15.19 - LABELING REQUIREMENTS

For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

- The label shall NOT be a stick-on , paper label. The label on these products shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase, as described in FCC 2.925(d). “Permanently” affixed means that the label is etched, engraved, stamped, silk-screened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected life-time of the equipment in the environment in which the equipment may be operated and must not be readily detachable.
- Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified in this Section is required to be affixed only to the main control unit.
- When the device is so small or for such use that it is not practicable to place the statement specified in this Section on it, the information required by these paragraphs shall be placed in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

7.2. SECTIONS 15.21 & 15.105 - INFORMATION TO USER

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: *This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provided reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

Warning: Changes or modifications not expressly approved by <manufacturer> could void the user’s authority to operate the equipment.

7.3. SECTION 2.909 - RESPONSIBLE PARTY

The following parties are responsible for the compliance of radio frequency equipment with the applicable standards:

- (c) In the case of the equipment subject to authorization under the Declaration of Conformity procedure:
 - (1) The manufacturer or, if the equipment is assembled from individual component parts and the resulting system is subject to authorization under Declaration of Conformity, the assembler.
 - (2) If the equipment, by itself, is subject to Declaration of Conformity and the equipment is imported, the importer.

7.4. SECTION 2.945 - SAMPLING TEST OF EQUIPMENT COMPLIANCE

The Commission will, from time to time, request the responsible party to submit equipment subject to this chapter to determine the extent to which subsequent production of such equipment continues to comply with the data filed by the applicant (or on file with the responsible party for equipment subject to notification or a Declaration of Conformity). Shipping costs to the Commission's laboratory and return shall be borne by the responsible party.

7.5. SECTION 2.946 - PENALTY FOR FAILURE TO PROVIDE TEST SAMPLES AND DATA.

- (a) Any responsible party, as defined in Section 2.909 of this chapter, or any party who markets equipment subject to the provisions of this chapter, shall provide test sample(s) or data upon request by the Commission. Failure to comply with such a request with the time frames shown below may be cause for forfeiture, pursuant to Section 1.80 of Part 1 of this chapter, or other administrative sanctions such as suspending action on any applications for equipment authorization submitted by such party while the matter is being resolved.
 - (1) When the equipment is subject to authorization under Declaration of Conformity, data shall be provided within 14 days of delivery of the request and test sample(s) shall be provided within 60 days of delivery of the request.
 - (2) For all other devices, test sample(s) or data shall be provided within 60 days of the request.
- (b) In the case of the equipment involving harmful interference or safety of life or property, the Commission may specify that test samples subject to the provisions of this section be submitted within less than 60 days, but not less than 14 days. Failure to comply within the specified time period will be subject to the sanctions specified in paragraph (a) of this section.

7.6. LIMITATION ON VERIFICATION: FCC PART 2, SUBPART J, SECTION 2.952

- (a) Verification signifies that the manufacturer or importer has determined that the equipment has been shown to be capable of compliance with the applicable technical standards if no unauthorized change is made in the equipment and if the equipment is properly maintained and operated. Compliance with these standards shall not be construed to be a finding by the manufacturer or importer with respect to matters not encompassed by the Commission's rules.
- (b) Verification of the equipment by the manufacturer or importer is effective until a termination date is otherwise established by the Commission.
- (c) No person shall, in any advertising matter, brochure, etc., use or make reference to a verification in a deceptive or misleading manner or convey the impression that such verification reflects more than a determination by the

manufacturer or importer that the device or product has been shown to be capable of compliance with the applicable technical standards of the Commission's Rules.

7.7. RESPONSIBILITY OF MANUFACTURER OR IMPORTER: FCC PART 2, SUBPART J, SECTION 2.953

- (a) In verifying compliance, the manufacturer or importer (in the case of imported equipment) warrants that each unit of the equipment marketed under the verification procedure will conform to the unit tested and found acceptable by the manufacturer or importer and that data on file with the manufacturer or importer continues to be representative of the equipment being produced under such verification within the variation that can be expected due to quantity production and testing on a statistical basis.
- (b) The importer of equipment subject to verification may upon receiving a written statement from the manufacturer that the equipment complies with the appropriate technical standards rely on the manufacturer or independent testing agency to verify compliance. The test records required by Section 2.955 however should be in English language and made available to the Commission upon a reasonable request.
- (c) In the case of transfer of control of equipment, as in the case of sale or merger of the grantee, the new manufacturer or importer shall bear the responsibility of continued compliance of the equipment.
- (d) Equipment verified by the manufacturer or importer shall be re-verified if the modification or change adversely affects the emanation characteristics of the modified equipment. The manufacturer or importer continues to bear the responsibility for continued compliance of subsequently produced equipment.

7.8. IDENTIFICATION: FCC PART 2, SUBPART J, SECTION 2.954

The identification of equipment subject to verification shall be consistent with current manufacturer or marketing practices: *Provided*, The manufacturer or importer maintains adequate identification records for each unit verified to facilitate positive identification of each equipment marketed.

7.9. RETENTION OF RECORDS: FCC PART 2, SUBPART J, SECTION 2.955

- (a) For each equipment subject to verification, the manufacturer (or importer) shall maintain the records listed below:
 - (1) A record of the original design drawings and specifications and all changes that have been made that may affect compliance with the requirements of Section 2.953.
 - (2) A record of the procedures used for production inspection and testing (if tests were performed) to insure the conformance required by Section 2.953. (Statistical production line emission testing is not required).
- (b) The records listed in paragraphs (a) of this section shall be retained for two years after the manufacture of said equipment item has been permanently discontinued, or until the conclusion of an investigation or a proceeding if the manufacturer or importer is officially notified that an investigation or any other administrative proceeding involving his equipment has been instituted.

7.10. FCC INSPECTION & SUBMISSION OF EQUIPMENT FOR TESTING: FCC PART 2, SUBPART J, SEC. 2.956

- (a) Each manufacturer or importer of equipment subject to verification shall upon receipt of reasonable request submit to the Commission the records required by Section 2.955.
- (b) The Commission may require the manufacturer or importer of equipment subject to verification to submit one or more of sample units for measurements at the Commission's Laboratory.
- (c) In the event the manufacturer believes that shipment of the sample to the Commission's Laboratory is impractical because of the size or weight of the equipment, or the power requirement or for any other reason, the applicant may submit a written explanation why such shipment is impractical and should not be required.

7.11. SAMPLING TESTS OF EQUIPMENT COMPLIANCE: FCC PART 2, SUBPART J, SECTION 2.957

The Commission will from time to time, request the manufacturer or importer to submit to the FCC Laboratory in Columbia, Maryland, various equipment(s) for which verification has been made, to determine the extent to which subsequently produced units continue to comply with the applicable standards.