

| REV | Δ | DESCRIPTION | SHEET EFFECTED | DATE | DRAWN | CHECKED |
|-----|---|-------------|----------------|------------|-----------|----------|
| A | | | | 04.07.2013 | M. Reuben | S. Cohen |

EMC Laboratory

MICOM Z DASH

FCC ID_Y05MICOM DS125W

Manufactured by

Elbit Systems Land and C4I Ltd.

Test Report

According to FCC Part 90 Requirements

June 2013




| | Fonction/Title | Name | Signature | Date |
|--------------|------------------|-----------|---|--------------|
| Prepared by: | Technical Writer | M. Reuben |  | 04.07.2013 |
| Checked by: | Test Engineer | O.Dror |  | 03.07.2013 |
| Approved By: | EMC Lab. Manager | S.Cohen |  | July 4, 2013 |

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1. Introduction

1.1. Scope

This document describes the measurement procedures and tests for FCC part 90 of the Micom Z Dash, manufactured by Elbit Systems Land and C⁴I Ltd.

1.2. Description of equipment Under Test

| | |
|-------------------------------|---|
| Equipment Under Test: | Micom Z Dash |
| FCCID | YO5MICOM DS125W |
| Manufacturer: | Elbit Systems Land and C ⁴ I - Ltd. |
| Serial Numbers: | MZ6789 |
| Transmit Frequency Range | 1.6 to 30 MHz in 10-Hz steps |
| Receiver Frequency Range | 0.1 to 30 MHz in 10-Hz steps (0.1 to 1.6 MHz reduced performance) |
| Transmit Power | 25, 62, 100, 125 W P.E.P and average |
| RF Impedance (antenna) | -50Ω for dipole and broadband -Internal automatic tuner for whip |
| Number of RF Channels | 200 simplex or half duplex |
| Scanning | 5 groups of 100 channels, guard channel |
| ALE | MIL-STD-188-141B, JITC certified |
| Mode of Operation: | USB, LSB, PILOT, AME |
| Services | -Analog voice -Digital voice (vocoder option) -50-4800 bps (internal modem option) COMSEC (option) |
| Date, Remote Control | RS-232C |
| GPS Receiver (optional) | Location, movement and time |
| Power Source | FRN8577 Rechargeable Lithium-Ion Battery (14.4 V, 230 WH) |
| Receiver operating frequency: | MHZ |
| Year of Manufacture: | 2013 |

1.3. Applicant Information:

| | |
|----------------------------------|--|
| Applicant: | Elbit Systems Land and C ⁴ I - Ltd. |
| Applicant Address | 26 Hashoftim St. P.O.B. 267, 58102 Holon, Israel |
| Telephone: | +972-3-5574476 |
| FAX: | +972-3-5575320 |
| The testing was observed by: | Samuel Cohen |
| Following applicant's personnel: | Samuel Cohen |

1.4. Test Performance:

| | |
|--------------------------------|--|
| Date of reception for testing: | 15/10/2009 |
| Dates of testing | 10.08.2011 |
| Test Laboratory Location | Elbit Systems Land and C ⁴ I Ltd., EMC LAB, Hashoftim 26 Holon 58102 ISRAEL Tel: 972-3-5574476 Fax: 972-3-5575320 |
| Applicable EMC Specification: | |
| Code of Federal Regulations | 47, FCC Docket 89-103, Part 15: Radio Frequency Devices, Sections 15.109, 15.209, 15.231, & 15.207 |

2. Test Summary and Signatures.

Elbit Systems Land and C⁴I Ltd., EMC Laboratory has completed testing of E.U.T in accordance with the requirements of the FCC Part 90 Regulations for Class B equipment.

The E.U.T was found to comply with the requirements of the FCC Part 90 Regulations given below

| Test | Test Description | Section | PASS/FAIL |
|------|--|---------|-----------|
| 1 | RF Power Output | 2.1046 | PASS |
| 2 | Audio Frequency Response | 2.1047 | PASS |
| 3 | Audio Low-Pass Filter Response | 2.1047 | N/A (1) |
| 4 | Modulation Limiting | 2.1047 | PASS |
| 5 | Occupied Bandwidth | 2.1049 | PASS |
| 6 | Carrier Suppression at Antenna Terminals | 2.1051 | PASS |
| 7 | Spurious Emissions at Antenna Terminals | 2.1051 | PASS |
| 8 | Field Strength of Spurious Emissions | 2.1053 | PASS |
| 9 | Frequency Stability | 2.1055 | PASS |
| 10 | Transient Frequency Behavior | 90.214 | N/A (2) |




2.1. Footnotes for N/A's

- (1) The apparatus is not required to have a low-pass filter.
- (2) The apparatus does not operate in the required frequency range.

2.2. Test Conditions:

| | | |
|--------|-------------|-------------------|
| Indoor | Temperature | 24 ⁰ C |
| | Humidity | 28% |

| | | |
|---------|-------------|-------------------|
| Outdoor | Temperature | 29 ⁰ C |
| | Humidity | 47% |

| | Function/Title | Name | Signature | Date |
|-------------------------|------------------|--------------------|---|------------|
| Test performed by | Test Engineer | S. Kozliner/O.Dror |  | 03.07.2013 |
| Test Report prepared by | Technical Writer | M. Reuben |  | 04.07.2013 |
| Test Report Approved by | EMC Lab. Manager | S. Cohen |  | 04.07.2013 |

3. E.U.T Information

3.1. E.U.T description

The Micom-Z transceiver is a complete HF/SSB receiver-transmitter capable of receiving and transmitting voice, data, and continuous-wave (CW) telegraphy using upper-sideband (USB), lower-sideband (LSB), AME and pilot carrier modulation. High selectivity and a wide dynamic range ensure clear, undisturbed signal reception.

The transmit power can be selected by the operator for optimum transmission performance (125 W PEP for maximum range; 100 W, 60 W or 25 W to reduce interference to nearby stations, and decrease power dissipation).

3.2. Changes made to EUT

No changes were made.

4. RF Power Output – Part 2.1046

E.U.T: Micom Z Dash
 S/N: MZ6789
 Date: 11.06.2013
 Standard: 90.205 (a)
 Relative Humidity: 28%
 Ambient Temperature: 24⁰ C
 Air Pressure: 1010hPa
 Testing Engineer: D. Oshri Date 11.06.2013

4.1. Test Results Summary & Conclusions

The E.U.T was found to comply with RF Power Output – Part 2.1046.

4.2. Measured Data

Measured at Dipole Antenna terminal. PEP using two tones.
 Rated RF Output Power: 25 watts PEP, 44dBm
 Measured using 400 Hz and 1800 Hz tones adjusted for rated RF output power.
 Frequencies examined: 1.65 MHz, 16.5 MHz, & 29.9 MHz
 Transmitting power: 25W, 62W, 100W & 125W

4.3. Test Instrumentation and Equipment

Table 1: Test Instrumentation and Equipment

| Item | Model | Manufacturer | Next Date Calibration |
|------------------------|---------|--------------|-----------------------|
| Audio Analyzer | 8903A | HP | 23.12.2013 |
| Power Reflection Meter | NAP | R&S | 04.06.2014 |
| Power Head | NAP Z-7 | R&S | 04.06.2014 |
| Attenuator 30 dB | 769-30 | Narda | 21.05.2015 |

4.4. Test Results

| Rate | Tx 1.65MHz | | Tx 16.5MHz | | Tx 29.9MHz | |
|-------------|------------|-------|------------|------|------------|-------|
| | dBm | W | dBm | W | dBm | W |
| Max (125W) | 50.9 | 122.5 | 50.9 | 124 | 50.9 | 123.6 |
| High (100W) | 50 | 99.6 | 50 | 100 | 50 | 101 |
| Med (62W) | 47.8 | 60.7 | 47.9 | 61.2 | 48.1 | 64.3 |
| Low (25W) | 43.3 | 21.5 | 43.5 | 22.5 | 44.2 | 26 |

5. Audio Frequency Response – Part 2.1047

| | |
|----------------------|-------------------|
| E.U.T | Micom Z Dash |
| S/N: | MZ6789 |
| Date: | 10.06.2013 |
| Standard | 90.210 (a) |
| Relative Humidity: | 28% |
| Ambient Temperature: | 24 ^o C |
| Air Pressure: | 1010hPa |
| Testing Engineer: | S. Kozliner |
| Date | 10.06.2013 |

5.1. Test Results Summary & Conclusions

The E.U.T was found to be in compliance with Audio Frequency Response – Part 2.1047.

5.2. Test Instrumentation and Equipment

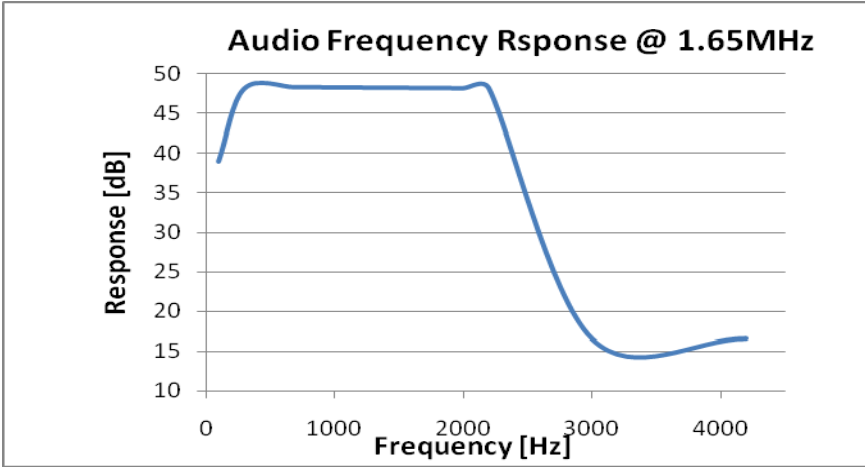
Table 2: Test Instrumentation and Equipment

| Item | Model | Manufacturer | Next Date Calibration |
|------------------------|---------|--------------|-----------------------|
| Audio Analyzer | 8903A | HP | 23.12.2013 |
| Spectrum Analyzer | 8593E | HP | 23.05.2013 |
| Power Reflection Meter | NAP | R&S | 04.06.2014 |
| Power Head | NAP Z-7 | R&S | 04.06.2014 |

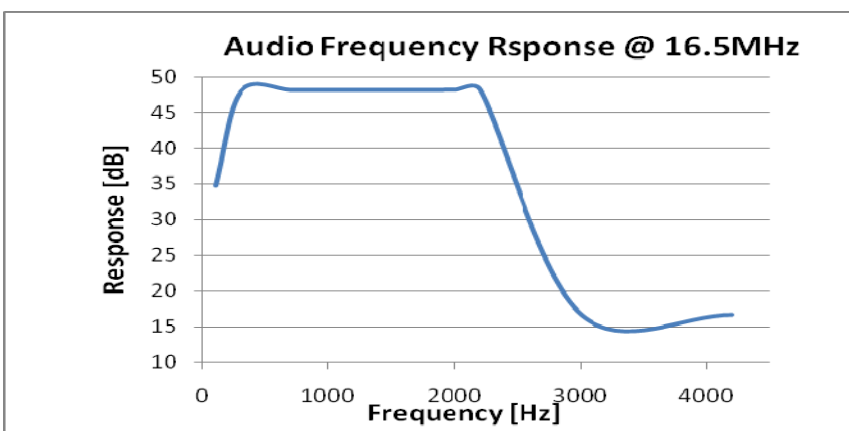
5.3. Test Results

Frequencies examined: 1.65 MHz, 16.5 MHz, and 29.9 MHz

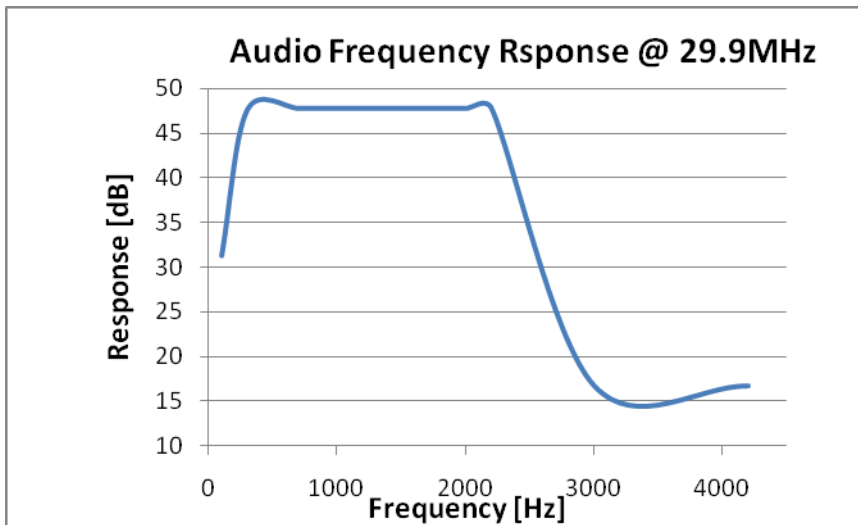
Transmitting Power: 25W, 62W, 100W & 125W



| Frequency Response @ 1.65MHz [dB] | | | | | |
|-----------------------------------|------|------|------|------|----------------|
| Tx Power | 25W | 62W | 100W | 125W | |
| Audio Freq [Hz] | | | | | average |
| 100 | 39.2 | 39 | 39.2 | 38.7 | 39.025 |
| 300 | 43.6 | 47.9 | 50.1 | 51.1 | 48.175 |
| 700 | 44 | 48 | 50.2 | 51.2 | 48.35 |
| 1000 | 44 | 48 | 50.1 | 51.2 | 48.325 |
| 2000 | 43.8 | 47.9 | 50.1 | 51.1 | 48.225 |
| 2200 | 43.8 | 47.9 | 50.1 | 51.1 | 48.225 |
| 3000 | 16 | 17 | 16.7 | 16.7 | 16.6 |
| 4200 | 16 | 17 | 16.7 | 16.7 | 16.6 |



| Frequency Response @ 16.5MHz [dB] | | | | | |
|-----------------------------------|------|------|------|------|----------------|
| Tx Power | 25W | 62W | 100W | 125W | |
| Audio Freq [Hz] | | | | | average |
| 100 | 35.3 | 34.7 | 34.3 | 34.5 | 34.7 |
| 300 | 43.4 | 47.6 | 49.9 | 50.8 | 47.925 |
| 700 | 43.7 | 47.8 | 50 | 50.9 | 48.1 |
| 1000 | 43.7 | 47.8 | 50 | 50.9 | 48.1 |
| 2000 | 43.8 | 47.8 | 50 | 50.9 | 48.125 |
| 2200 | 43.7 | 47.9 | 50 | 51 | 48.15 |
| 3000 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 |
| 4200 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 |



| Frequency Response @ 29.9MHz [dB] | | | | | |
|-----------------------------------|------|------|------|------|----------------|
| Tx Power | 25W | 62W | 100W | 125W | |
| Audio Freq [Hz] | | | | | average |
| 100 | 31.3 | 31.4 | 31.1 | 31.2 | 31.25 |
| 300 | 43.5 | 47.7 | 49.5 | 49.6 | 47.575 |
| 700 | 43.7 | 47.9 | 49.7 | 49.7 | 47.75 |
| 1000 | 43.7 | 47.9 | 49.7 | 49.7 | 47.75 |
| 2000 | 43.7 | 47.8 | 49.7 | 49.7 | 47.725 |
| 2200 | 43.7 | 47.9 | 49.7 | 49.7 | 47.75 |
| 3000 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 |
| 4200 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 |

6. Modulation Limiting – Part 2.1047

| | |
|----------------------|-------------------|
| E.U.T | Micom Z Dash |
| S/N: | MZ6789 |
| Date: | 16.06.2013 |
| Standard | N/A |
| Relative Humidity: | 28% |
| Ambient Temperature: | 24 ^o C |
| Air Pressure: | 1010hPa |
| Testing Engineer: | S. Kozliner |
| Date | 16.06.2013 |

6.1. Test Results Summary & Conclusions

The E.U.T was found to be in compliance with Modulation Limiting – Part 2.1047

6.2. Test Instrumentation and Equipment

Table 3: Test Instrumentation and Equipment

| Item | Model | Manufacturer | Next Date Calibration |
|------------------------|---------|--------------|-----------------------|
| Audio Analyzer | 8903A | HP | 23.12.2013 |
| Power Reflection Meter | NAP | R&S | 04.06.2014 |
| Power Head | NAP Z-7 | R&S | 04.06.2014 |
| Attenuator 30 dB | 769-30 | Narda | 21.05.2015 |

6.3. Test Results

Frequencies examined: 3 MHz, 15 MHz, and 25 MHz

Transmitting Power: 25W, 62W, 100W & 125W

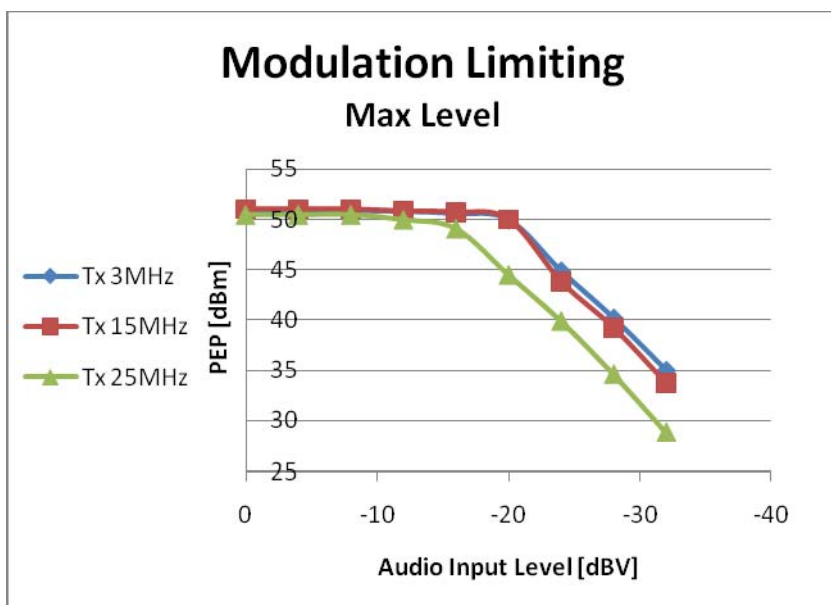
The test results are as shown below.

| Tx Power | Modulation Limiting @ 3MHz [dBm] | | | |
|-------------------|----------------------------------|------|------|------|
| | 25W | 62W | 100W | 125W |
| Audio Level [dBv] | | | | |
| 0 | 43.8 | 47.9 | 49.9 | 50.9 |
| -4 | 43.8 | 47.9 | 49.9 | 50.9 |
| -8 | 43.6 | 47.8 | 49.9 | 50.9 |
| -12 | 42.9 | 47.5 | 49.8 | 50.8 |
| -16 | 42.4 | 47.2 | 49.7 | 50.6 |
| -20 | 41.9 | 47 | 48.9 | 50 |
| -24 | 41.3 | 45.2 | 44.9 | 44.9 |
| -28 | 39.8 | 40.3 | 40.1 | 40.2 |
| -32 | 35.5 | 35 | 35 | 35 |

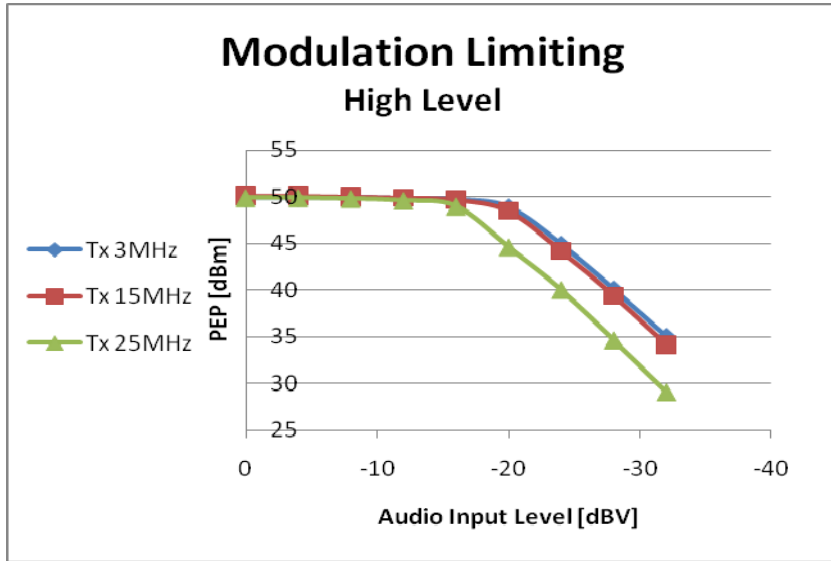
| Modulation Limiting @ 15MHz [dBm] | | | | |
|-----------------------------------|------|------|------|------|
| Tx Power | 25W | 62W | 100W | 125W |
| Audio Level [dBv] | | | | |
| 0 | 44 | 47.9 | 50.1 | 51 |
| -4 | 44 | 47.9 | 50.1 | 51 |
| -8 | 43.8 | 47.9 | 50 | 51 |
| -12 | 43.3 | 47.6 | 49.9 | 50.8 |
| -16 | 42.9 | 47.4 | 49.7 | 50.7 |
| -20 | 42.4 | 46.9 | 48.5 | 50 |
| -24 | 41.9 | 43.9 | 44.2 | 43.8 |
| -28 | 39.8 | 39.2 | 39.4 | 39.2 |
| -32 | 34 | 33.8 | 34.1 | 33.7 |

| Modulation Limiting @ 25MHz [dBm] | | | | |
|-----------------------------------|------|------|------|------|
| Tx Power | 25W | 62W | 100W | 125W |
| Audio Level [dBv] | | | | |
| 0 | 43.7 | 47.8 | 49.9 | 50.5 |
| -4 | 43.7 | 47.8 | 49.9 | 50.5 |
| -8 | 43.6 | 47.7 | 49.8 | 50.5 |
| -12 | 43.1 | 47.5 | 49.6 | 50 |
| -16 | 42.7 | 47.1 | 49 | 49.1 |
| -20 | 42.2 | 44.4 | 44.6 | 44.5 |
| -24 | 40.1 | 40 | 40 | 39.9 |
| -28 | 35 | 34.7 | 34.6 | 34.6 |
| -32 | 29.8 | 29.1 | 29 | 28.8 |

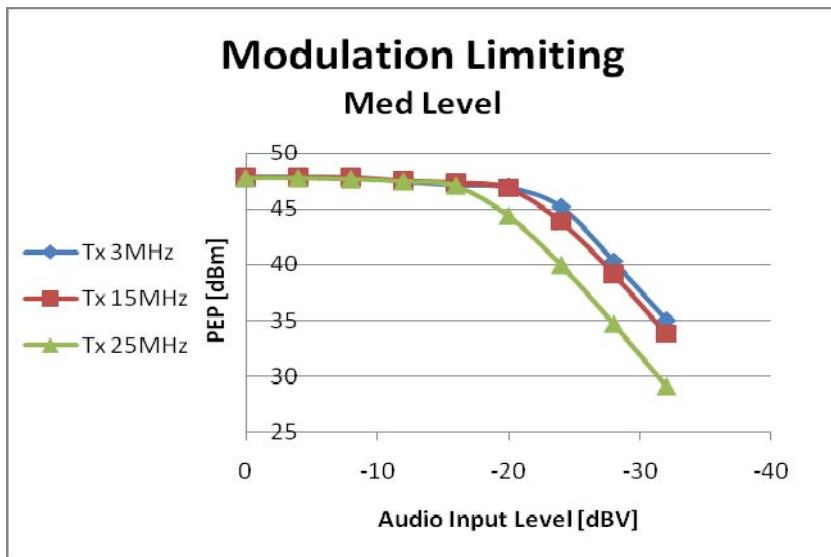
1. Power Maximum



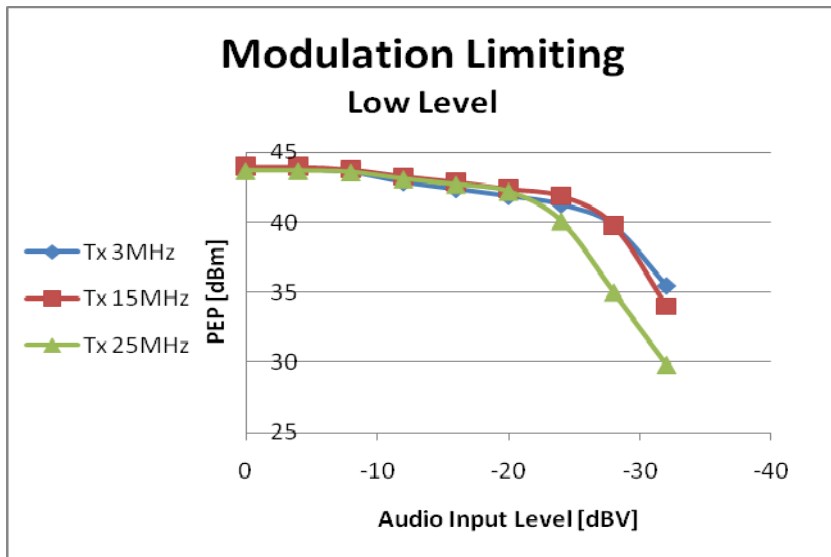
2. Power High



3. Power Medium



4. Power Low



7. Occupied Bandwidth – Part 2.1049

| | |
|----------------------|-------------------|
| E.U.T | Micom Z Dash |
| S/N: | MZ6789 |
| Date: | 17.06.2013 |
| Standard | 90.210 (a) |
| Relative Humidity: | 28% |
| Ambient Temperature: | 24 ^o C |
| Air Pressure: | 1010hPa |
| Testing Engineer: | D. Oshri |
| Date | 17.06.2013 |

7.1. Test Results Summary & Conclusions

The E.U.T was found to be in compliance with Occupied Bandwidth – Part 2.1049

7.2. Test Instrumentation and Equipment

Table 4: Test Instrumentation and Equipment

| Item | Model | Manufacturer | Next Date of Calibration |
|-------------------|--------|--------------|--------------------------|
| Spectrum Analyzer | E7405A | Agilent | 09.11.2013 |
| Attenuator 30 dB | 769-30 | Narda | 21.05.2015 |
| Audio Analyzer | 8903A | HP | 23.12.2013 |

7.3. Test Results

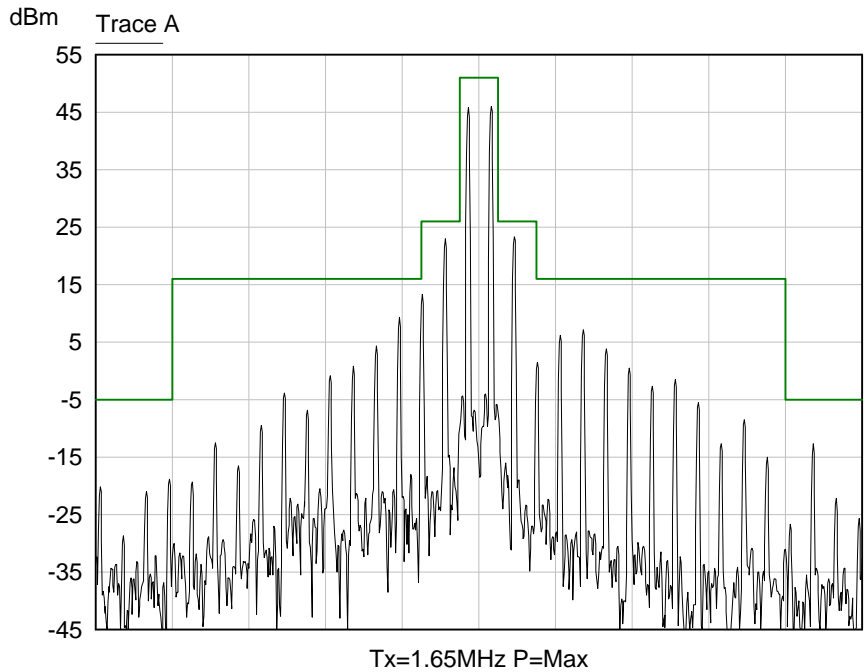
Frequencies examined: 1.65 MHz, 16.5 MHz, 29.9 MHz

Transmitting Power: 25W, 62W, 100W & 125W

Table 5: Test Results

| Mode of Operation | Frequency (MHz) | Power | Compliance Y/N |
|--------------------------|------------------------|--------------|-----------------------|
| AME | 1.65 | Maximum | Y |
| | 1.65 | High | Y |
| | 1.65 | Medium | Y |
| | 1.65 | Low | Y |
| | 15.6 | Maximum | Y |
| | 15.6 | High | Y |
| | 15.6 | Medium | Y |
| | 15.6 | Low | Y |
| | 29.9 | Maximum | Y |
| | 29.9 | High | Y |
| | 29.9 | Medium | Y |
| | 29.9 | Low | Y |
| SSB | 1.65 | Maximum | Y |
| | 1.65 | High | Y |
| | 1.65 | Medium | Y |
| | 1.65 | Low | Y |
| | 15.6 | Maximum | Y |
| | 15.6 | High | Y |
| | 15.6 | Medium | Y |
| | 15.6 | Low | Y |
| | 29.9 | Maximum | Y |
| | 29.9 | High | Y |
| | 29.9 | Medium | Y |
| | 29.9 | Low | Y |

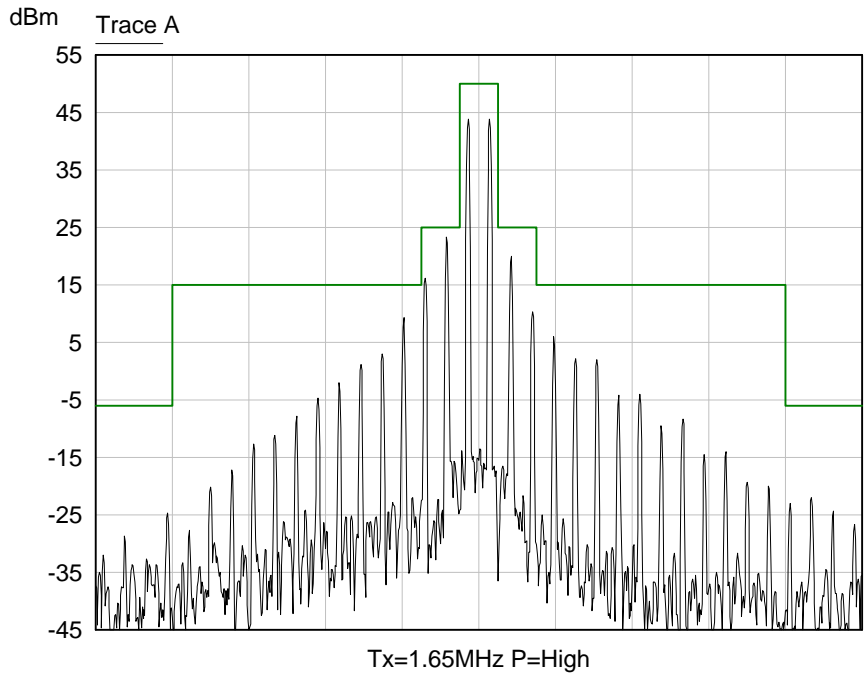
Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=1.65MHz



Start: 1.6257 MHz Stop: 1.6757 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/17/2013 16:23:34 N9020A

Plot Occupied Bandwidth - AME/ 1

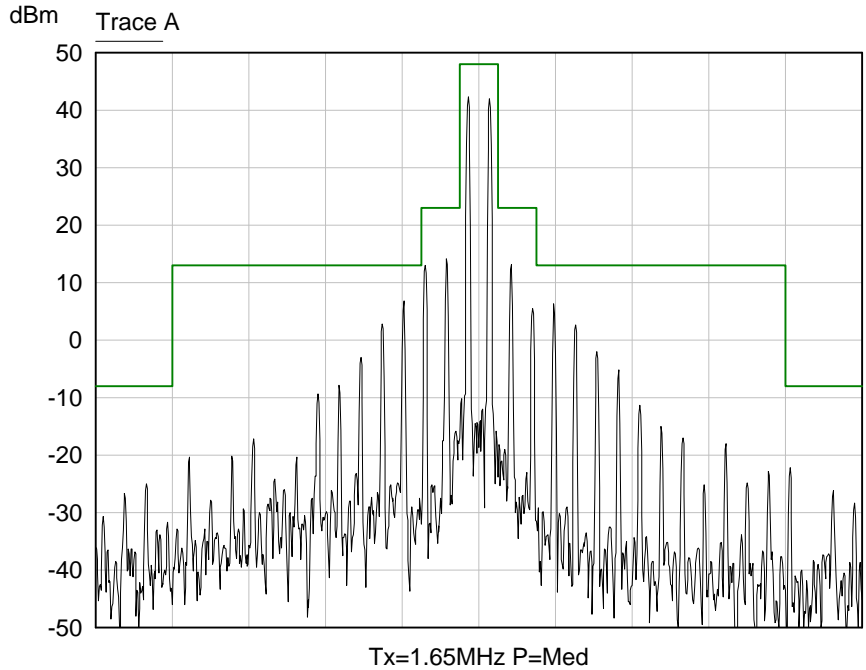
Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=1.65MHz



Start: 1.6257 MHz Stop: 1.6757 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/16/2013 12:49:30 N9020A

Plot Occupied Bandwidth - AME/ 2

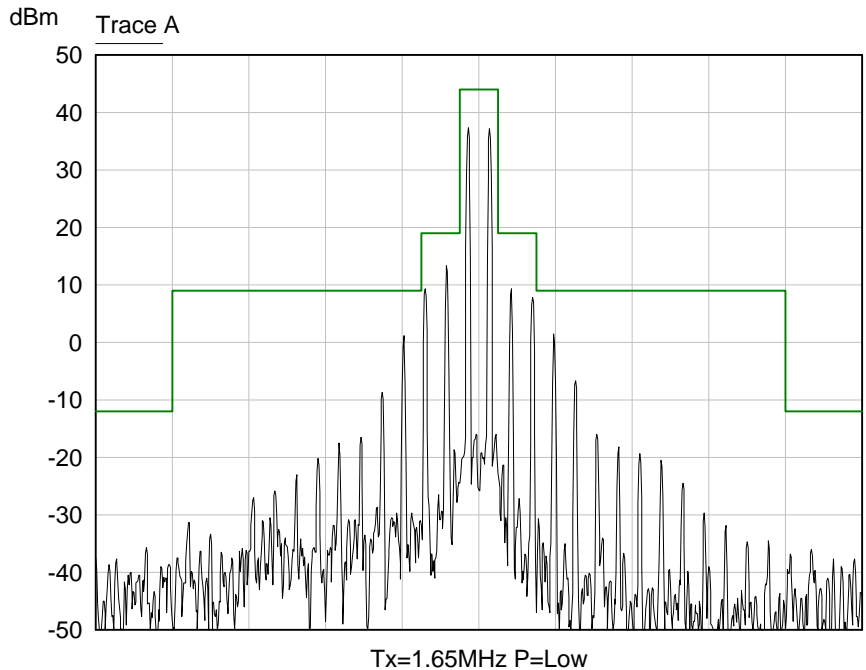
Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=1.65MHz



Start: 1.6257 MHz Stop: 1.6757 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/16/2013 12:52:32 N9020A

Plot Occupied Bandwidth - AME/ 3

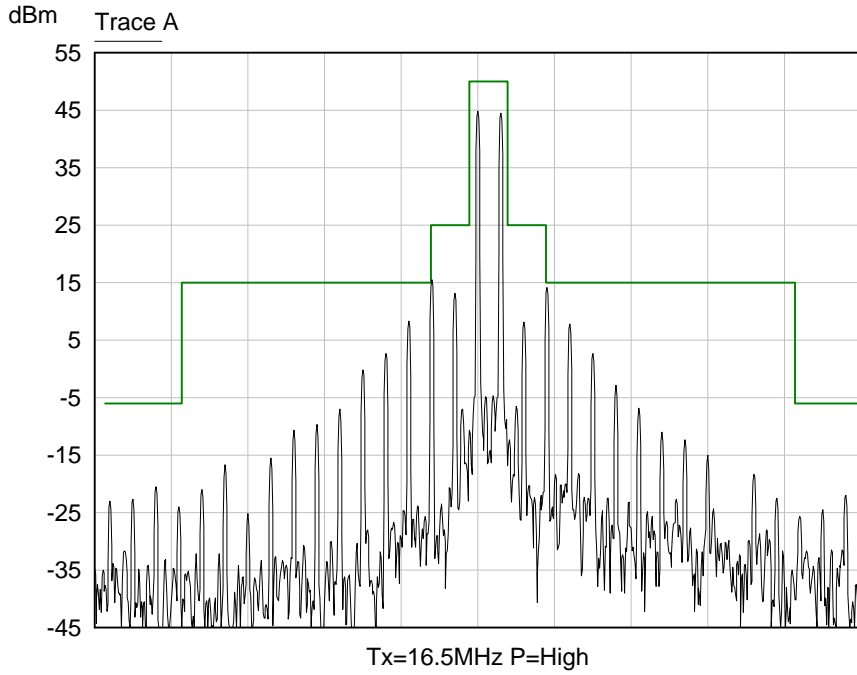
Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=1.65MHz



Start: 1.6257 MHz Stop: 1.6757 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/16/2013 12:54:51 N9020A

Plot Occupied Bandwidth - AME/ 4

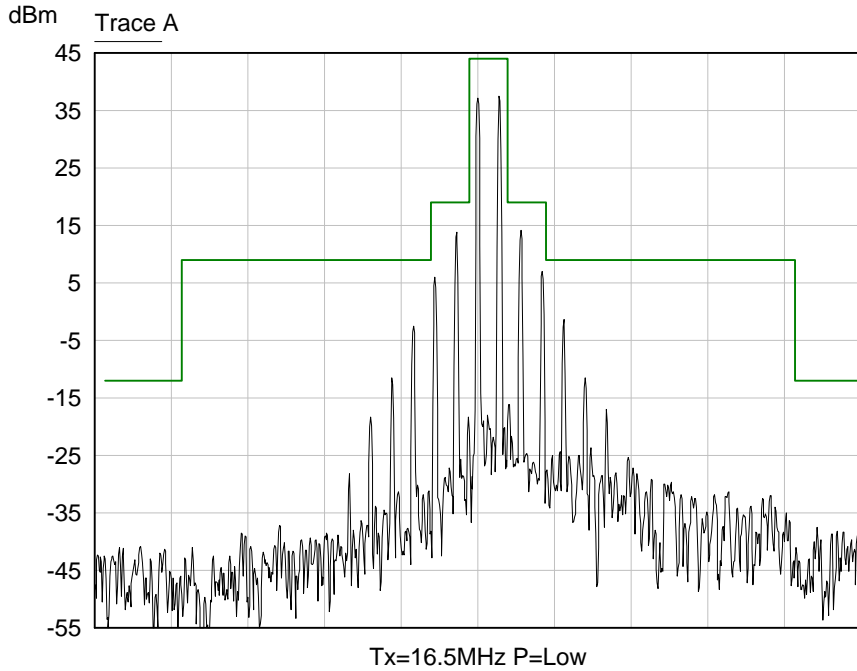
Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=16.5MHz



Start: 16.4750 MHz Stop: 16.5250 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/16/2013 13:56:09 N9020A

Plot Occupied Bandwidth - AME/ 5

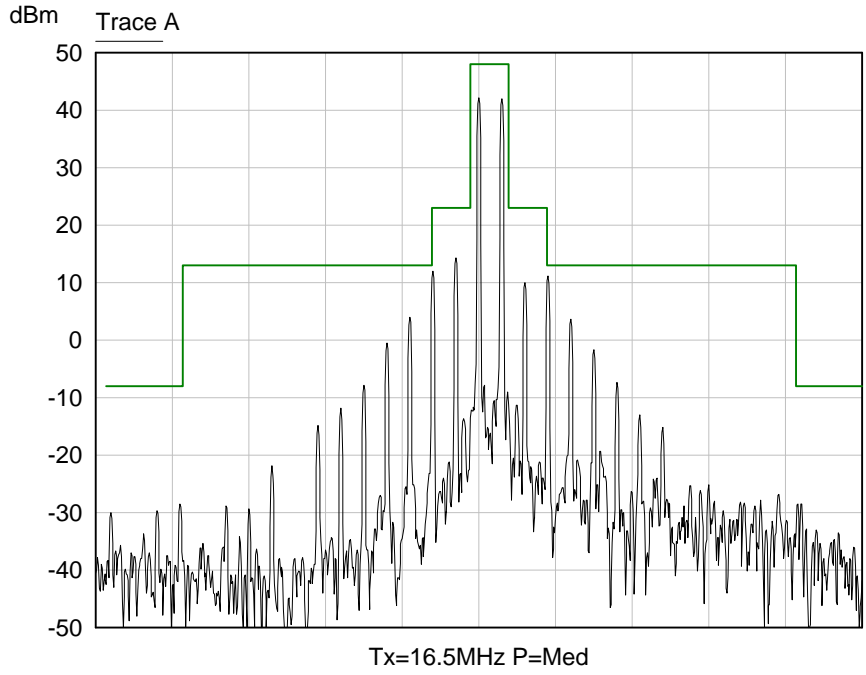
Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=16.5MHz



Start: 16.4750 MHz Stop: 16.5250 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/16/2013 13:38:37 N9020A

Plot Occupied Bandwidth - AME/ 6

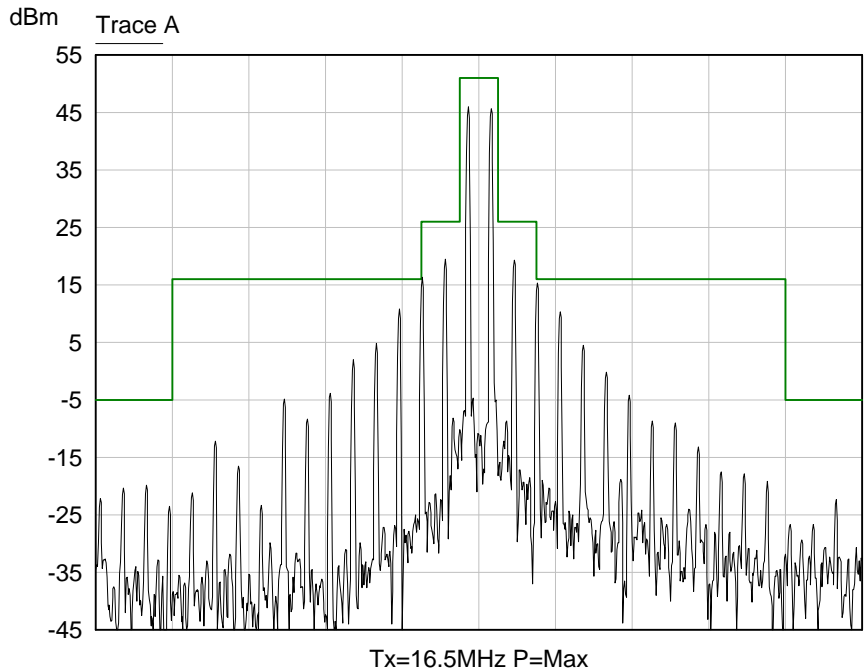
Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=16.5MHz



Start: 16.4750 MHz Stop: 16.5250 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/16/2013 13:48:58 N9020A

Plot Occupied Bandwidth - AME/ 7

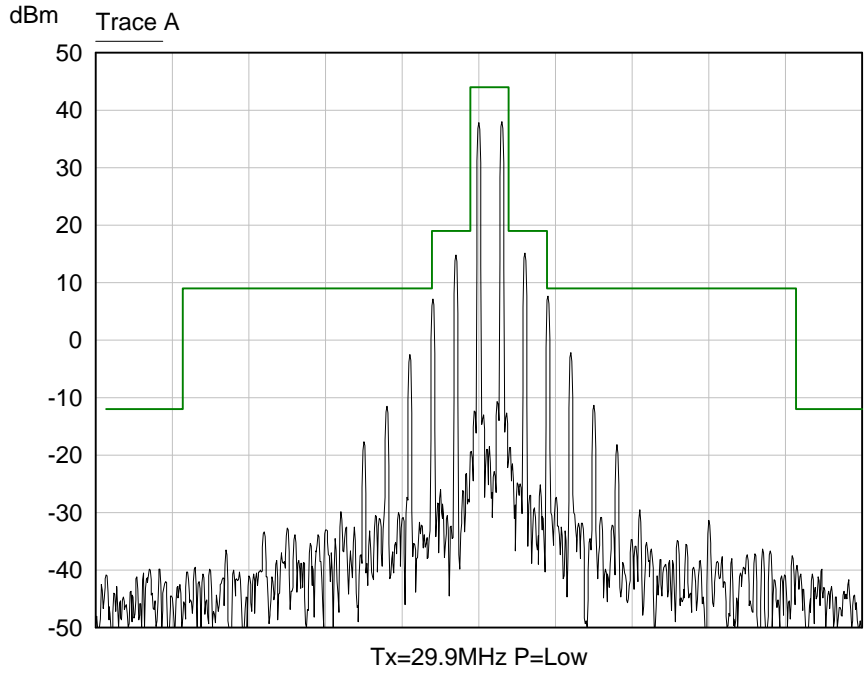
Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=16.5MHz



Start: 16.4757 MHz Stop: 16.5257 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/16/2013 16:58:06 N9020A

Plot Occupied Bandwidth - AME/ 8

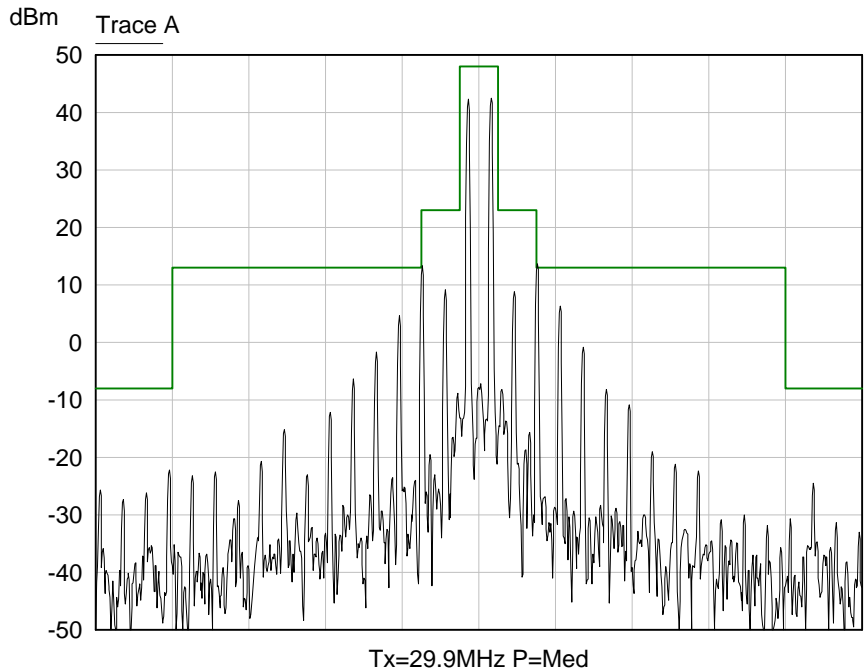
Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=29.9MHz



Start: 29.8750 MHz Stop: 29.9250 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/16/2013 14:04:05 N9020A

Plot Occupied Bandwidth - AME/ 9

Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=29.9MHz

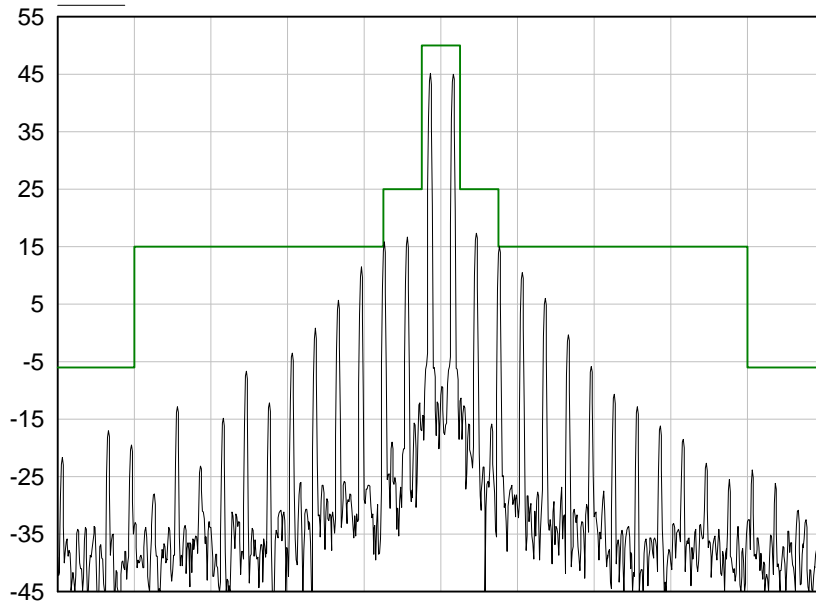


Start: 29.8757 MHz Stop: 29.9257 MHz
Res BW: 100 Hz Vid BW: 100 Hz Sweep: 26.93 ms
6/16/2013 14:11:26 N9020A

Plot Occupied Bandwidth - AME/ 10

Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=29.9MHz

dBm Trace A



Tx=29.9MHz P=High

Start: 29.8757 MHz

Stop: 29.9257 MHz

Res BW: 100 Hz

Vid BW: 100 Hz

Sweep: 26.93 ms

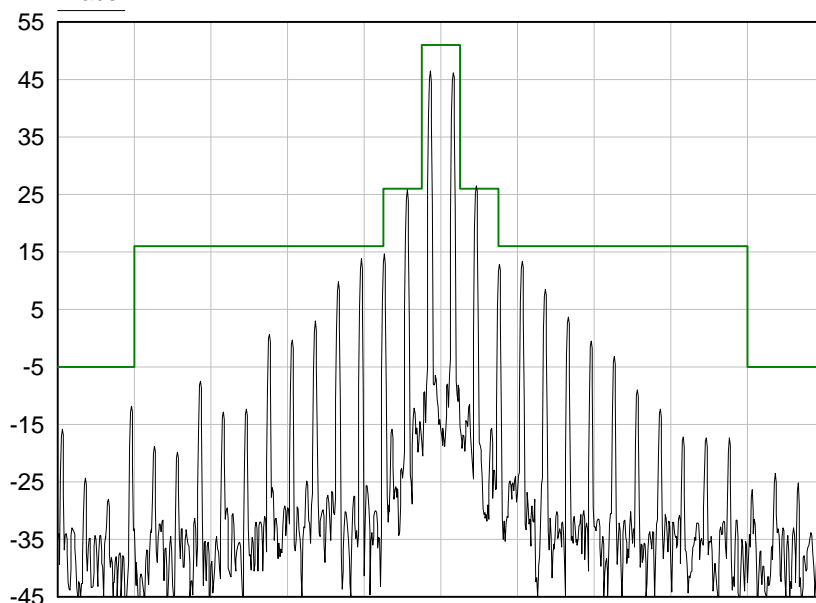
6/16/2013 17:02:15

N9020A

Plot Occupied Bandwidth - AME/ 11

Occupied Bandwidth: One Tone AME Modulation (1500Hz),
Fc=29.9MHz

dBm Trace A



Tx=29.9MHz P=Max

Start: 29.8757 MHz

Stop: 29.9257 MHz

Res BW: 100 Hz

Vid BW: 100 Hz

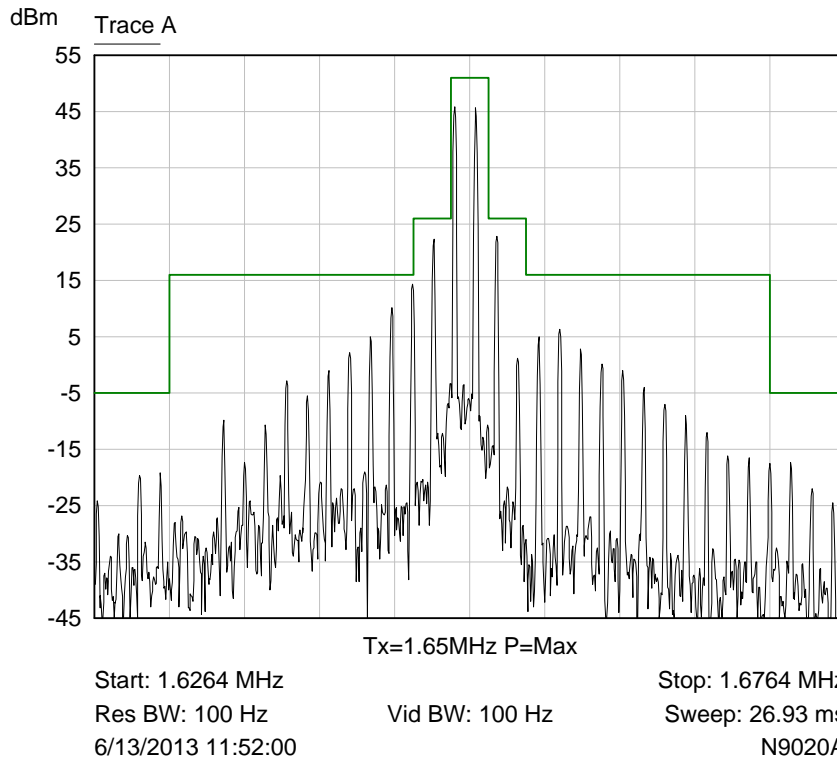
Sweep: 26.93 ms

6/16/2013 17:04:38

N9020A

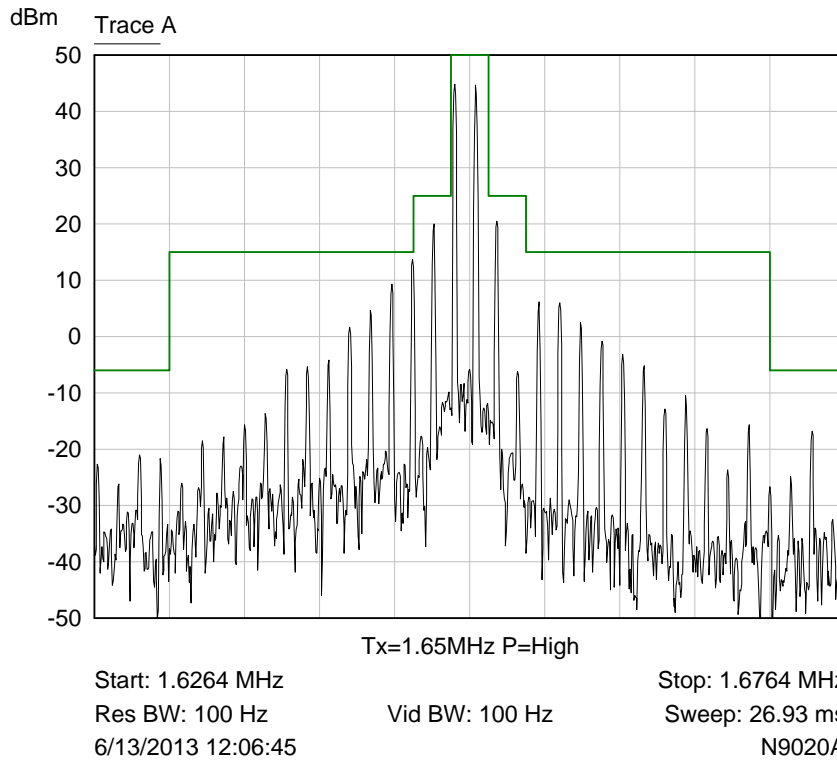
Plot Occupied Bandwidth - AME/ 12

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=1.65MHz



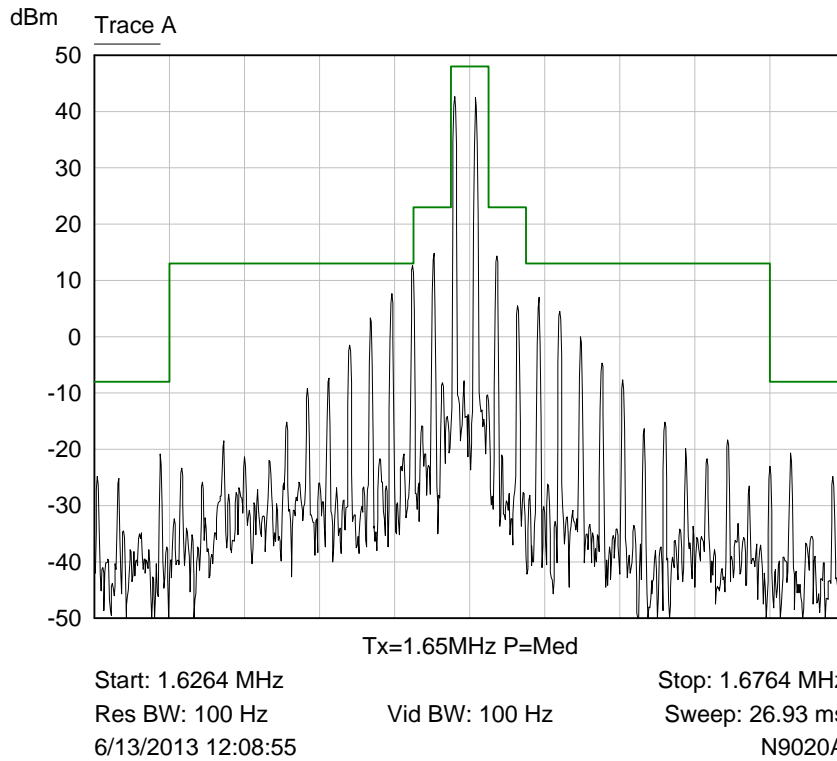
Plot Occupied Bandwidth - SSB/ 13

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=1.65MHz



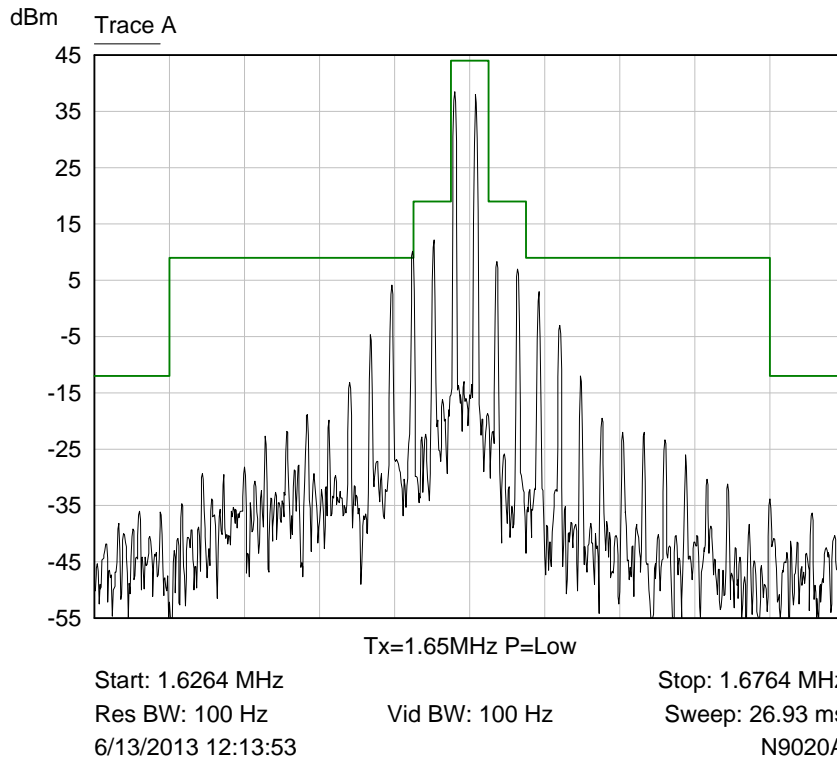
Plot Occupied Bandwidth - SSB/ 14

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=1.65MHz



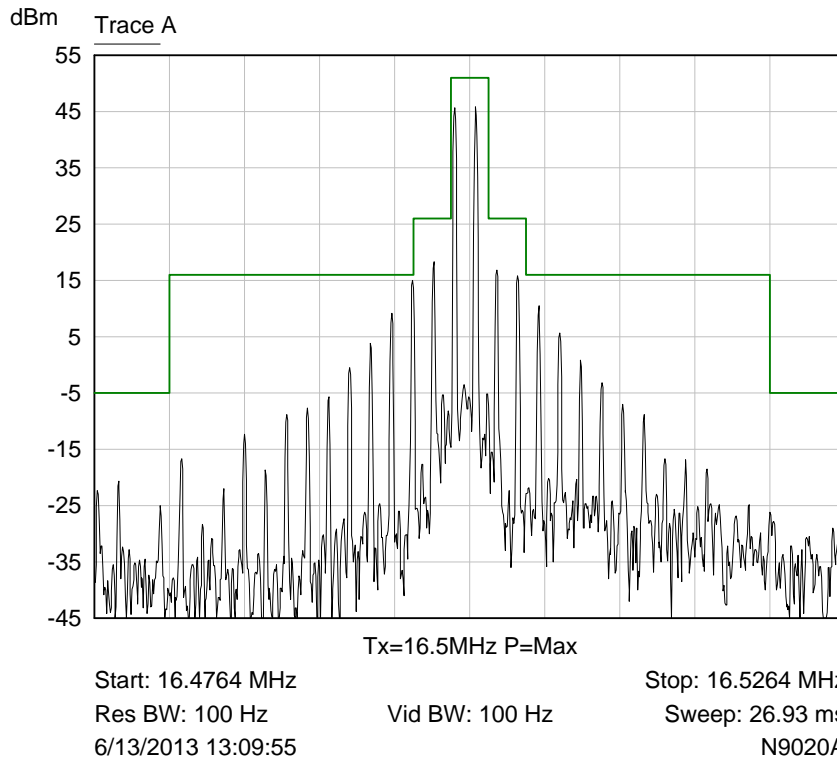
Plot Occupied Bandwidth - SSB/ 15

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=1.65MHz



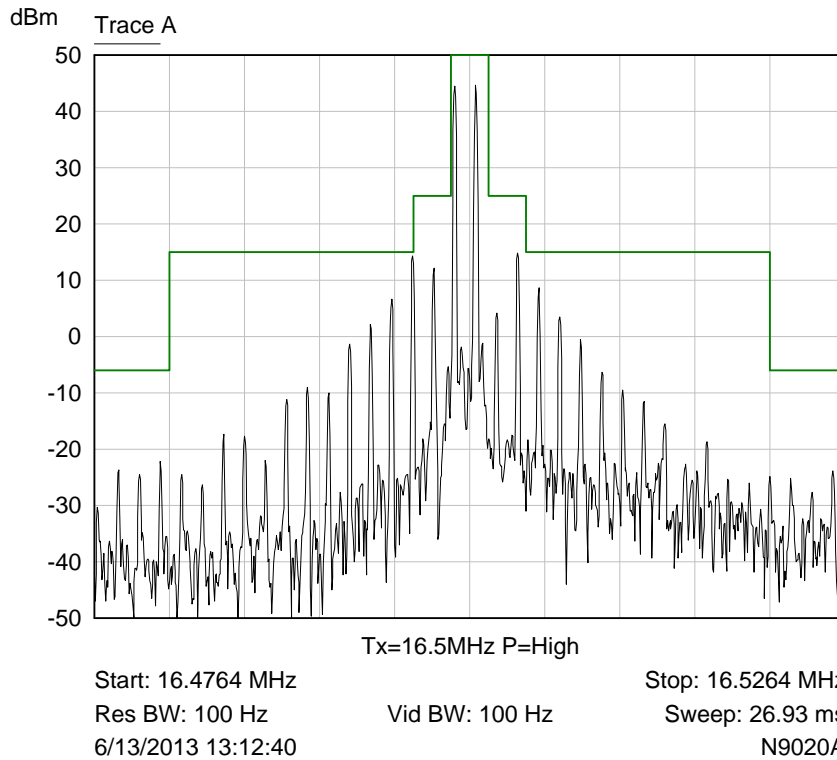
Plot Occupied Bandwidth - SSB/ 16

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=16.5MHz



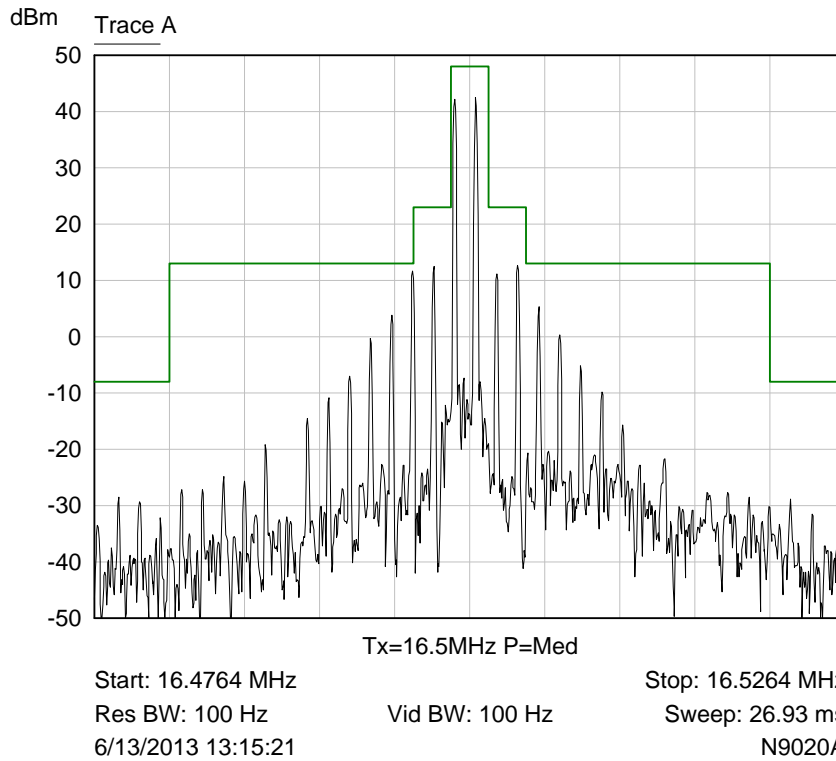
Plot Occupied Bandwidth - SSB/ 17

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=16.5MHz



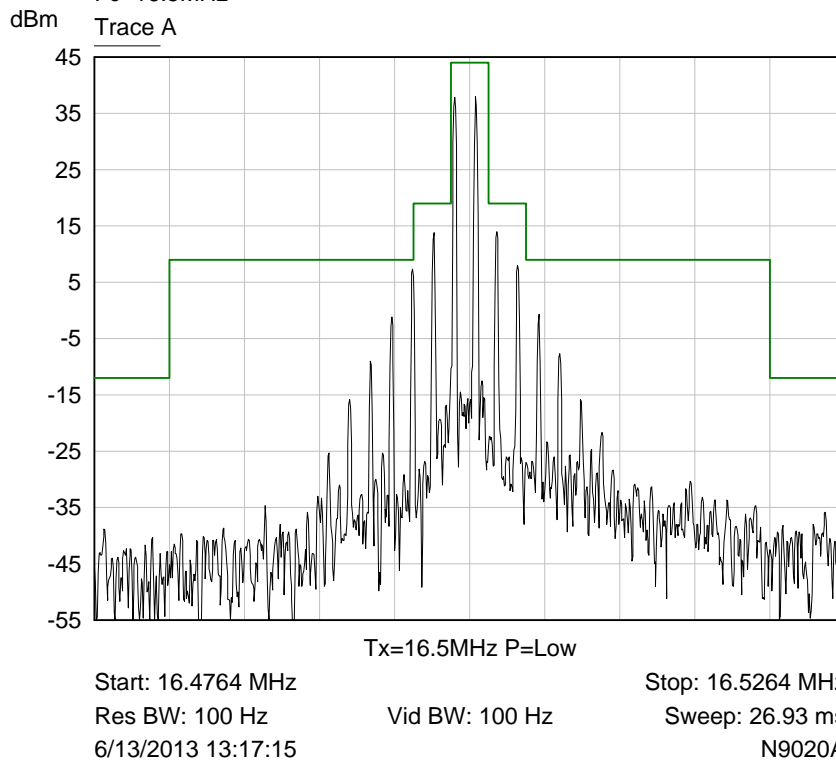
Plot Occupied Bandwidth - SSB/ 18

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=16.5MHz



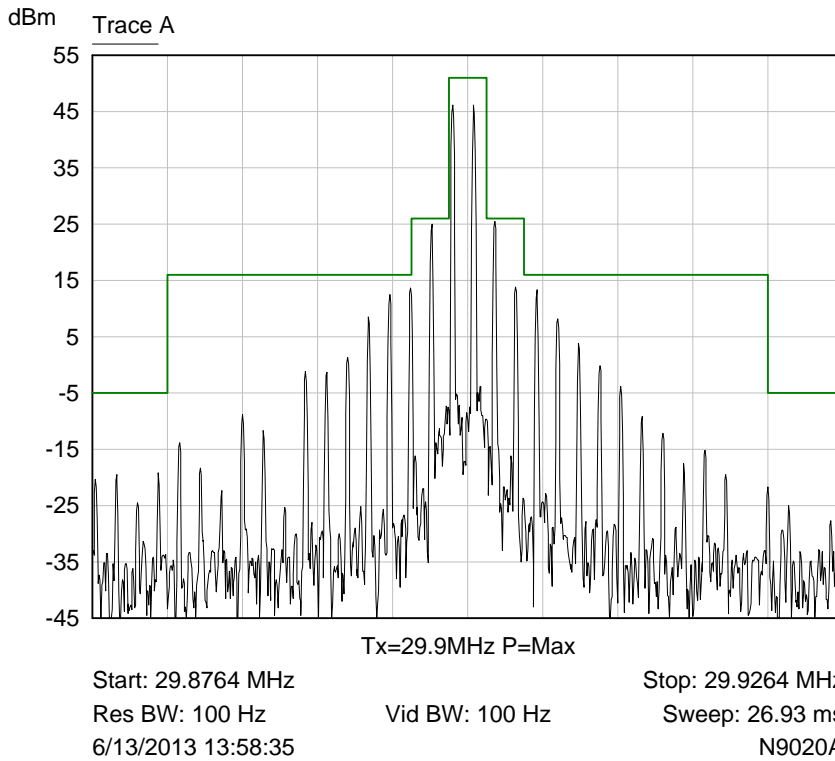
Plot Occupied Bandwidth - SSB/ 19

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=16.5MHz



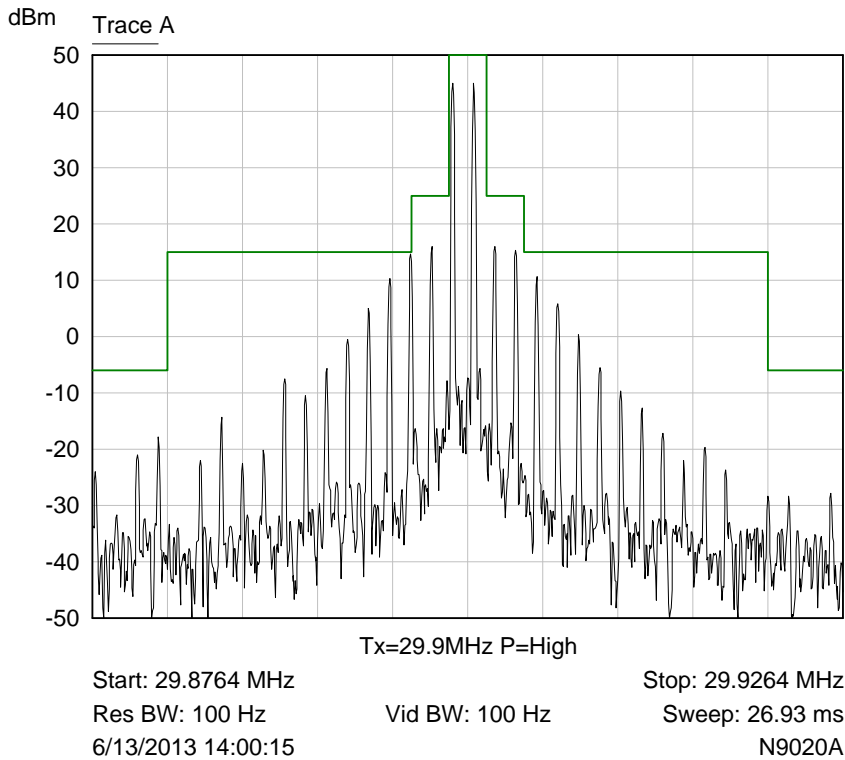
Plot Occupied Bandwidth - SSB/ 20

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz),
Fc=29.9MHz



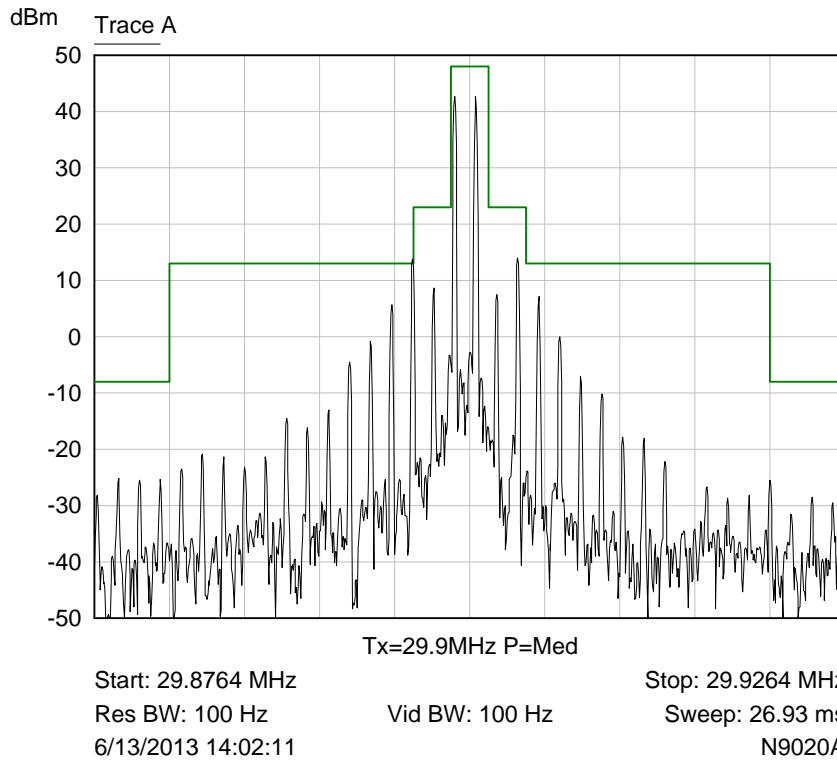
Plot Occupied Bandwidth - SSB/ 21

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz),
Fc=29.9MHz



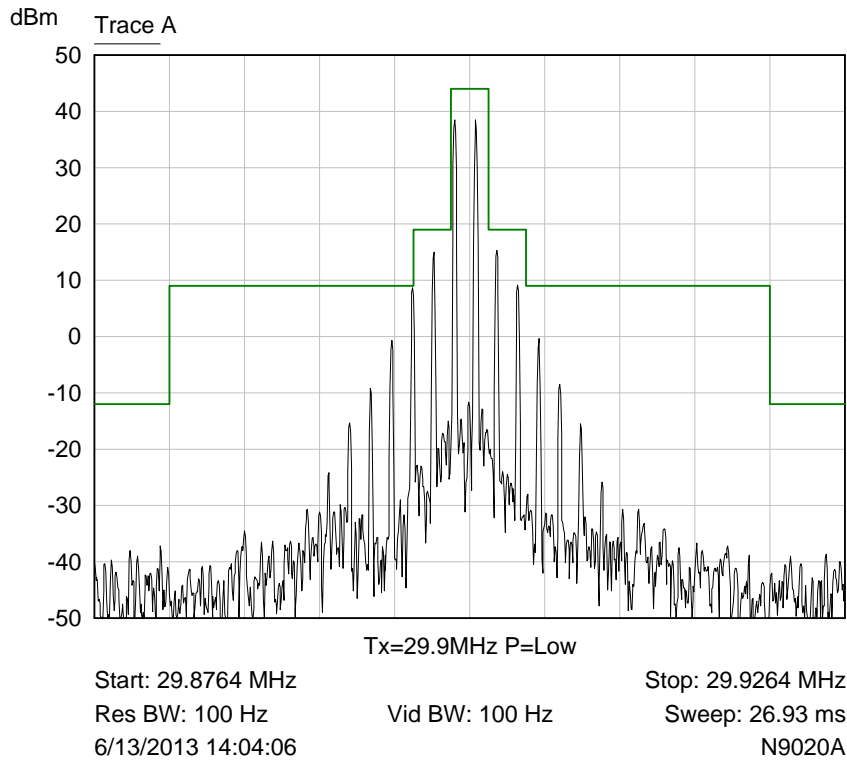
Plot Occupied Bandwidth - SSB/ 22

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=29.9MHz



Plot Occupied Bandwidth - SSB/ 23

Occupied Bandwidth: Two Tone SSB Modulation (1800Hz & 400Hz) ,
Fc=29.9MHz



Plot Occupied Bandwidth - SSB/ 24

8. Spurious Emissions at Antenna Terminals – Part 2.1051

| | |
|----------------------|-------------------|
| E.U.T | Micom Z Dash |
| S/N: | MZ6789 |
| Date: | 03.07.2013 |
| Standard | 90.210 (a) (3) |
| Relative Humidity: | 28% |
| Ambient Temperature: | 24 ^o C |
| Air Pressure: | 1010hPa |
| Testing Engineer: | S. Kozliner |
| Date | 03.07.2013 |

8.1. Test Results Summary & Conclusions

The E.U.T was found to be in compliance with the Spurious Emissions at Antenna Terminals – Part 2.1051

8.2. Test Instrumentation and Equipment

Table 6: Test Instrumentation and Equipment

| Item | Model | Manufacturer | Next Date of Calibration |
|-------------------|--------|--------------|--------------------------|
| Spectrum Analyzer | E7405A | Agilent | 09.11.2013 |
| Attenuator 30 dB | 769-30 | Narda | 21.05.2015 |
| Audio Analyzer | 8903A | HP | 23.12.2013 |

8.3. Test Results

Frequencies examined: 1.65 MHz, 16.5 MHz, and 27 MHz

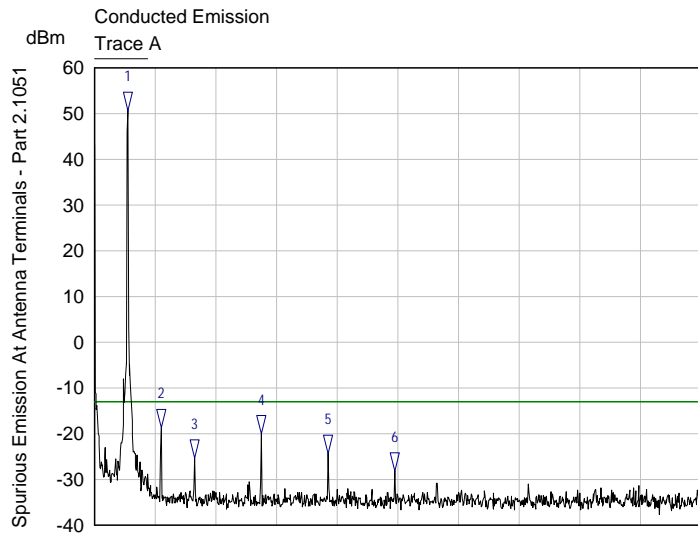
Frequency range: 0.01 – 30 MHz & 30 – 300 MHz

All emissions were measured using the following input criteria:

- Two Tone Modulation 400 Hz and 1800 Hz
- Input level set to 10dB above the level required for Max PEP 125 Watts

Table 7: Test Results

| Frequency (MHz) | Frequency Range | Power | Difference bet 1 & 2 (dB) | Compliance Y/N |
|-----------------|-----------------|---------|---------------------------|----------------|
| 1.65 | 0.01 – 30 MHz | Maximum | 69.73 | Y |
| 1.65 | | High | 71.05 | Y |
| 1.65 | | Medium | 71.19 | Y |
| 1.65 | | Low | 66.65 | Y |
| 16.5 | | Maximum | 70.92 | Y |
| 16.5 | | High | 71.88 | Y |
| 16.5 | | Medium | 72.11 | Y |
| 16.5 | | Low | 70.91 | Y |
| 27 | | Maximum | 66.09 | Y |
| 27 | | High | 67.20 | Y |
| 27 | | Medium | 68.70 | Y |
| 27 | | Low | 68.41 | Y |
| 1.65 | 30 – 300 MHz | Maximum | | Y |
| 1.65 | | High | | Y |
| 1.65 | | Medium | | Y |
| 1.65 | | Low | | Y |
| 16.5 | | Maximum | | Y |
| 16.5 | | High | | Y |
| 16.5 | | Medium | | Y |
| 16.5 | | Low | | Y |
| 27 | | Maximum | | Y |
| 27 | | High | | Y |
| 27 | | Medium | | Y |
| 27 | | Low | | Y |

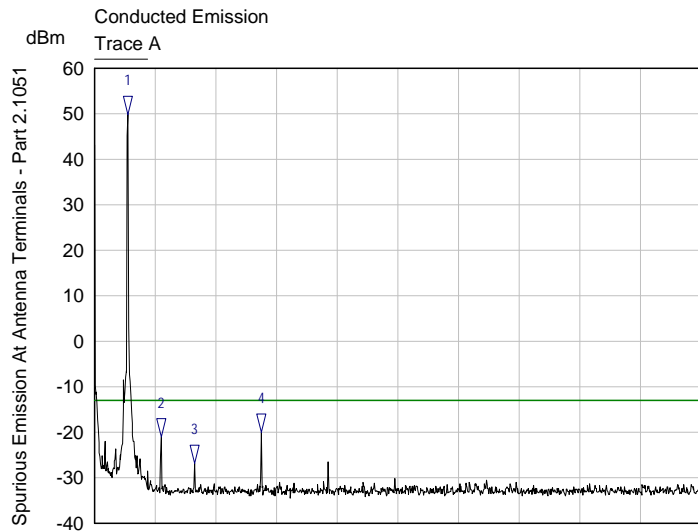


Plot_01 TX 1.65MHz ; P Max

Start: 10.0000 kHz Stop: 30.0000 MHz
Res BW: 10 kHz Vid BW: 100 kHz Sweep: 276.80 ms
7/2/2013 10:04:37 AM TX 1.65MHz ; P Max N9020A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 | Trace A | 1.6595 MHz | 50.62 dBm | |
| 2 | Trace A | 3.3089 MHz | -18.73 dBm | |
| 3 | Trace A | 4.9584 MHz | -25.41 dBm | |
| 4 | Trace A | 8.2573 MHz | -20.01 dBm | |
| 5 | Trace A | 11.5562 MHz | -24.37 dBm | |
| 6 | Trace A | 14.8551 MHz | -28.21 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 1.65 MHz P Max/ 1

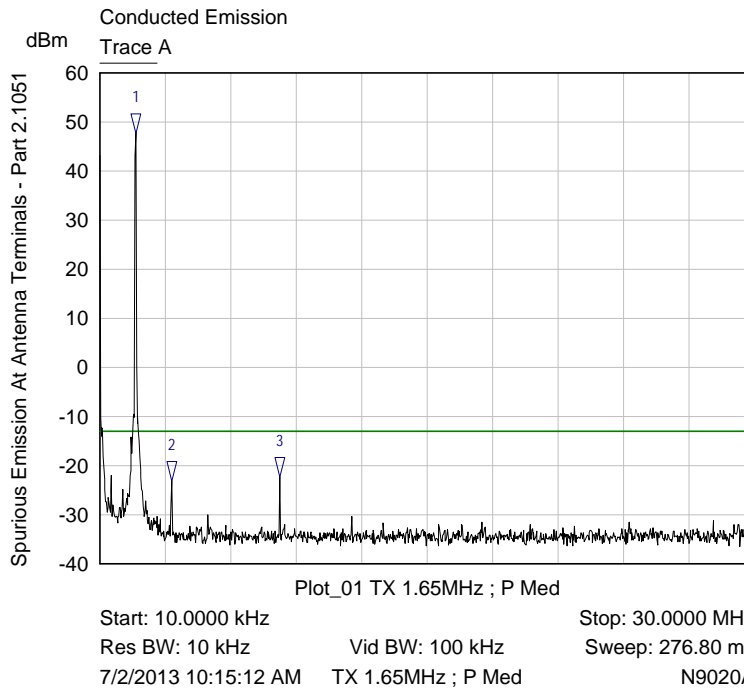


Plot_01 TX 1.65MHz ; P High

Start: 10.0000 kHz Stop: 30.0000 MHz
Res BW: 10 kHz Vid BW: 100 kHz Sweep: 276.80 ms
7/2/2013 10:13:02 AM TX 1.65MHz ; P High N9020A

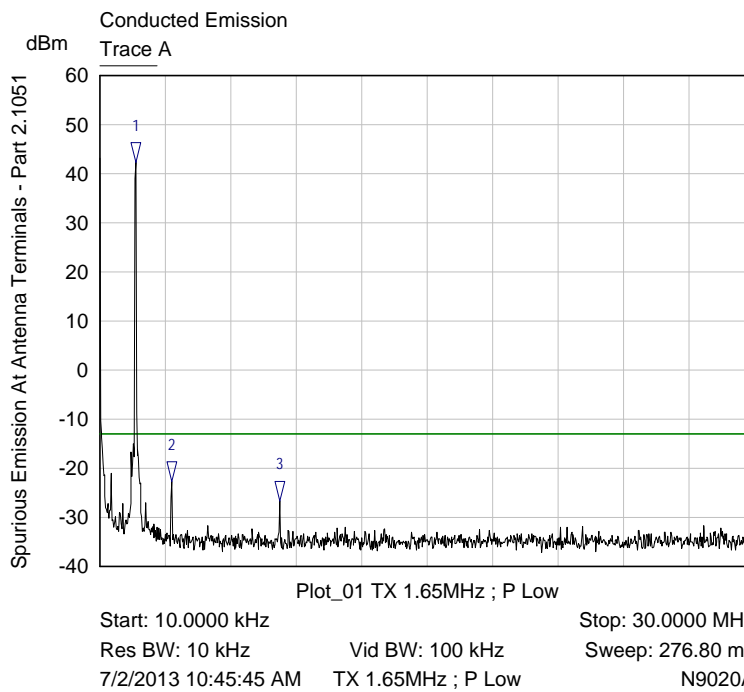
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|------------|------------|-------|
| 1 | Trace A | 1.6595 MHz | 49.80 dBm | |
| 2 | Trace A | 3.3089 MHz | -21.05 dBm | |
| 3 | Trace A | 4.9584 MHz | -26.82 dBm | |
| 4 | Trace A | 8.2573 MHz | -20.04 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 1.65 MHz P High/ 2



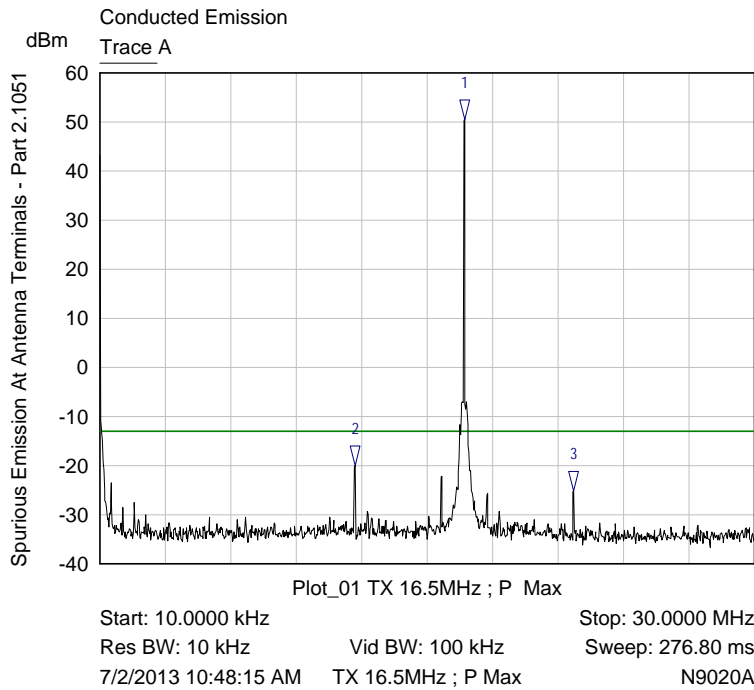
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|------------|------------|-------|
| 1 ▽ | Trace A | 1.6595 MHz | 47.74 dBm | |
| 2 ▽ | Trace A | 3.3089 MHz | -23.19 dBm | |
| 3 ▽ | Trace A | 8.2573 MHz | -22.39 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 1.65 MHz P Medium/ 3



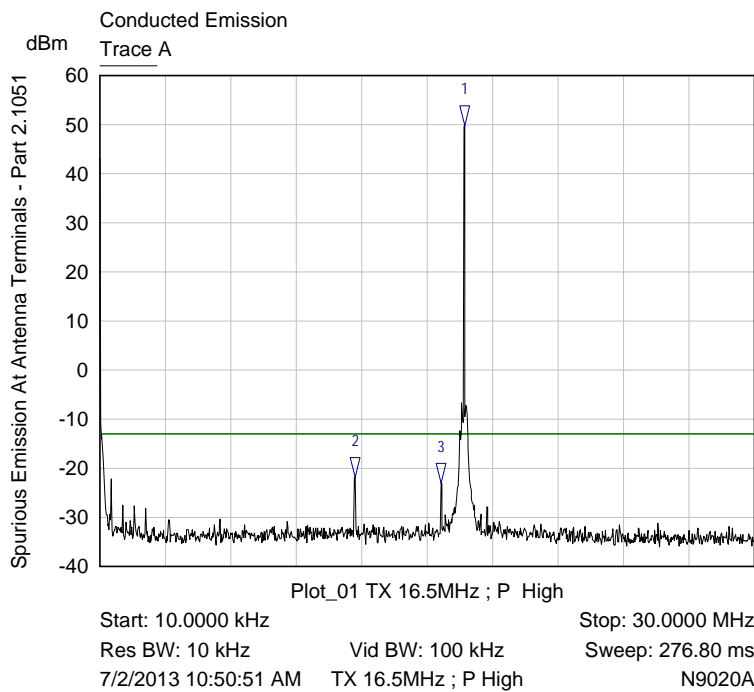
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|------------|------------|-------|
| 1 ▽ | Trace A | 1.6595 MHz | 42.35 dBm | |
| 2 ▽ | Trace A | 3.3089 MHz | -22.65 dBm | |
| 3 ▽ | Trace A | 8.2573 MHz | -26.71 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 1.65 MHz P Low/ 4



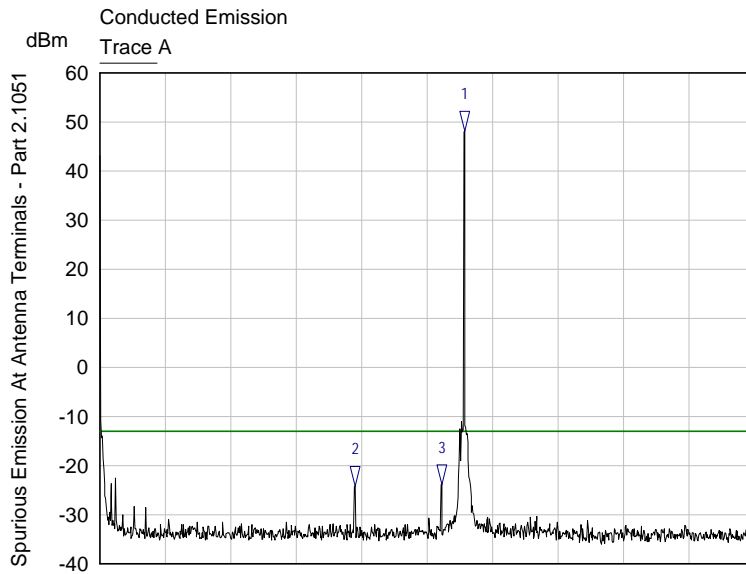
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 16.7144 MHz | 50.43 dBm | |
| 2 ▽ | Trace A | 11.7061 MHz | -19.92 dBm | |
| 3 ▽ | Trace A | 21.7228 MHz | -25.12 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 16.5 MHz P Max/ 5



| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 16.7144 MHz | 49.85 dBm | |
| 2 ▽ | Trace A | 11.7061 MHz | -21.88 dBm | |
| 3 ▽ | Trace A | 15.6348 MHz | -23.07 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 16.5 MHz P High/ 6

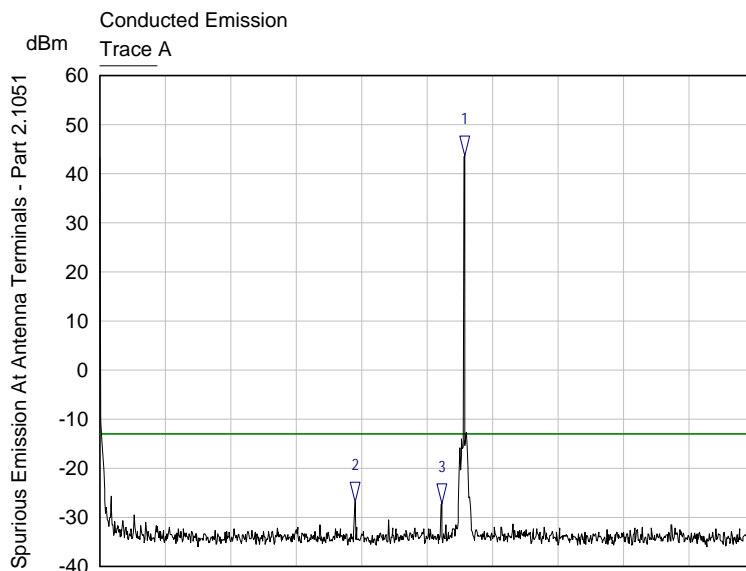


Plot_01 TX 16.5MHz ; P Med

Start: 10.0000 kHz Stop: 30.0000 MHz
Res BW: 10 kHz Vid BW: 100 kHz Sweep: 276.80 ms
7/2/2013 10:55:07 AM TX 16.5MHz ; P Med N9020A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 16.7144 MHz | 48.13 dBm | |
| 2 ▽ | Trace A | 11.7061 MHz | -24.11 dBm | |
| 3 ▽ | Trace A | 15.6648 MHz | -23.81 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 16.5 MHz P Medium/ 7

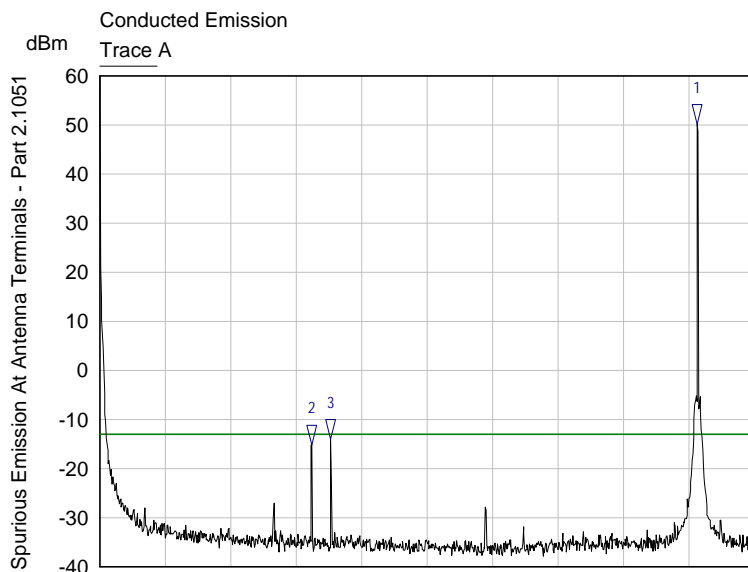


Plot_01 TX 16.5MHz ; P Low

Start: 10.0000 kHz Stop: 30.0000 MHz
Res BW: 10 kHz Vid BW: 100 kHz Sweep: 276.80 ms
7/2/2013 10:56:42 AM TX 16.5MHz ; P Low N9020A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 16.7144 MHz | 43.60 dBm | |
| 2 ▽ | Trace A | 11.7061 MHz | -26.91 dBm | |
| 3 ▽ | Trace A | 15.6648 MHz | -27.11 dBm | |

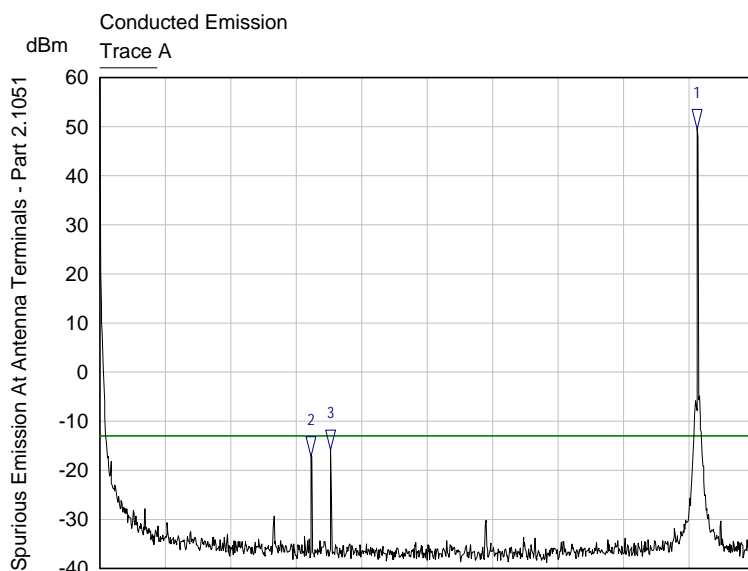
Plot Spurious Emissions – Antenna Terminal – Tx 16.5 MHz P Low/ 8



Start: 10.0000 kHz Stop: 30.0000 MHz
Res BW: 10 kHz Vid BW: 100 kHz Sweep: 276.80 ms
7/3/2013 4:45:52 PM TX 27MHz ; P Max N9020A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 27.3909 MHz | 50.15 dBm | |
| 2 ▽ | Trace A | 9.7268 MHz | -15.09 dBm | |
| 3 ▽ | Trace A | 10.5965 MHz | -14.00 dBm | |

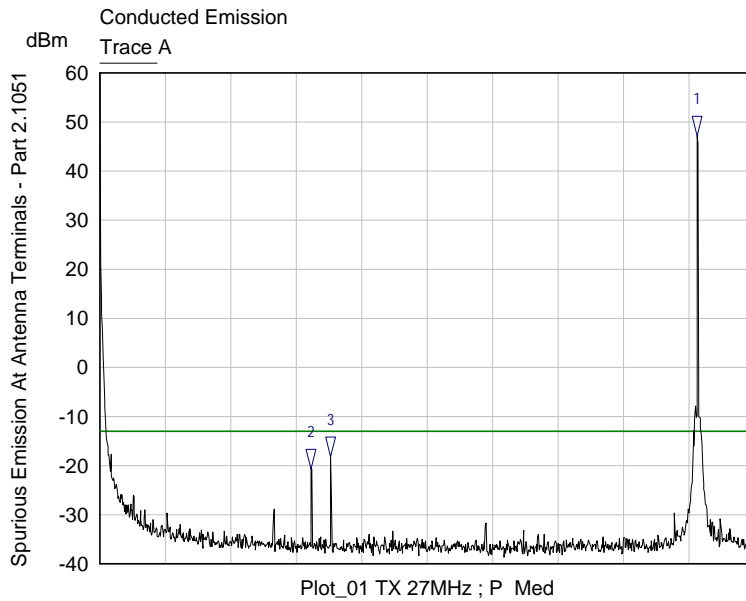
Plot Spurious Emissions – Antenna Terminal – Tx 27 MHz P Max/ 9



Start: 10.0000 kHz Stop: 30.0000 MHz
Res BW: 10 kHz Vid BW: 100 kHz Sweep: 276.80 ms
7/3/2013 4:58:31 PM TX 27MHz ; P High N9020A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 27.3909 MHz | 49.50 dBm | |
| 2 ▽ | Trace A | 9.6968 MHz | -17.20 dBm | |
| 3 ▽ | Trace A | 10.5965 MHz | -15.90 dBm | |

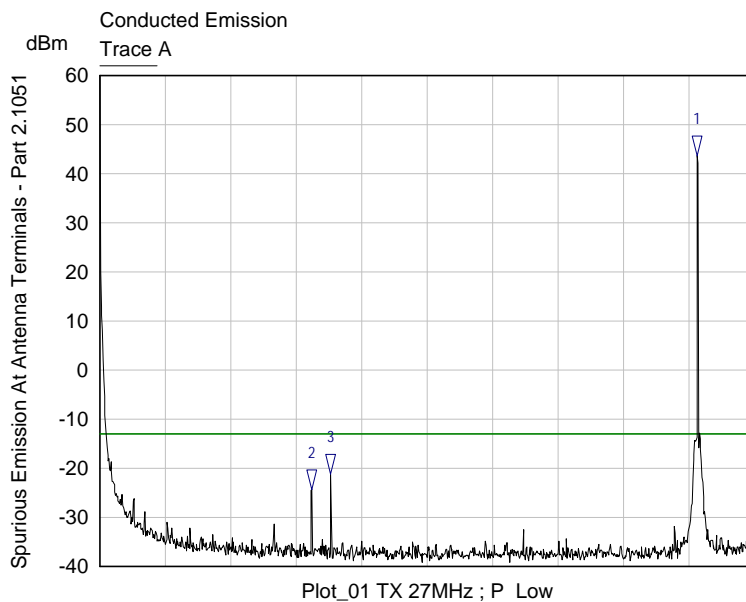
Plot Spurious Emissions – Antenna Terminal – Tx 27 MHz P High/ 10



Start: 10.0000 kHz Stop: 30.0000 MHz
Res BW: 10 kHz Vid BW: 100 kHz Sweep: 276.80 ms
7/3/2013 4:56:52 PM TX 27MHz ; P Med N9020A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 27.3909 MHz | 47.15 dBm | |
| 2 ▽ | Trace A | 9.6968 MHz | -20.70 dBm | |
| 3 ▽ | Trace A | 10.5965 MHz | -18.13 dBm | |

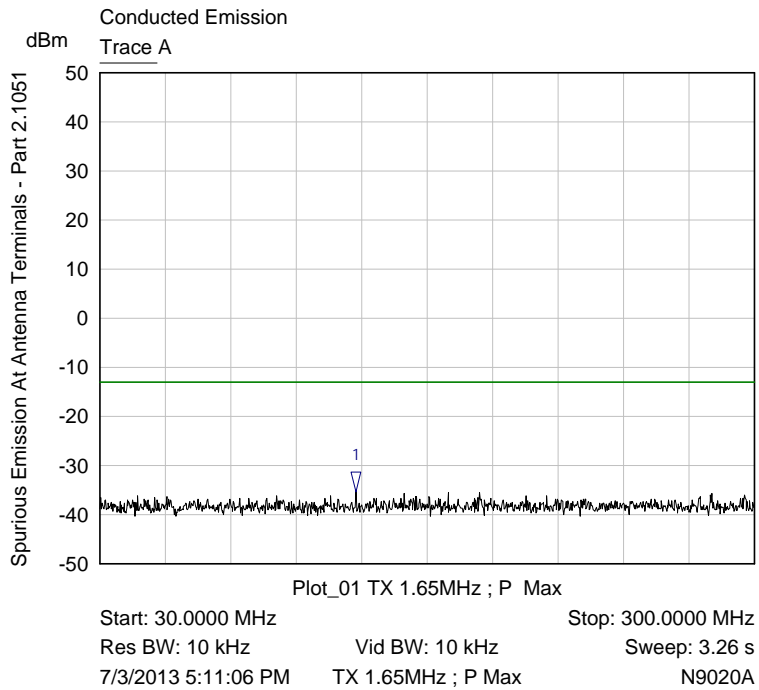
Plot Spurious Emissions – Antenna Terminal – Tx 27 MHz P Medium/ 11



Start: 10.0000 kHz Stop: 30.0000 MHz
Res BW: 10 kHz Vid BW: 100 kHz Sweep: 276.80 ms
7/3/2013 4:54:52 PM TX 27MHz ; P Low N9020A

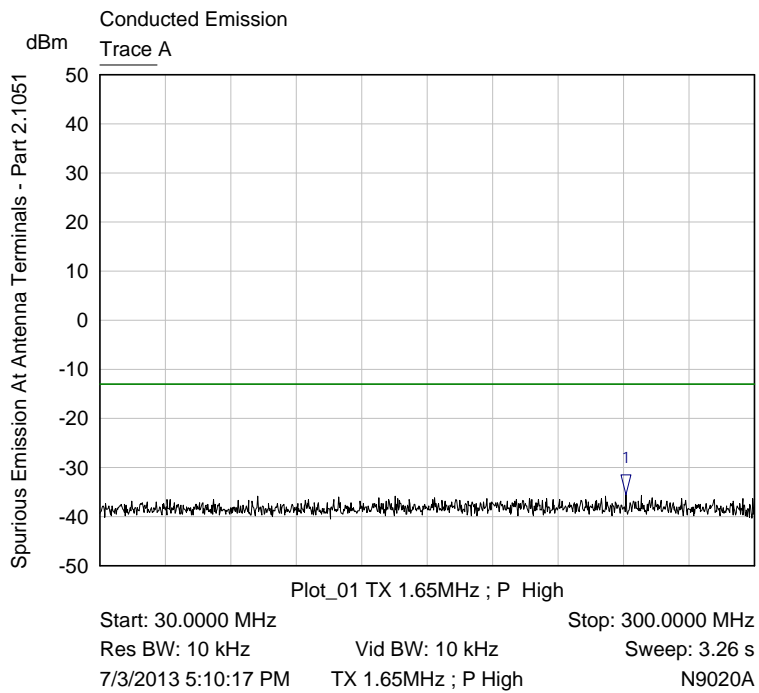
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 27.3909 MHz | 43.61 dBm | |
| 2 ▽ | Trace A | 9.7268 MHz | -24.41 dBm | |
| 3 ▽ | Trace A | 10.5965 MHz | -21.15 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 27 MHz P Low/ 12



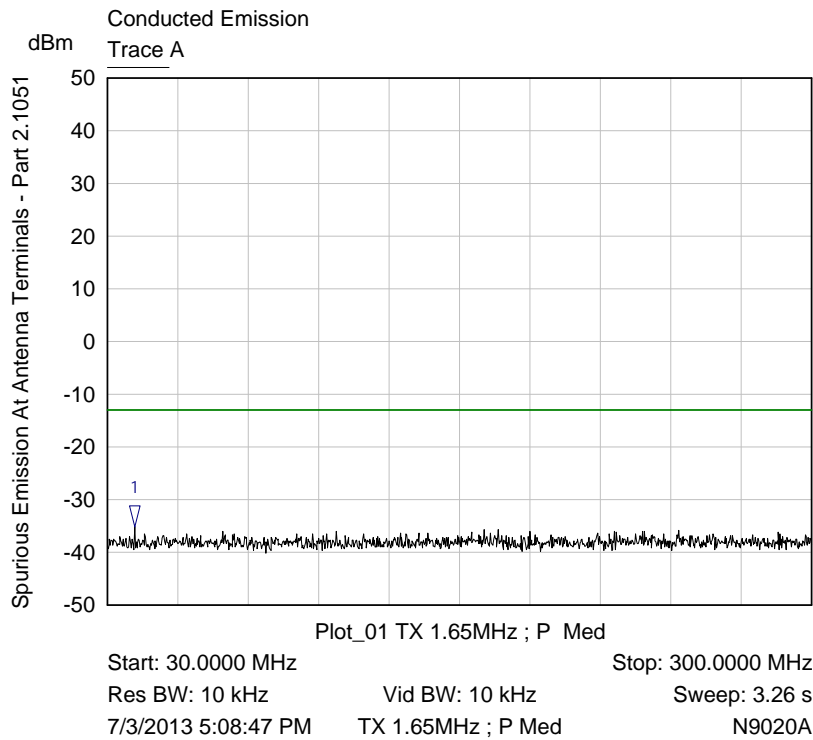
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|--------------|------------|-------|
| 1 ▽ | Trace A | 135.5700 MHz | -35.32 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 1.65 MHz P Max/ 13



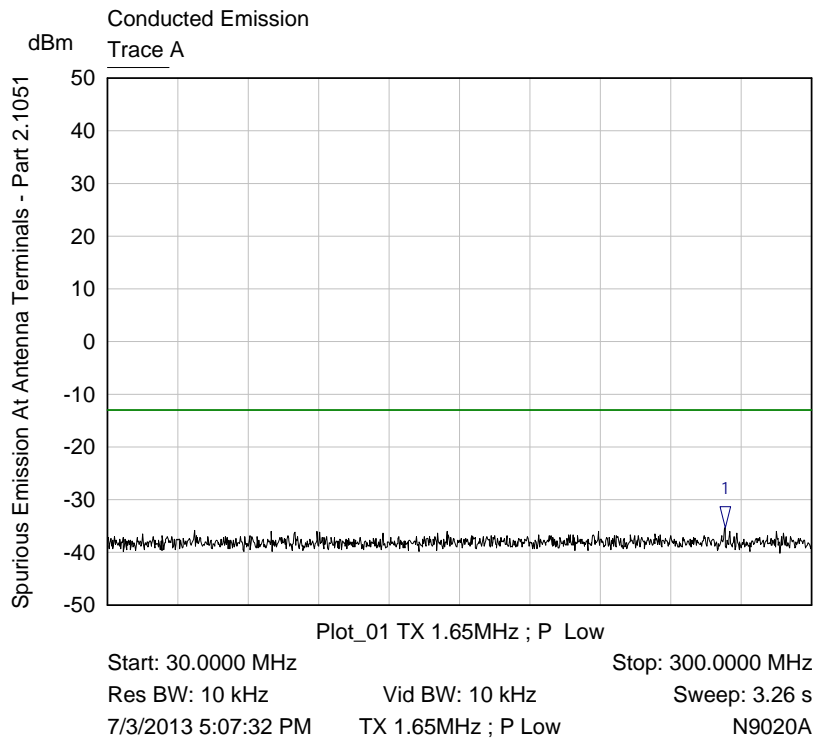
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|--------------|------------|-------|
| 1 ▽ | Trace A | 247.0800 MHz | -35.54 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 1.65 MHz P High/ 14



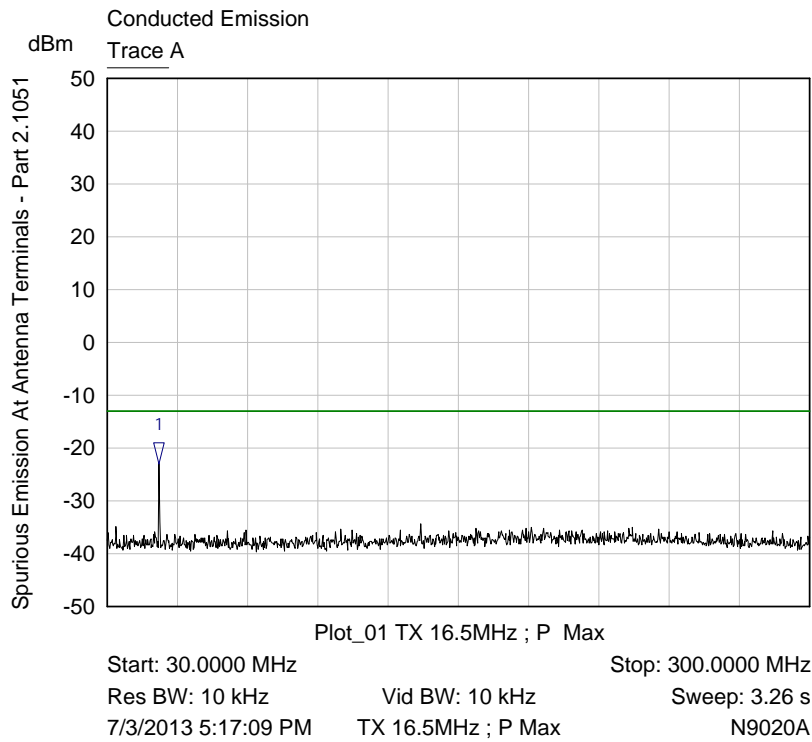
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▾ | Trace A | 40.5300 MHz | -35.20 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 1.65 MHz P Medium/ 15



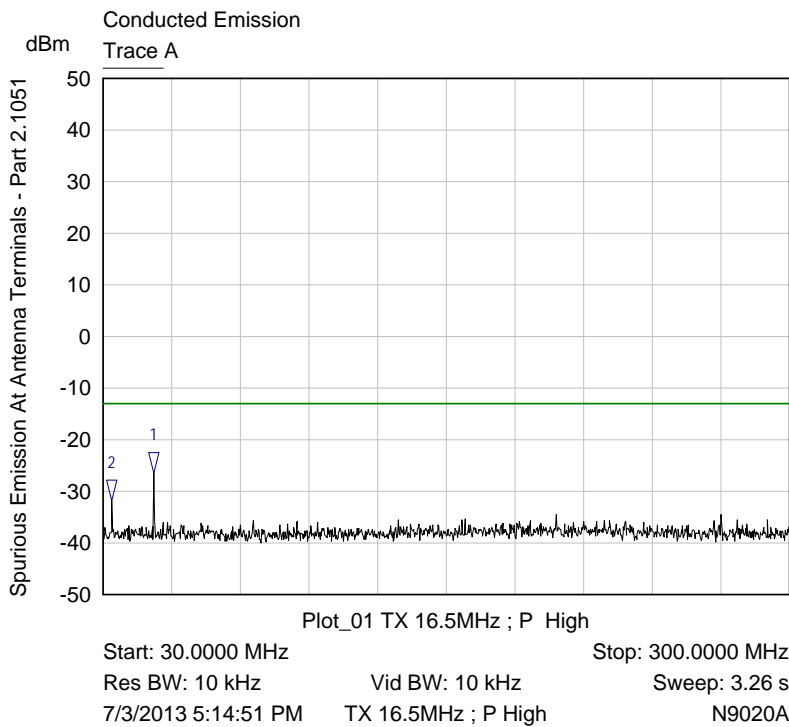
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|--------------|------------|-------|
| 1 ▾ | Trace A | 266.7900 MHz | -35.27 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 1.65 MHz P Low/ 16



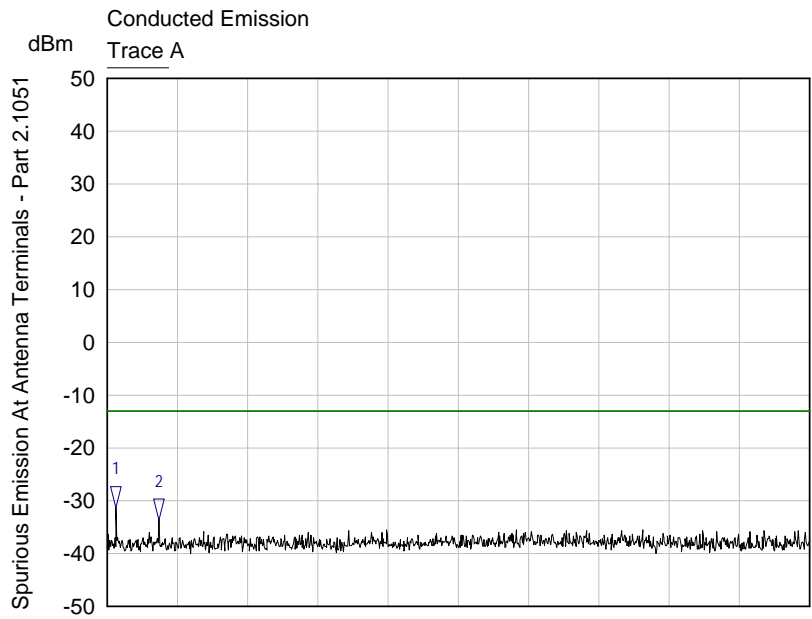
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 49.9800 MHz | -23.06 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 16.5 MHz P Max/ 17



| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 49.9800 MHz | -26.49 dBm | |
| 2 ▽ | Trace A | 33.5100 MHz | -31.91 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 16.5 MHz P High/ 18

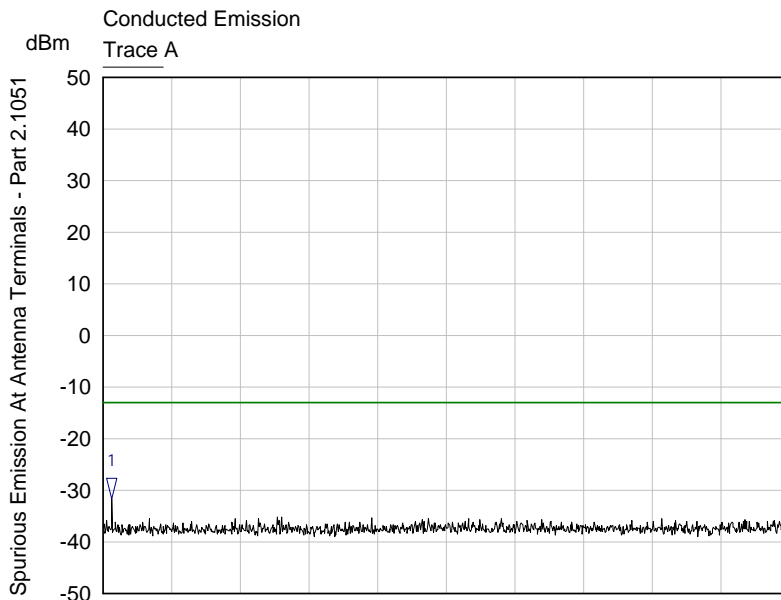


Plot_01 TX 16.5MHz ; P Med

Start: 30.0000 MHz Stop: 300.0000 MHz
Res BW: 10 kHz Vid BW: 10 kHz Sweep: 3.26 s
7/3/2013 5:13:10 PM TX 16.5MHz ; P Med N9020A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▾ | Trace A | 33.5100 MHz | -31.36 dBm | |
| 2 ▾ | Trace A | 49.9800 MHz | -33.73 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 16.5 MHz P Medium/ 19

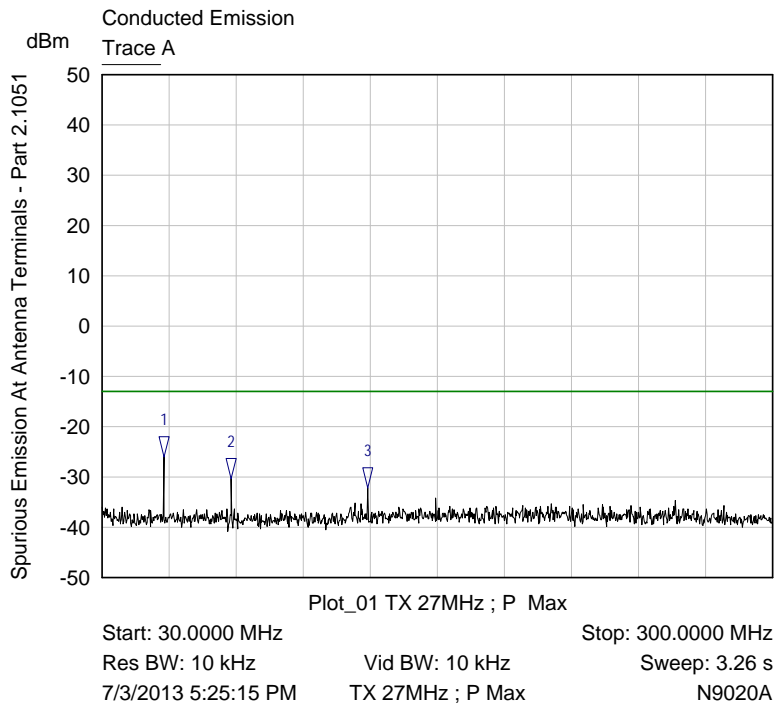


Plot_01 TX 16.5MHz ; P Low

Start: 30.0000 MHz Stop: 300.0000 MHz
Res BW: 10 kHz Vid BW: 10 kHz Sweep: 3.26 s
7/3/2013 5:12:09 PM TX 16.5MHz ; P Low N9020A

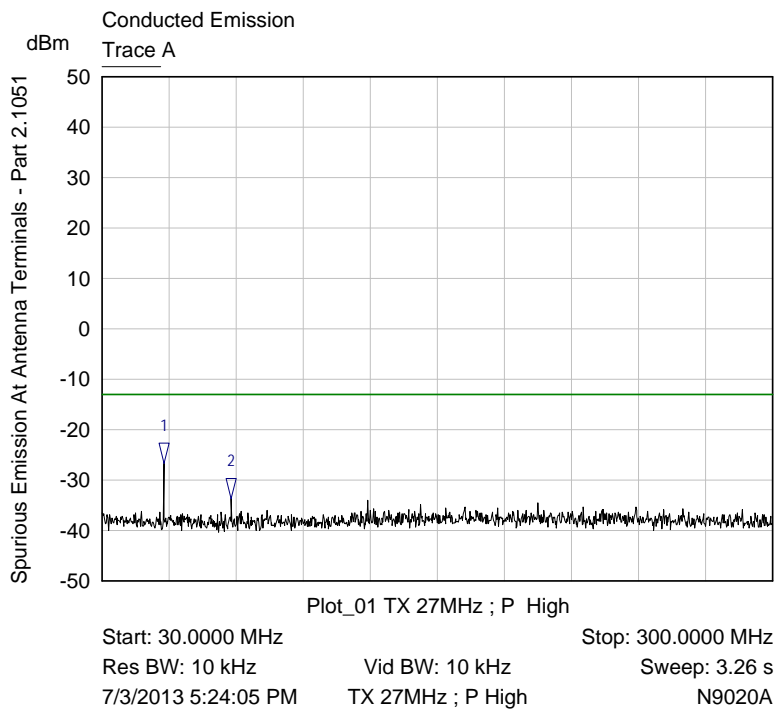
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▾ | Trace A | 33.5100 MHz | -31.65 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 16.5 MHz P Low/ 20



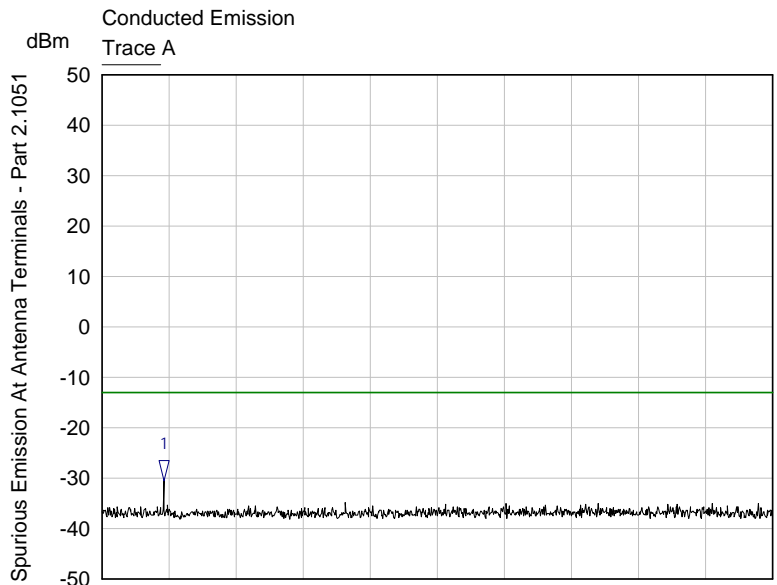
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|--------------|------------|-------|
| 1 ▽ | Trace A | 54.8400 MHz | -26.05 dBm | |
| 2 ▽ | Trace A | 82.1100 MHz | -30.32 dBm | |
| 3 ▽ | Trace A | 136.9200 MHz | -32.14 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 27 MHz P Max/ 21



| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 54.8400 MHz | -26.65 dBm | |
| 2 ▽ | Trace A | 82.1100 MHz | -33.63 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 27 MHz P High/ 22

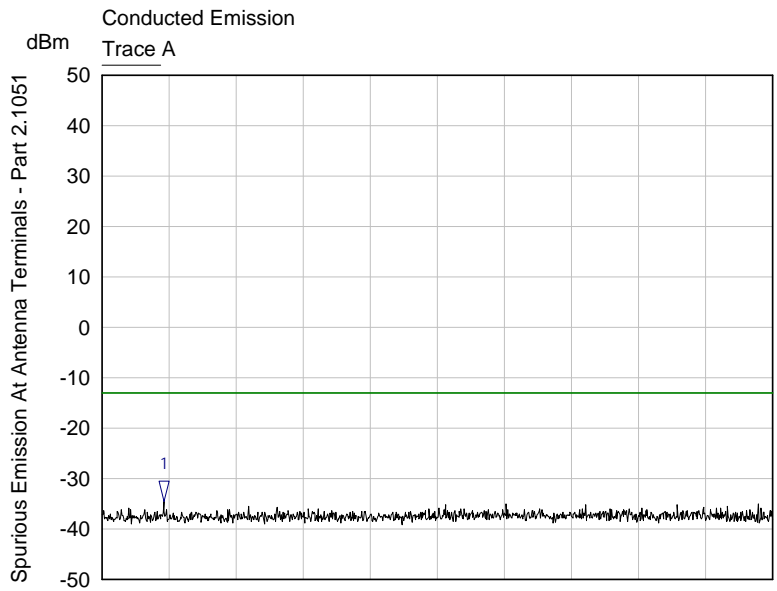


Plot_01 TX 27MHz ; P Med

Start: 30.0000 MHz Stop: 300.0000 MHz
Res BW: 10 kHz Vid BW: 10 kHz Sweep: 3.26 s
7/3/2013 5:23:04 PM TX 27MHz ; P Med N9020A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 54.8400 MHz | -30.58 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 27 MHz P Medium/ 23



Plot_01 TX 27MHz ; P Low

Start: 30.0000 MHz Stop: 300.0000 MHz
Res BW: 10 kHz Vid BW: 10 kHz Sweep: 3.26 s
7/3/2013 5:20:34 PM TX 27MHz ; P Low N9020A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|-------|
| 1 ▽ | Trace A | 54.8400 MHz | -34.42 dBm | |

Plot Spurious Emissions – Antenna Terminal – Tx 27 MHz P Low/ 24

9. Carrier Suppression at Antenna Terminals – Part 2.1051

E.U.T Micom Z Dash
 S/N: MZ6789
 Date: 12.06.2013
 Standard 90.210 (a)
 Relative Humidity: 28%
 Ambient Temperature: 24^oC
 Air Pressure: 1010hPa
 Testing Engineer: S. Kozliner Date 12.06.2013

9.1. Test Results Summary & Conclusions

The E.U.T was found to be in compliance with Carrier Suppression at Antenna Terminals – Part 2.1051

9.2. Test Instrumentation and Equipment

Table 8: Test Instrumentation and Equipment

| Item | Model | Manufacturer | Next Date of Calibration |
|-------------------|--------|--------------|--------------------------|
| Spectrum Analyzer | E7405A | Agilent | 09.11.2013 |
| Attenuator 30 dB | 769-30 | Narda | 21.05.2015 |
| Audio Analyzer | 8903A | HP | 23.12.2013 |

9.3. Test Results

Frequencies examined: 1.65 MHz, 16.5 MHz, & 29.9 MHz

Transmitting Power: 25W, 62W, 100W & 125W

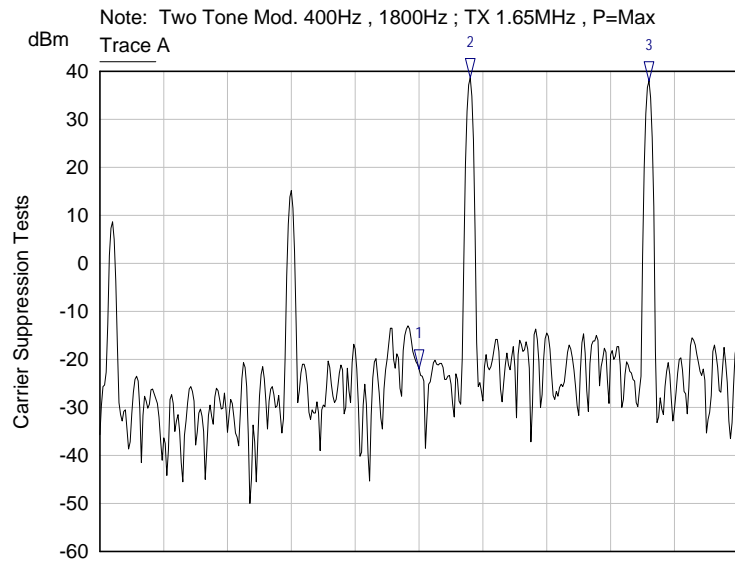
All emissions were measured using the following input criteria:

- Two Tone Modulation 400 Hz and 1800 Hz
- Input level set to 10dB above the level required for Max PEP 125 Watts

Table 9: Test Results

| Frequency (MHz) | Power | Suppression | Limit (dB) | Compliance Y/N |
|-----------------|---------|-------------|------------|----------------|
| 1.65 | Maximum | 72.99 | 60 | Y |
| 1.65 | High | 87.56 | 60 | Y |
| 1.65 | Medium | 69.46 | 60 | Y |
| 1.65 | Low | 77.46 | 60 | Y |
| 16.5 | Maximum | 66.10 | 60 | Y |
| 16.5 | High | 69.47 | 60 | Y |
| 16.5 | Medium | 68.87 | 60 | Y |
| 16.5 | Low | 64.23 | 60 | Y |
| 29.9 | Maximum | 65.54 | 60 | Y |
| 29.9 | High | 66.95 | 60 | Y |
| 29.9 | Medium | 61.24 | 60 | Y |
| 29.9 | Low | 63.85 | 60 | Y |

See attached plots

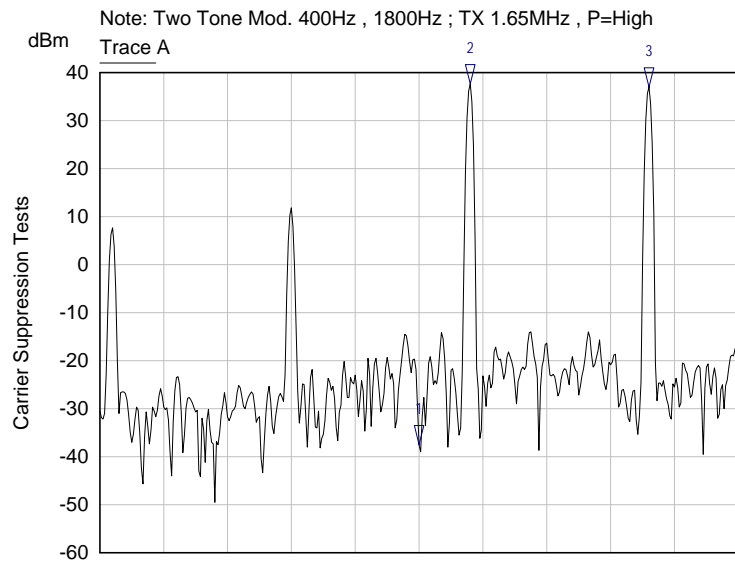


Plot_04 TX 1.65MHz / P=Max

Centre: 1.6500 MHz Span: 5.0000 kHz
Res BW: 30 Hz Vid BW: 30 Hz Sweep: 582.00 ms
6/30/2013 17:14:28 E7405A

| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|------------|------------|---------|
| 1 ▽ | Trace A | 1.6500 MHz | -22.02 dBm | Carrier |
| 2 ▽ | Trace A | 1.6504 MHz | 38.59 dBm | Tone 1 |
| 3 ▽ | Trace A | 1.6518 MHz | 38.08 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 1.65 MHz P Maximum/ 1

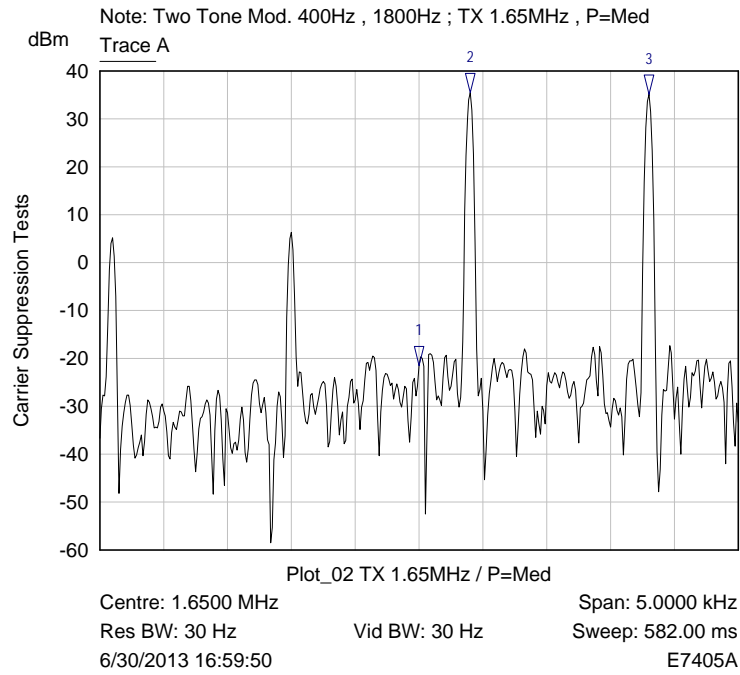


Plot_03 TX 1.65MHz / P=High

Centre: 1.6500 MHz Span: 5.0000 kHz
Res BW: 30 Hz Vid BW: 30 Hz Sweep: 582.00 ms
6/30/2013 17:08:10 E7405A

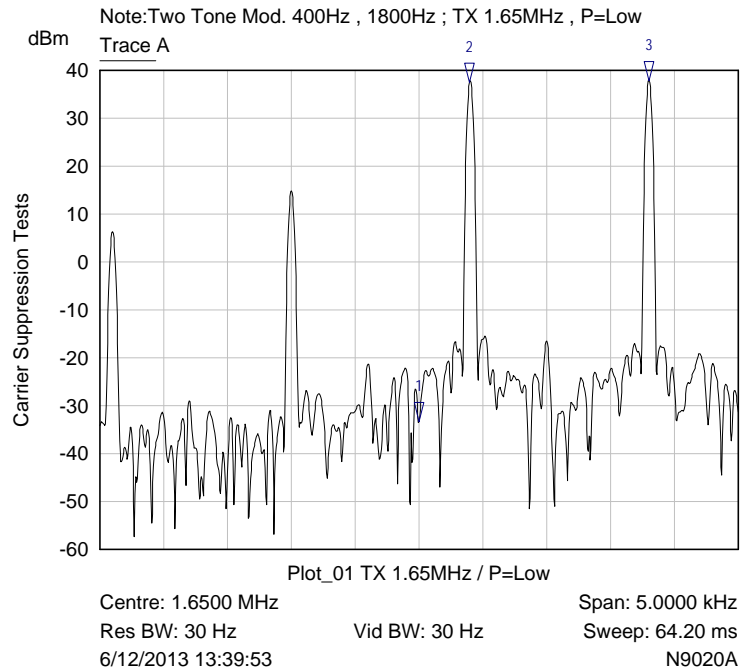
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|------------|------------|---------|
| 1 ▽ | Trace A | 1.6500 MHz | -37.56 dBm | Carrier |
| 2 ▽ | Trace A | 1.6504 MHz | 37.61 dBm | Tone 1 |
| 3 ▽ | Trace A | 1.6518 MHz | 37.08 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 1.65 MHz P High/ 2



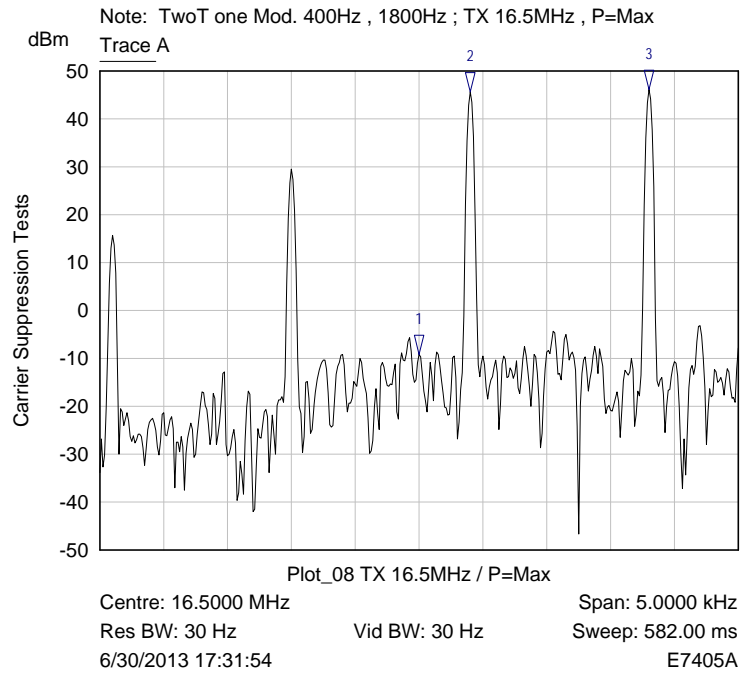
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|------------|------------|---------|
| 1 ▽ | Trace A | 1.6500 MHz | -21.54 dBm | Carrier |
| 2 ▽ | Trace A | 1.6504 MHz | 35.45 dBm | Tone 1 |
| 3 ▽ | Trace A | 1.6518 MHz | 35.09 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 1.65 MHz P Medium/ 3



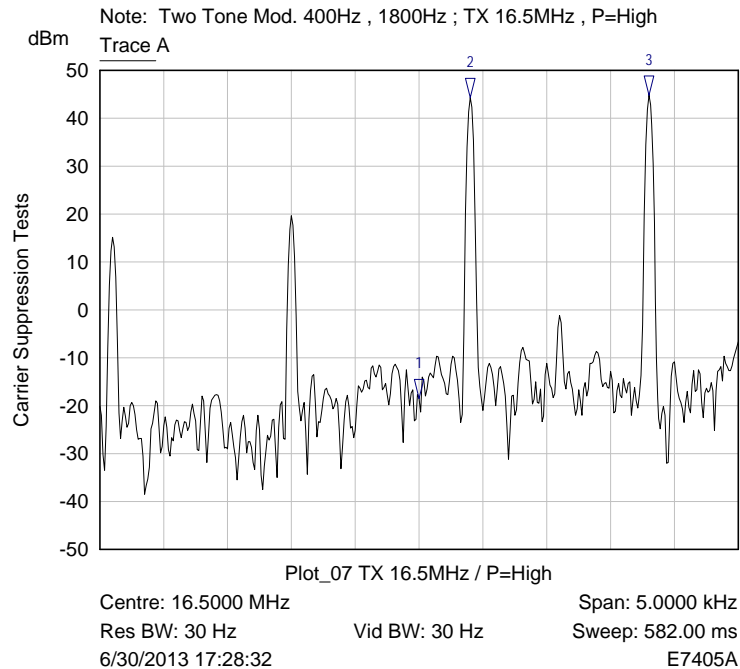
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|------------|------------|---------|
| 1 ▽ | Trace A | 1.6500 MHz | -33.36 dBm | Carrier |
| 2 ▽ | Trace A | 1.6504 MHz | 37.54 dBm | Tone 1 |
| 3 ▽ | Trace A | 1.6518 MHz | 37.88 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 1.65 MHz P Low/ 4



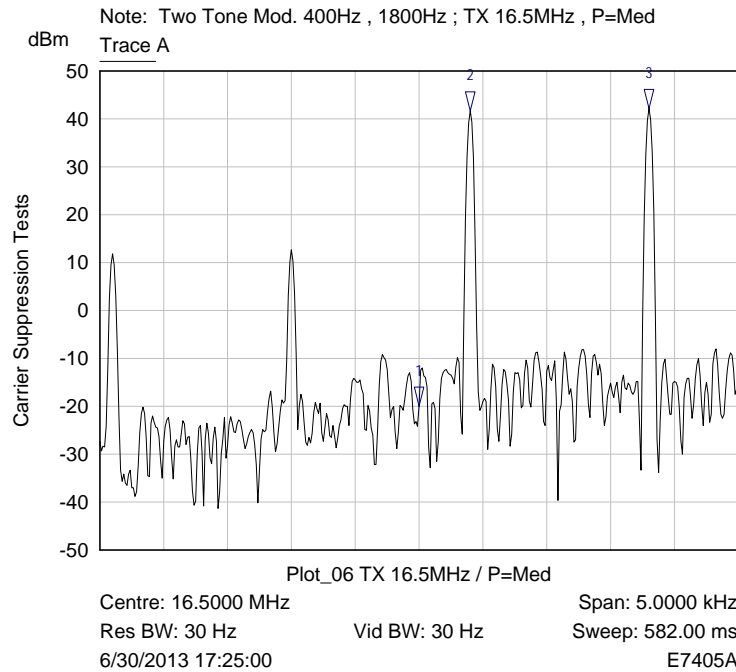
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|-----------|---------|
| 1 ▽ | Trace A | 16.5000 MHz | -9.10 dBm | Carrier |
| 2 ▽ | Trace A | 16.5004 MHz | 45.66 dBm | Tone 1 |
| 3 ▽ | Trace A | 16.5018 MHz | 46.16 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 16.5 MHz P Maximum/ 5



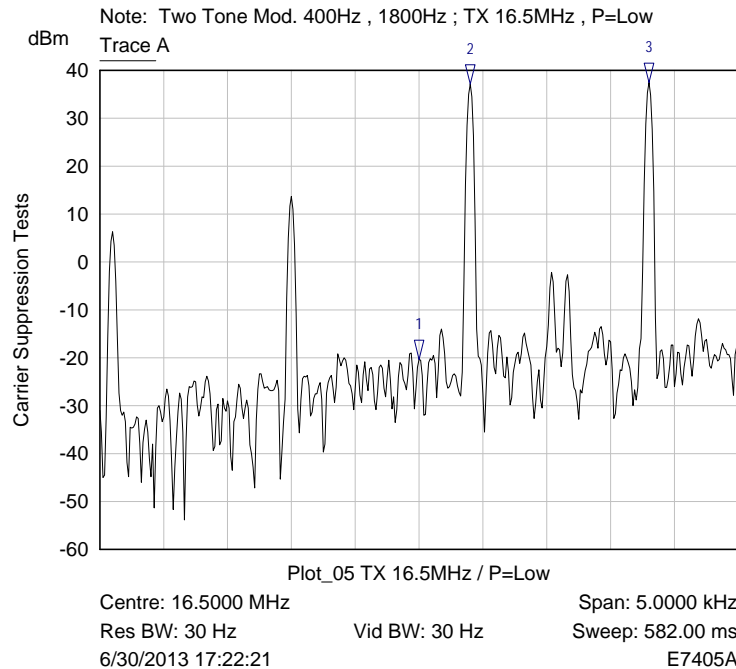
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|---------|
| 1 ▽ | Trace A | 16.5000 MHz | -18.50 dBm | Carrier |
| 2 ▽ | Trace A | 16.5004 MHz | 44.34 dBm | Tone 1 |
| 3 ▽ | Trace A | 16.5018 MHz | 44.78 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 16.5 MHz P High/ 6



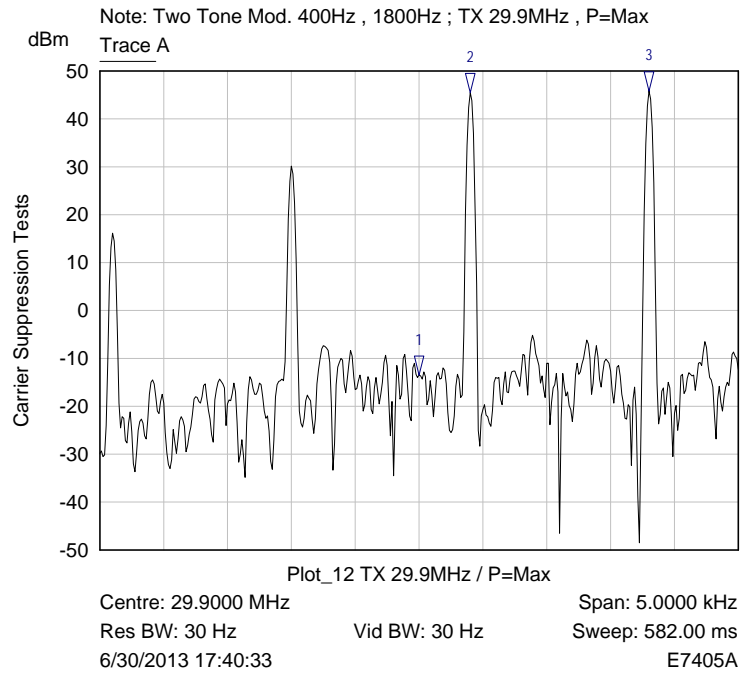
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|---------|
| 1 ▽ | Trace A | 16.5000 MHz | -19.95 dBm | Carrier |
| 2 ▽ | Trace A | 16.5004 MHz | 41.73 dBm | Tone 1 |
| 3 ▽ | Trace A | 16.5018 MHz | 42.16 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 16.5 MHz P Medium/ 7



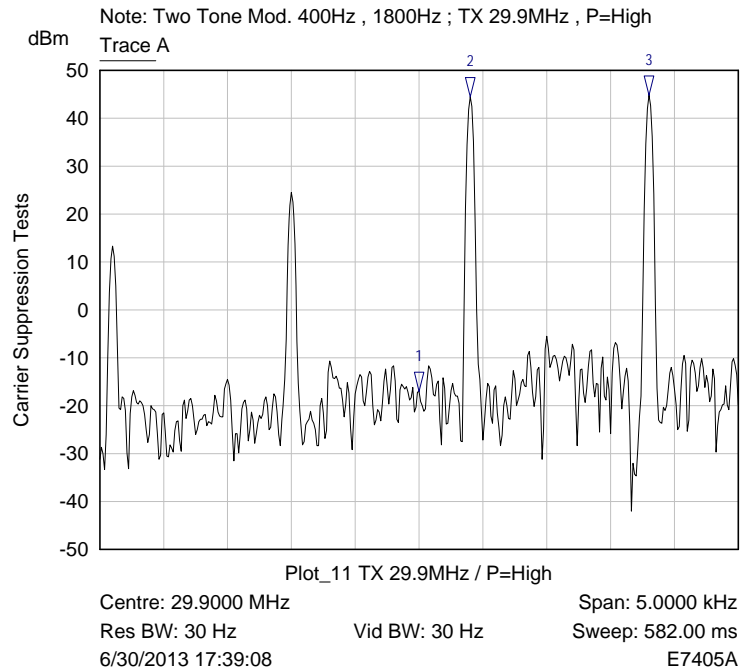
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|---------|
| 1 ▽ | Trace A | 16.5000 MHz | -20.25 dBm | Carrier |
| 2 ▽ | Trace A | 16.5004 MHz | 37.16 dBm | Tone 1 |
| 3 ▽ | Trace A | 16.5018 MHz | 37.52 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 16.5 MHz P Low/ 8



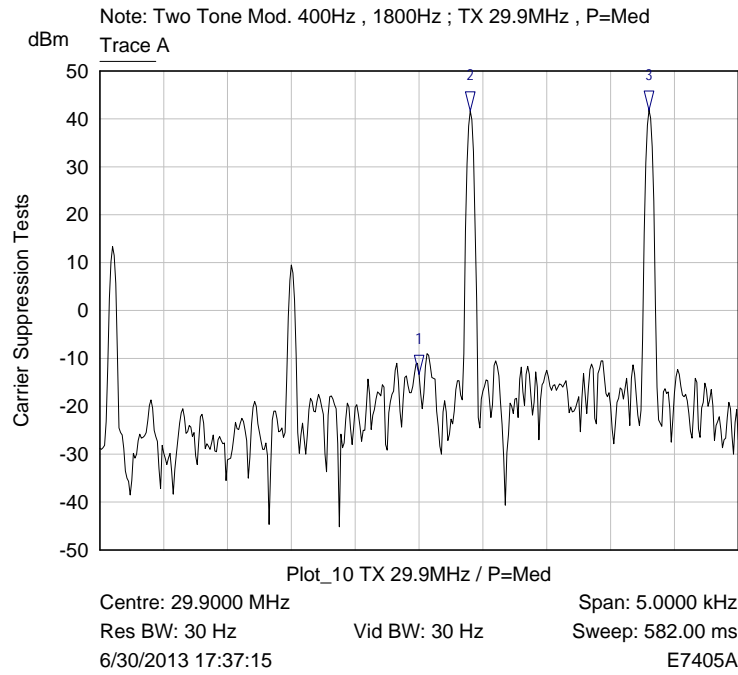
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|---------|
| 1 ▽ | Trace A | 29.9000 MHz | -13.57 dBm | Carrier |
| 2 ▽ | Trace A | 29.9004 MHz | 45.56 dBm | Tone 1 |
| 3 ▽ | Trace A | 29.9018 MHz | 45.86 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 29.9 MHz P Maximum/ 9



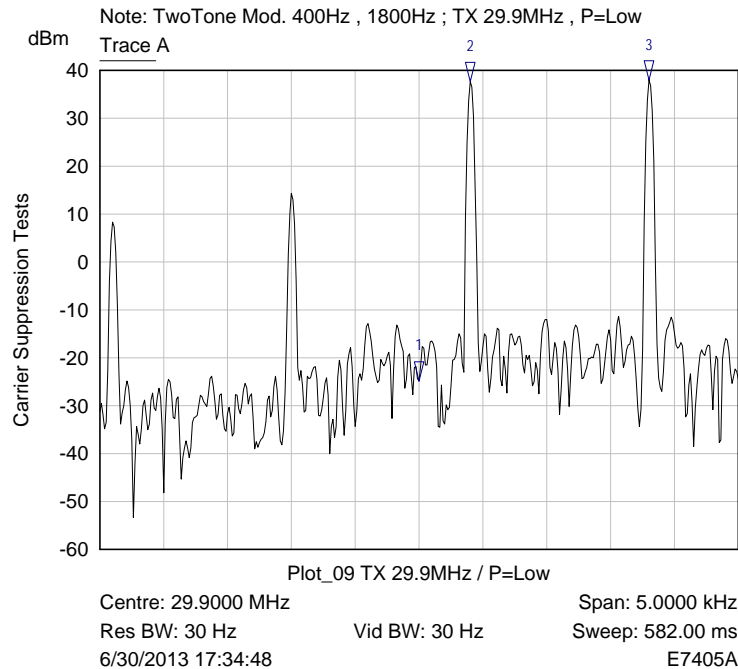
| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|---------|
| 1 ▽ | Trace A | 29.9000 MHz | -16.95 dBm | Carrier |
| 2 ▽ | Trace A | 29.9004 MHz | 44.57 dBm | Tone 1 |
| 3 ▽ | Trace A | 29.9018 MHz | 44.79 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 29.9 MHz P High/ 10



| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|---------|
| 1 ▽ | Trace A | 29.9000 MHz | -13.32 dBm | Carrier |
| 2 ▽ | Trace A | 29.9004 MHz | 41.67 dBm | Tone 1 |
| 3 ▽ | Trace A | 29.9018 MHz | 41.89 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 29.9 MHz P Medium/ 11



| Mkr | Trace | X-Axis | Value | Notes |
|-----|---------|-------------|------------|---------|
| 1 ▽ | Trace A | 29.9000 MHz | -24.87 dBm | Carrier |
| 2 ▽ | Trace A | 29.9004 MHz | 37.72 dBm | Tone 1 |
| 3 ▽ | Trace A | 29.9018 MHz | 38.00 dBm | Tone 2 |

Plot Carrier Suppression – Antenna Terminal – Tx 29.9 MHz P Low/ 12

10. Field Strength of Spurious Emissions – Part 2.1053

| | |
|----------------------|-------------------|
| E.U.T | Micom Z Dash |
| S/N: | MZ6789 |
| Date: | 09.06.2013 |
| Standard | 90.210 (a) (3) |
| Relative Humidity: | 28% |
| Ambient Temperature: | 24 ⁰ C |
| Air Pressure: | 1010hPa |
| Testing Engineer: | S. Kozliner |
| Date | 09.06.2013 |

10.1. Test Results Summary & Conclusions

The E.U.T was found to be in compliance with Field Strength of Spurious Emissions – Part 2.1053.

10.2. Test Instrumentation and Equipment

Table 10: Test Instrumentation and Equipment

| Item | Model | Manufacturer | Next Date of Calibration |
|-------------------|---------|--------------|--------------------------|
| Spectrum Analyzer | E7405A | Agilent | 09.11.2013 |
| Attenuator 30 dB | 769-30 | Narda | 21.05.2015 |
| Audio Analyzer | 8903A | HP | 23.12.2013 |
| Antenna | BTA-L | FRANKONIA | N.P.C.R. |
| Loop Antenna | HFH2-Z2 | R&S | 03.04.2013 |

10.3. Test Results

Frequencies examined: 1.65 MHz, 16.5 MHz, and 29.9 MHz

Transmitting Power: 25W, 62W, 100W & 125W

All emissions were at least 30 dB below the specified limit.

10.4. Setup Photographs for Field Strength of Spurious Radiation



Setup Photograph/ 1



Setup Photograph/ 2

11. Frequency Stability – Part 2.1055

| | |
|----------------------|-------------------|
| E.U.T | Micom Z Dash |
| S/N: | MZ6789 |
| Date: | 18.06.2013 |
| Standard | 90.213 (a) |
| Relative Humidity: | 28% |
| Ambient Temperature: | 24 ^o C |
| Air Pressure: | 1010hPa |
| Testing Engineer: | D. Oshri |
| Date | 18.06.2013 |

11.1. Test Results Summary & Conclusions

The E.U.T was found in compliance with Frequency Stability – Part 2.1055

11.2. Test Instrumentation and Equipment

Table 11: Test Instrumentation and Equipment

| Item | Model | Manufacturer | Next Date of Calibration |
|-------------------|---------|--------------|--------------------------|
| Spectrum Analyzer | E7405A | Agilent | 09.11.2013 |
| Attenuator 30 dB | 769-30 | Narda | 21.05.2015 |
| Audio Analyzer | 8903A | HP | 23.12.2013 |
| Antenna | BTA-L | FRANKONIA | N.P.C.R. |
| Loop Antenna | HFH2-Z2 | R&S | 03.04.2013 |

11.3. Test Results

Frequencies examined: 1.65 MHz, 16.5 MHz & 29.9 MHz

Transmitting Power: 25W, 62W, 100W & 125W

Table 12: For Maximum Power

| For Maximum Power | | |
|-------------------|-----------------|----------------------|
| Test Condition | Frequency [MHz] | Frequency Drift [Hz] |
| +50°C , 13.8VDC | 15.599997 | 3 |
| +40°C , 13.8VDC | 15.599996 | 4 |
| +30°C , 13.8VDC | 15.599994 | 6 |
| +20°C , 15.87VDC | 15.599993 | 7 |
| +20°C , 11.73VDC | 15.599993 | 7 |
| +20°C , 13.8VDC | 15.599993 | 7 |
| +10°C , 13.8VDC | 15.599994 | 6 |
| 0°C , 13.8VDC | 15.599994 | 6 |
| -10°C , 13.8VDC | 15.599996 | 4 |
| -20°C , 13.8VDC | 15.599997 | 3 |
| -30°C , 13.8VDC | 15.599998 | 2 |

Table 13: For High Power

| For High Power | | |
|------------------|-----------------|----------------------|
| Test Condition | Frequency [MHz] | Frequency Drift [Hz] |
| +50°C , 13.8VDC | 15.599997 | 3 |
| +40°C , 13.8VDC | 15.599996 | 4 |
| +30°C , 13.8VDC | 15.599994 | 6 |
| +20°C , 15.87VDC | 15.599993 | 7 |
| +20°C , 11.73VDC | 15.599993 | 7 |
| +20°C , 13.8VDC | 15.599993 | 7 |
| +10°C , 13.8VDC | 15.599994 | 6 |
| 0°C , 13.8VDC | 15.599994 | 6 |
| -10°C , 13.8VDC | 15.599996 | 4 |
| -20°C , 13.8VDC | 15.599997 | 3 |
| -30°C , 13.8VDC | 15.599998 | 2 |

Table 14: For Medium Power

| For Medium Power | | |
|------------------|-----------------|----------------------|
| Test Condition | Frequency [MHz] | Frequency Drift [Hz] |
| +50°C , 13.8VDC | 15.599997 | 3 |
| +40°C , 13.8VDC | 15.599996 | 4 |
| +30°C , 13.8VDC | 15.599994 | 6 |
| +20°C , 15.87VDC | 15.599993 | 7 |
| +20°C , 11.73VDC | 15.599993 | 7 |
| +20°C , 13.8VDC | 15.599993 | 7 |
| +10°C , 13.8VDC | 15.599994 | 6 |
| 0°C , 13.8VDC | 15.599994 | 6 |
| -10°C , 13.8VDC | 15.599996 | 4 |
| -20°C , 13.8VDC | 15.599997 | 3 |
| -30°C , 13.8VDC | 15.599998 | 2 |

Table 15: For Low Power

| For Low Power | | |
|------------------|-----------------|----------------------|
| Test Condition | Frequency [MHz] | Frequency Drift [Hz] |
| +50°C , 13.8VDC | 15.599997 | 3 |
| +40°C , 13.8VDC | 15.599996 | 4 |
| +30°C , 13.8VDC | 15.599994 | 6 |
| +20°C , 15.87VDC | 15.599993 | 7 |
| +20°C , 11.73VDC | 15.599993 | 7 |
| +20°C , 13.8VDC | 15.599993 | 7 |
| +10°C , 13.8VDC | 15.599994 | 6 |
| 0°C , 13.8VDC | 15.599994 | 6 |
| -10°C , 13.8VDC | 15.599996 | 4 |
| -20°C , 13.8VDC | 15.599997 | 3 |
| -30°C , 13.8VDC | 15.599998 | 2 |

11.4. **Setup Photographs for Frequency Stability**



Setup Photograph/ 1

12. **Abbreviations and Acronyms**

The following abbreviations and acronyms are applicable in this document

| | |
|-------|--------------------------------------|
| BW | Bandwidth |
| R.BW | Resolution Bandwidth |
| V.BW | Video Bandwidth |
| db | Decibel |
| EMI | Electromagnetic interference |
| E.U.T | Equipment under test |
| LISN | Line impedance stabilization network |
| S/N | Serial number |
| QP | Quasi peak |
| PK | Peak |

13. Appendix: Radiated Emission for Lap-top as per Part 15.109

E.U.T: Micom Z Dash
 S/N: MZ6789
 Date: 18.06.2013
 Relative Humidity: 28%
 Ambient Temperature: 24^o C
 Air Pressure: 1010hPa
 Testing Engineer: S. Kozliner Date 18.06.2013

13.1. Test Results Summary & Conclusions

The E.U.T was found to comply with 15.109.

13.2. Limits of Radiated Interference Field Strength according 15.109

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

Table 16: Limits for 15.109 Class B equipment

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

13.3. Test Instrumentation and Equipment

Table 17: Test Instrumentation and Equipment

| Item | Model | Manufacturer | Next Date Calibration |
|-------------------------------------|-----------|--------------|-----------------------|
| Spectrum Analyzer | 8593E | HP | 23.05.2013 |
| Double Ridge Guide Antenna(1-18GHz) | DRG-118/A | ARA | 09.12.2013 |
| Broadband Antenna(30-1000MHz) | BTA-L | FRANKONIA | 28.07.2013 |
| Low Noise Amplifier (0-1GHz) | AM-1300-N | MITEQ | 02.04.2013 |
| Low Noise Amplifier (1-4GHz) | AMM 003N | Avantek | 02.04.2013 |
| Low Noise Amplifier (2-18GHz) | PE 2-38 | Planar | 06.08.2013 |

13.4. Test Results

Table 18: RX Mode 15.109

| Polarization | Frequency (MHz) | Mode Of Operation | Limit dB μ V/m | Margin (dB) | Polarity Ver/Hor | Height (m) | Pass/ Fail |
|--------------|-----------------|-------------------|--------------------|-------------|------------------|------------|------------|
| Vertical | 30 - 1000 | RX | Plot 1 | | | | Pass |
| Horizontal | | | Plot 2 | | | | Pass |

13.5. Test Procedure

See paragraph 14.4



Photograph of Radiated Emission/ 1



Photograph of Radiated Emission/ 2

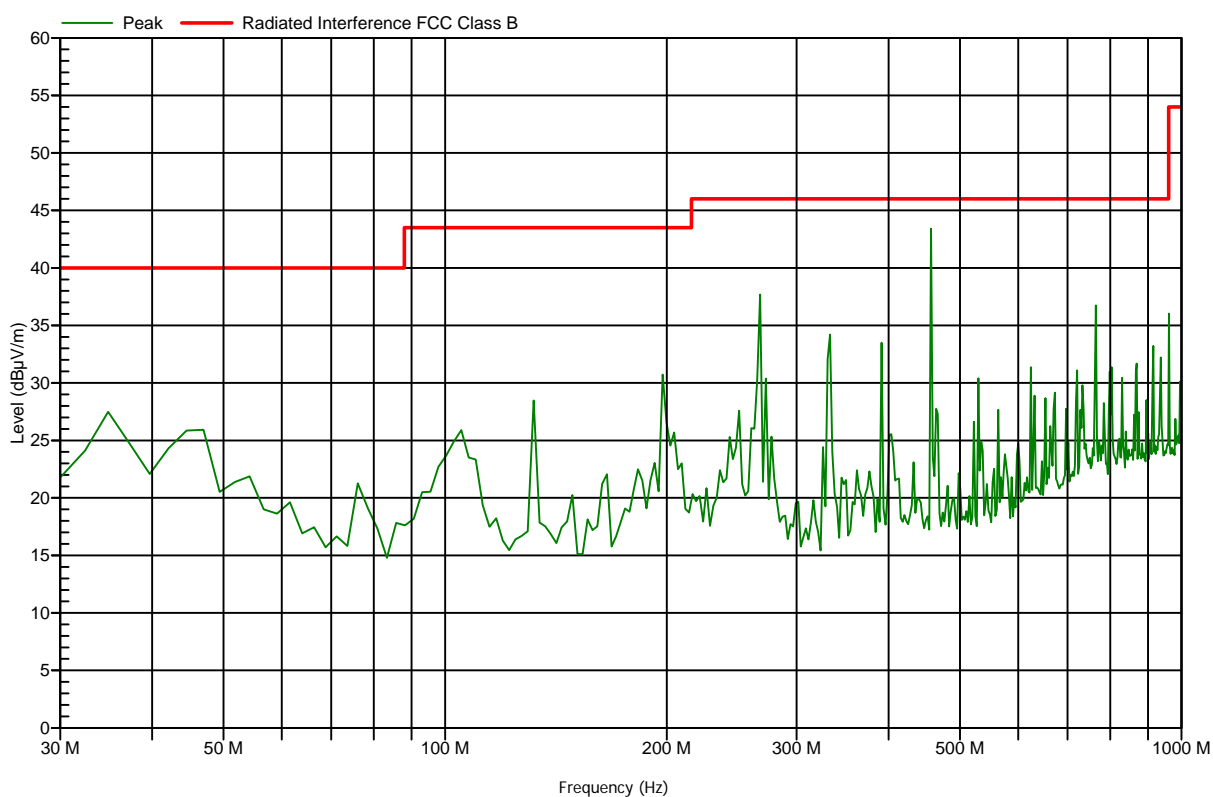
Test Results Plot No 1

FCC 30-1000 MHz RX VER

| Test & EUT General Information | | Receiver Setting | |
|--------------------------------|---------------------------|------------------|-----------------------------------|
| EUT Name: | Micom Z Dash | Spect. Analyzer | Hewlett Packard 7405A DC Coupling |
| S/N: | 1 | Ref. Level: | 90 dB μ V |
| Date of Test: | 18.06.2013 | RBW: | 120 kHz |
| Test Engineer: | SHIMON KOZLINER | VBW: | 1000 kHz |
| Antenna: | Frankonia gray BTA-L_B 3m | Sweep Time: | Auto [151.88 ms] |
| Polarization: | Vertical | Pre Amplifier | LNA 10k-1GHz 30dB |

TEST REMARKS: Tuesday, June 18, 2013 5:26:38 PM

Rx Mode Connected To Laptop



MAXIMUM RESULT DEVIATION:

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

| Nr | Frequency (MHz) | PK MaxHold (dB μ V/m) | QP Value (dB μ V/m) | QP Limit (dB μ V/m) | Result | Angle (degrees) | Height (m) | H/V |
|----|-----------------|---------------------------|-------------------------|-------------------------|--------|-----------------|------------|-----|
| 1 | 456.754 | 45.3 | 44.1 | 46 | | 0 | 1.3 | V |

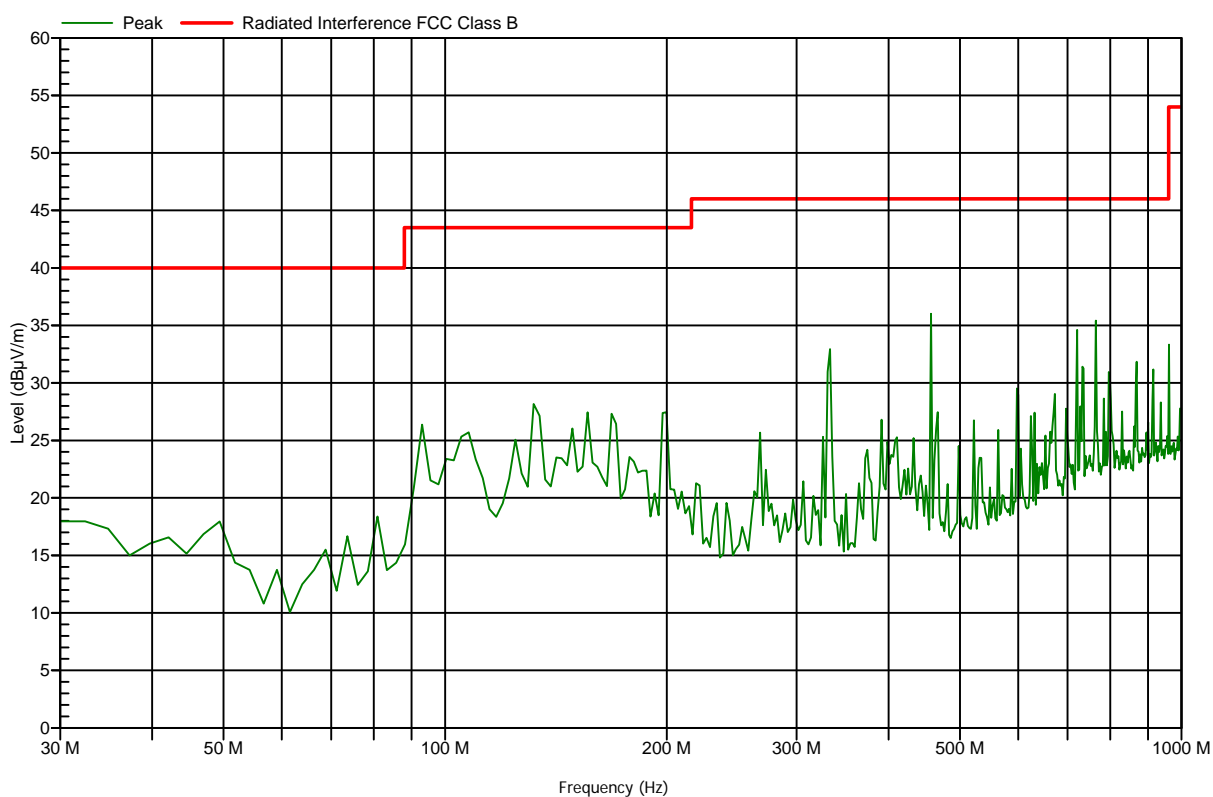
Test Results Plot No 2

FCC 30-1000 MHz RX HOR

| Test & EUT General Information | | Receiver Setting | |
|--------------------------------|---------------------------|------------------|-----------------------------------|
| EUT Name: | Micom Z Dash | Spect. Analyzer | Hewlett Packard 7405A DC Coupling |
| S/N: | 1 | Ref. Level: | 90 dB μ V |
| Date of Test: | 18.06.2013 | RBW: | 120 kHz |
| Test Engineer: | SHIMON KOZLINER | VBW: | 1000 kHz |
| Antenna: | Frankonia gray BTA-L_B 3m | Sweep Time: | Auto [151.88 ms] |
| Polarization: | Horizontal | Pre Amplifier | LNA 10k-1GHz 30dB |

TEST REMARKS: Tuesday, June 18, 2013 5:31:13 PM

Rx Mode Connected To Laptop



MAXIMUM RESULT DEVIATION:

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

None