

Rome to Stockbridge Grid Antenna Test 07/08/2019

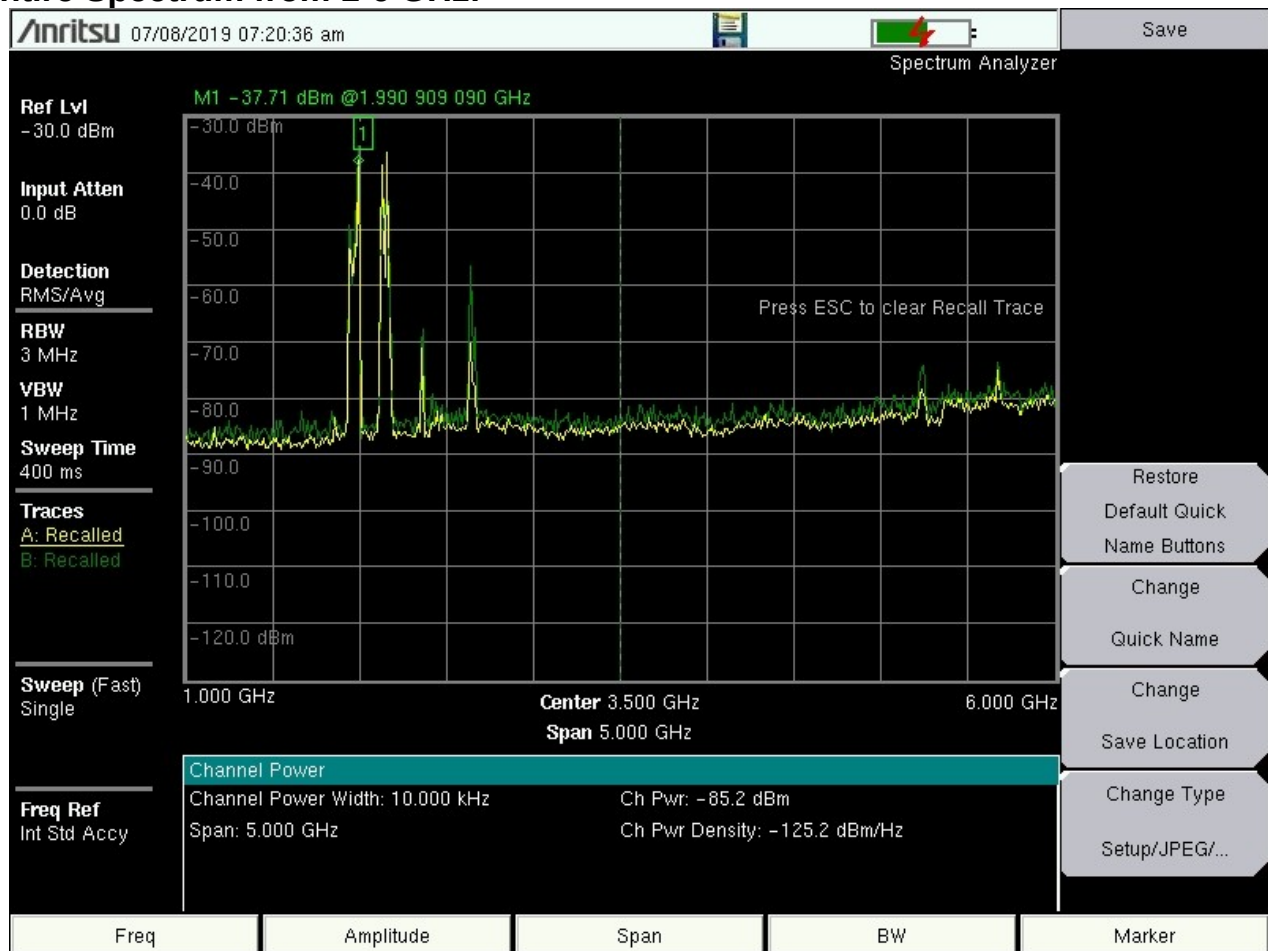
Test 1 (Area Scan):

The Spectrum Analyzer (Anritsu MS2720T) was wired into the grid mounted antenna to scan for existing frequencies that are being used for transmitting between 1 and 6 GHz. The frequencies being used were:

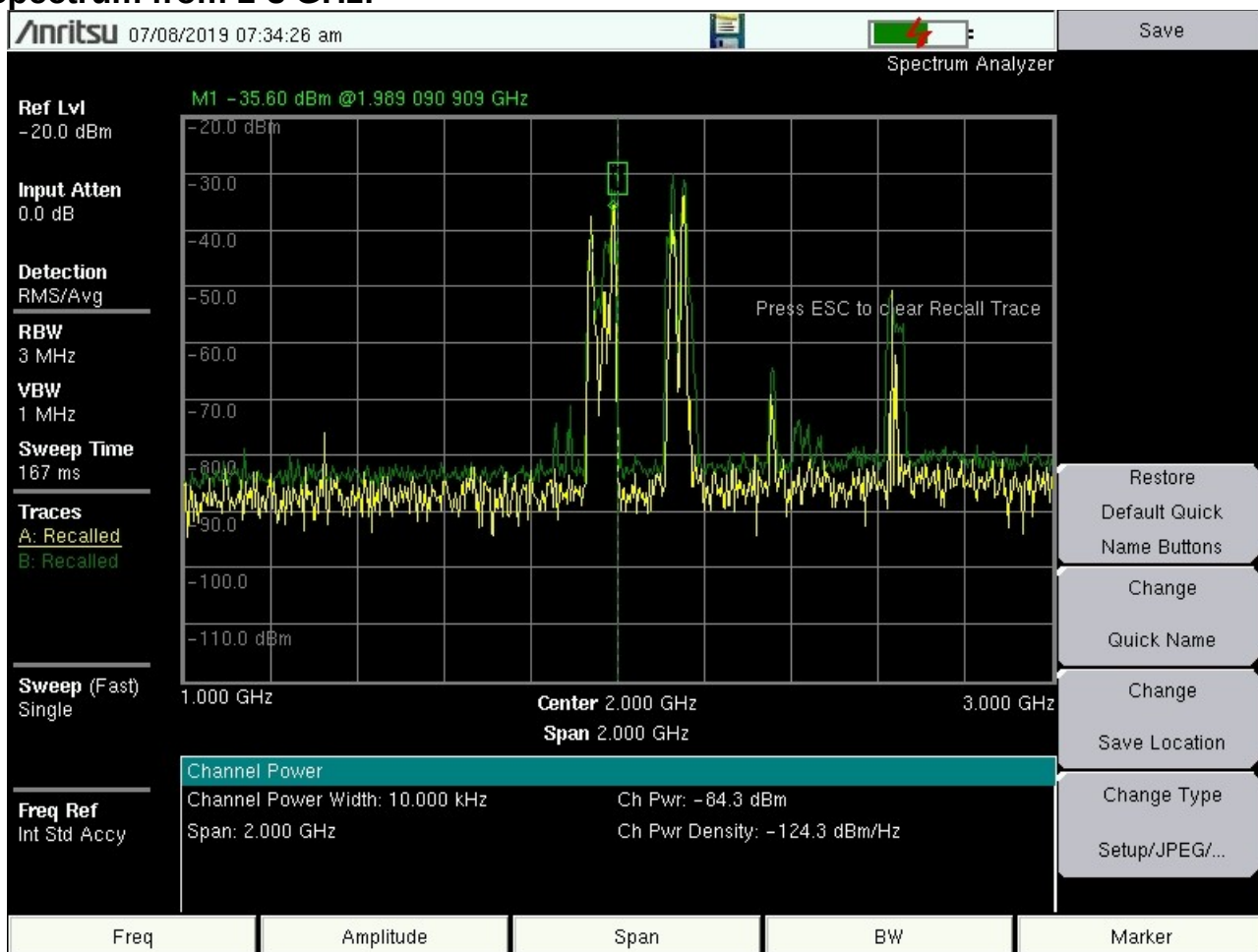
- 1.9 GHz
- 2.1 GHz
- 2.3 GHz
- 2.6 GHz
- 5.2 GHz
- 5.6 GHz

At 5.23 and 5.67 GHz, the channel power was very low and at certain moments could not be seen. Below are captures of the spectrum showing the occupied frequencies.

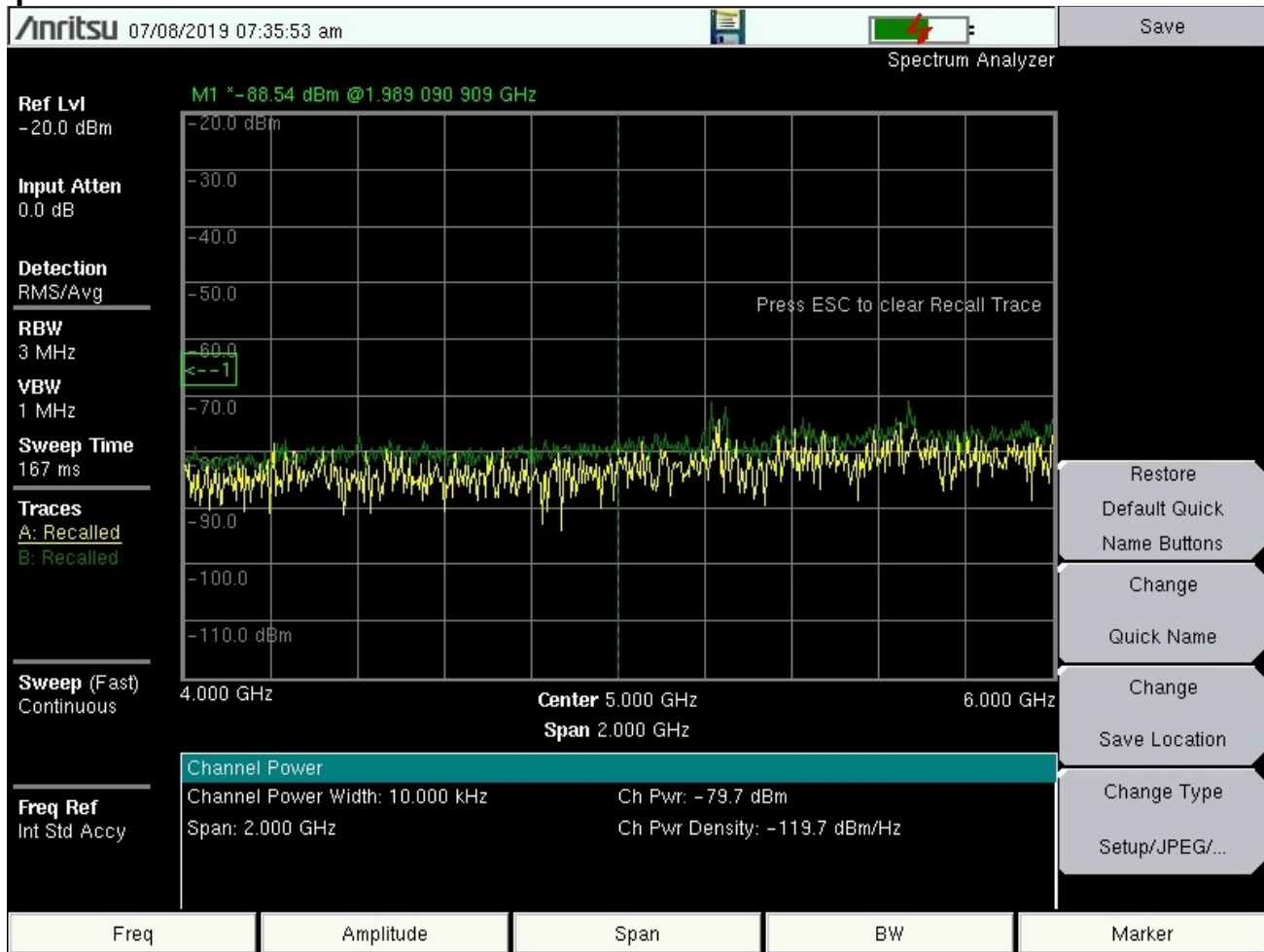
Entire Spectrum from 1-6 GHz:



Spectrum from 1-3 GHz:



Spectrum from 4-6 GHz:



Test 2 (Signal generator + 3W Amplifier):

The signal generator + 3W amplifier was set up and wired to the grid mounted antenna at Stockbridge. The spectrum analyzer (Anritsu MS2720T) was wired to the grid mounted antenna at Rome. The test was carried out over two frequencies:

- 2.5 GHz
- 4.8 GHz

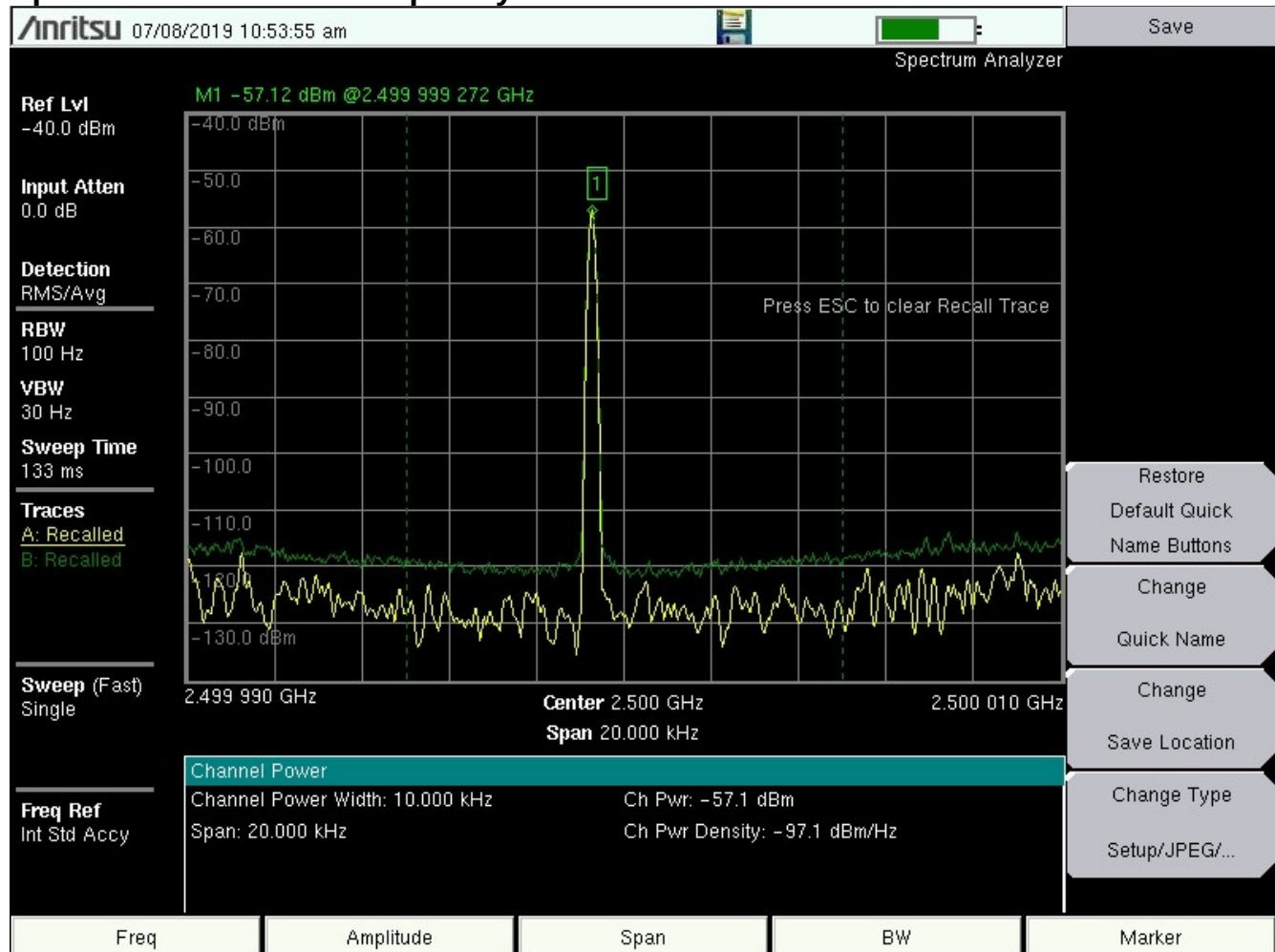
There were two variations of the test:

- From grid antenna (Stockbridge) to grid antenna (Rome)
- From grid antenna (Stockbridge) to Omnidirectional antenna on spectrum analyzer (Rome)

Grid antenna to Grid antenna at 2.5 GHz:

- Power in from signal generator: 0 dBm
- Channel power: -57.1 dBm
- Span: 20 kHz

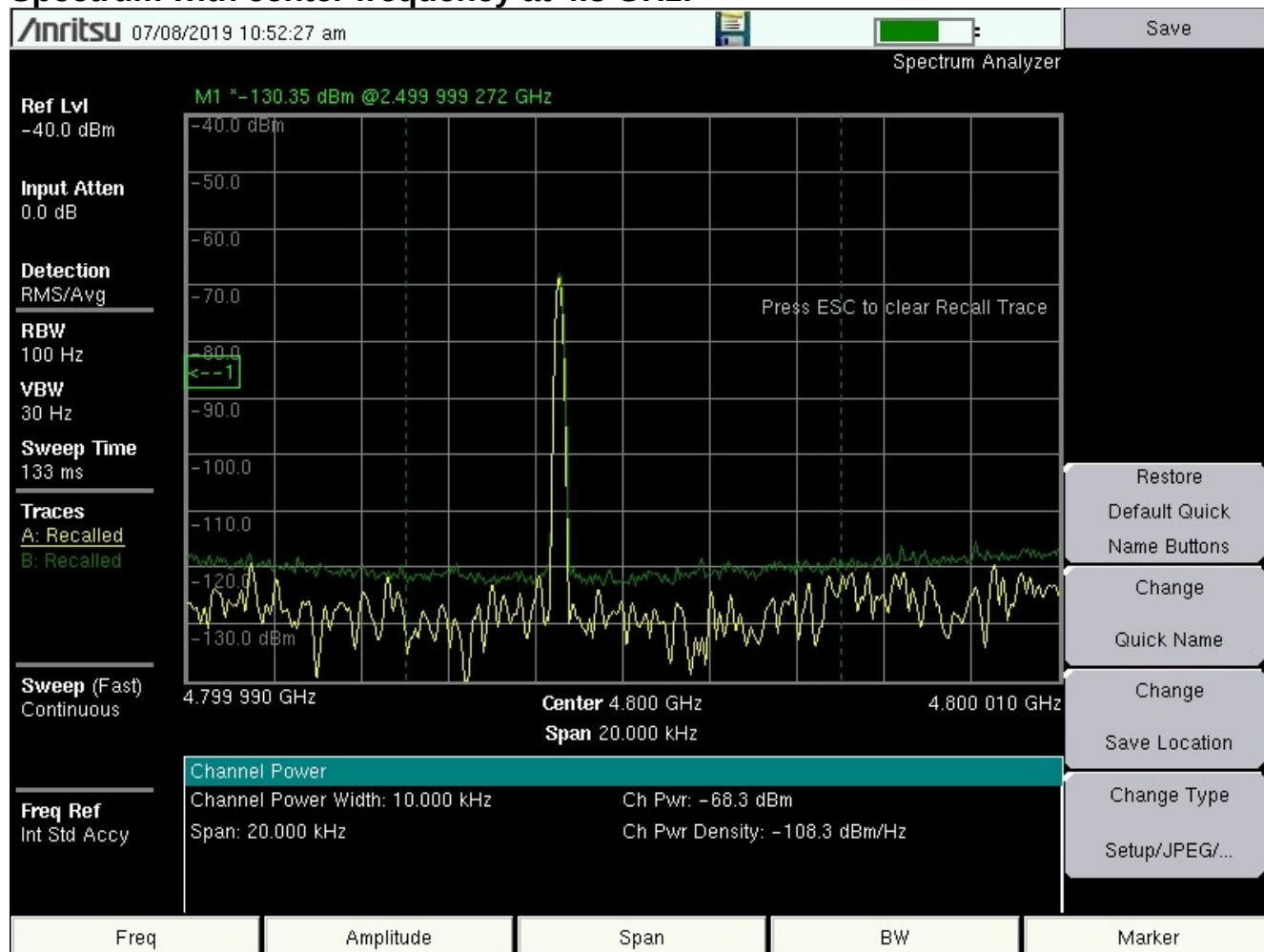
Spectrum with center frequency at 2.5 GHz:



Grid antenna to Grid antenna at 4.8 GHz:

- Power in from signal generator: 0 dBm
- Channel power: -68.3 dBm
- Span: 20 kHz

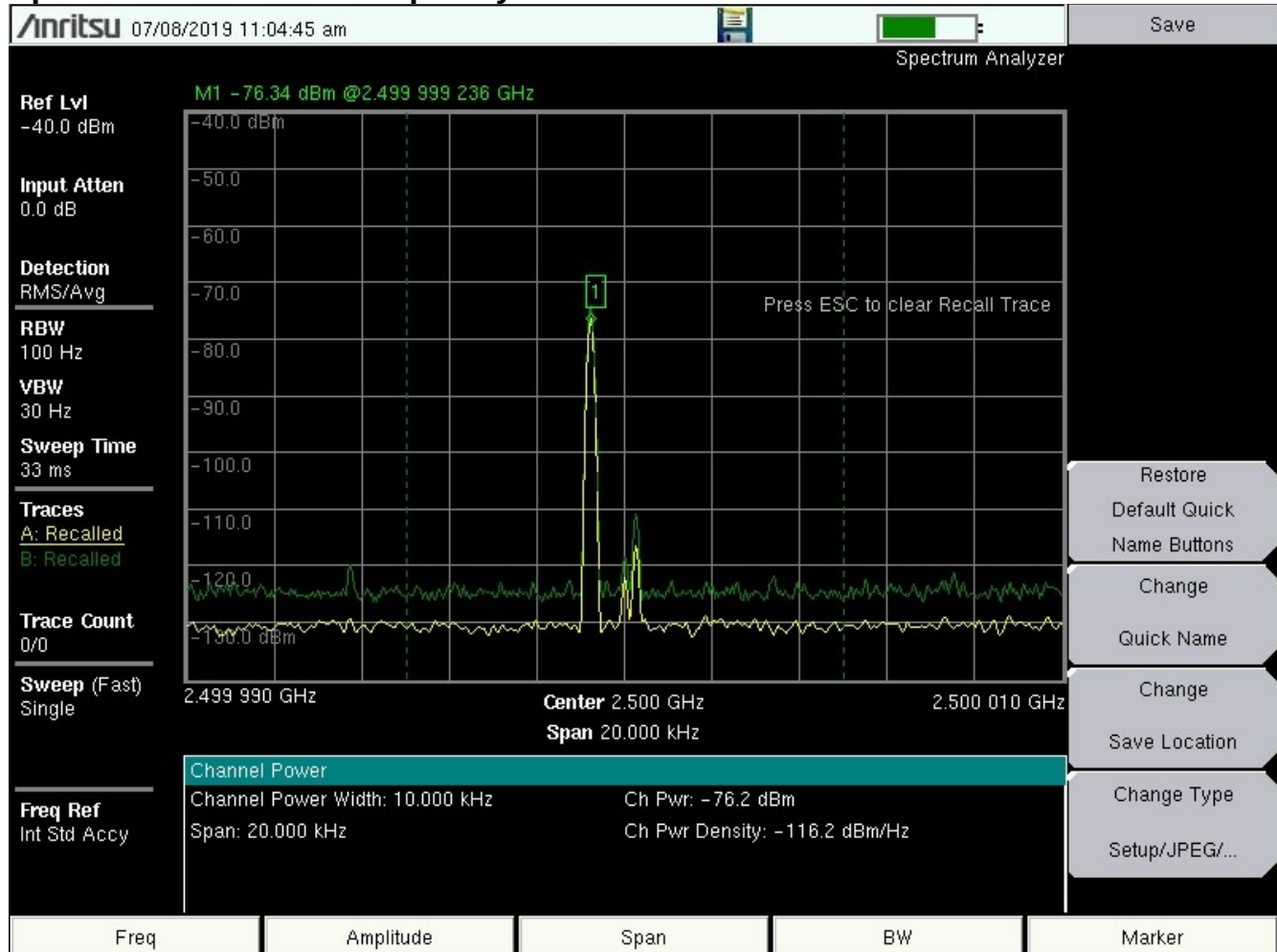
Spectrum with center frequency at 4.8 GHz:



Grid antenna to Omni antenna at 2.5 GHz:

- Power in from signal generator: 0 dBm
- Channel power: -76.2 dBm
- Span: 20 kHz

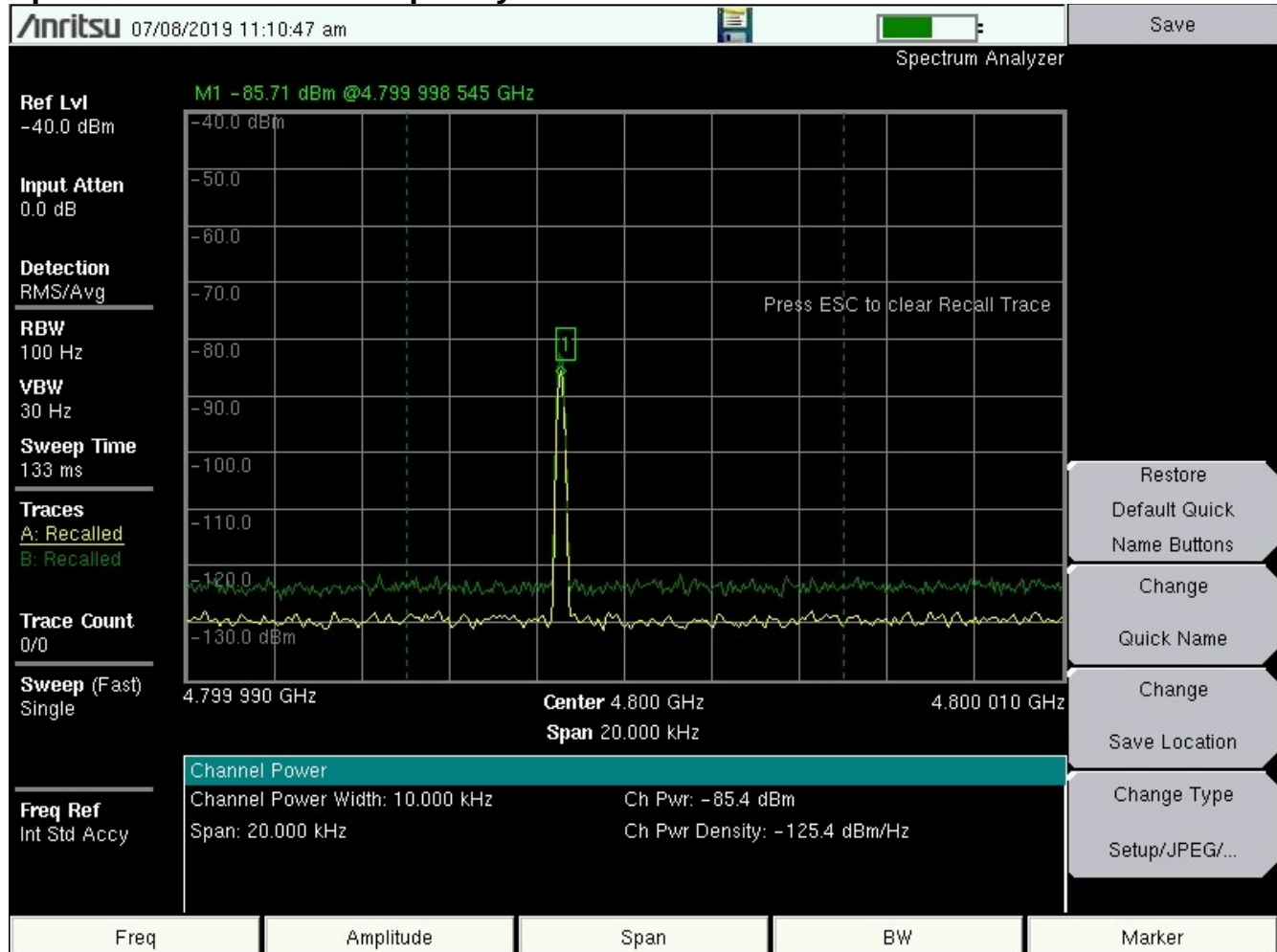
Spectrum with center frequency at 2.5 GHz:



Grid antenna to Grid antenna at 4.8 GHz:

- Power in from signal generator: 0 dBm
- Channel power: -85.4 dBm
- Span: 20 kHz

Spectrum with center frequency at 4.8 GHz:



Test 3 (PacCL):

Two PacCL's were set up and wired to the grid mounted antenna; one at Stockbridge and one at Rome. The PacCL firmware was used (by typing the IP address of the PacCL into a web browser after they are connected) to determine signal strength.

PacCL setup:

- PacCL IP 192.168.88.100 set up at Stockbridge
- PacCL IP 192.168.88.101 set up at Rome
- TX/RX on single channel (full duplex)

Test variations:

- Grid antenna (Stockbridge) to grid antenna (Rome)
- Grid antenna (Stockbridge) to Omni antenna on the PacCL (Rome)

Grid antenna to grid antenna:

- Channel power max: -80 dBm

Grid antenna to omni antenna:

- No signal detected

PaccL firmware:

MikroTik-Test1 - Quick Set at admin@192.168.88.100 - Webfig v6.36 (stable) on RB911G-5HPnD (mips) - Mozilla Firefox

192.168.88.100/webfig/

Webfig v6.36 (stable)

PTP Bridge Quick Set

Quick Set

CAPsMAN

Wireless

Interfaces

Bridge

Switch

PPP

Mesh

IP

MPLS

Routing

System

Queues

Files

Log

Radius

Tools

New Terminal

MetaROUTER

Partition

Make Supout.rtf

Undo

Redo

Hide Menu

Hide Passwords

Safe Mode

Design Skin

Manual

WinBox

Graphs

End-User License

Logout

Wireless Bridge Mode

Wireless Bridge Mode

Client/CPE Server/AP

Wireless Protocol

802.11 nstreme mv2

Network Name

MikroTik-Test1

Frequency

4950 MHz

Band

5GHz-A/N

Channel Width

20MHz

Country

no_country_set

MAC Address

00:00:00:00:00:00

Use Access List (ACL)

Security

WPA WPA2

Wireless Clients

MAC Address	In ACL	Last IP	Uptime	Signal Strength
E4:8D:8C:F1:38:02	no		00:00:43	-30

Signal Strength cur: avg: max:

Copy To ACL Remove From ACL

Configuration

Address Acquisition

Static Automatic

IP Address

192.168.88.100

Netmask

255.255.255.0 (/24)

Gateway

192.168.88.1

DNS Servers

System

Router Identity

MikroTik-Test1

Check For Updates Reset Configuration

Password

Confirm Password

Apply Configuration

Grid antenna mounted at Rome:



Grid antenna mounted at Stockbridge:



