TEST REPORT

Report Number: 3066022-43-1-0
Project Number: 3066022
October 22, 2004

Testing performed on the
AirSite Base Station
Model Number: DAS3000
FCCID: MZKADS3000-1ABC
to

FCC Part 24 Subpart E
RSS-133

For
Airnet Communications Corporation

Test Performed by:	Test Authorized by:
Intertek 1950 Evergreen Blvd, Suite 100 Duluth, GA 30096	Airnet Communications Corporation 3950 Dow Road Melbourne, Florida 32934-9216

Prepared by	Reviewed by
Chris Capelle, Project Engineer - EMC	David J. Schramm, Team Leader - EMC

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Executive Summary

Testing performed for: Airnet Communications Corporation

Equipment Under Test: DAS3000, AirSite Base Station

FCC RULE	IC RULE RSS-133	DESCRIPTION OF TEST	RESULT	PAGE
§2.1046	§5.4, §6.2	RF Power Output	Passed	10
§2.1049	§5.6	Emission Limitation, Occupied Bandwidth	Passed	11
§2.1051 §24.238(a)	§6.3	Out of Band Emissions at Antenna Terminals	Passed	21
§2.1053	§6.3	Field Strength of Spurious Radiation	N/S	30
§15.107	ICES-003	Power Line Conducted Emissions	N/S	30
§2.1055, §24.235	§7	Frequency Stability	N/S	30
§2.1091, §2.1093	§8	Specific Absorption Rate	N/S	30
§15.109	§9	Receiver Spurious Emissions	N/S	30

N/S: This test was not under the scope of this evaluation

1 JOB DESCRIPTION

1.1 Client information

The AirSite Base Station has been tested at the request of

Company:	Airnet Communications Corporation 3950 Dow Road Melbourne, Florida 32934-9216
Name of contact:	Joe McAllister
Telephone:	321.676.6700
Fax:	321.757.0624

1.2 Test plan reference:

Tests were performed to the following standards:

- FCC Part 24 Subpart E
- RSS-133

1.3 Equipment Under Test (EUT)

Product	**AirSite Base Station**
EUT Model Number	DAS3000
EUT Serial Number	AN0438DAS00297
Whether quantity (>1) production is planned	Quantity production is planned.
Cellular Phone standards	GSM (PCS)
Type(s) of Emission	300KG7W (This report), 300KGXW (Original filing)
RF Output Power	Downlink: 40W Uplink: 2W and 1W
Frequency Range	Downlink: 1930.4 MHz to 1989.6 MHz GSM (PCS)[1] Uplink: 1850.2 MHz to 1909.8 MHz GSM (PCS)
Receiver L.O. frequency	2105.6 MHz
External input	[ ] Audio [X] Digital Data

EUT receive date: October 18, 2004

EUT receive condition: The EUT was received in good condition with no apparent damage.

Test start date: October 19, 2004

Test completion date: October 21, 2004

The test results in this report pertain only to the item tested.

The EUT is a GSM base station operating in the PCS band. All testing within this report was performed while EUT was operating with EDGE modulation functionality. This added function is the purpose for this testing and report.

[1] Current EUT software revision does not allow for operation in channel 737 or 810.

1.3.1 System Support Equipment

Table 1-1 contains the details of the support equipment associated with the Equipment Under Test.

Table 1-1: System Support Equipment

Description	Manufacturer	Model Number	Serial Number	FCC ID number
DC Supply	HP	HP 6683A	3619A-00205	NA
RF Terminator	JFW	50FH-030-300-2	AN27	NA
RF Terminator	JFW	50T-069-2	01061	NA
Support PC	Compaq	Deskpro	6045FR32A161	NA

1.3.2 Cables associated with EUT

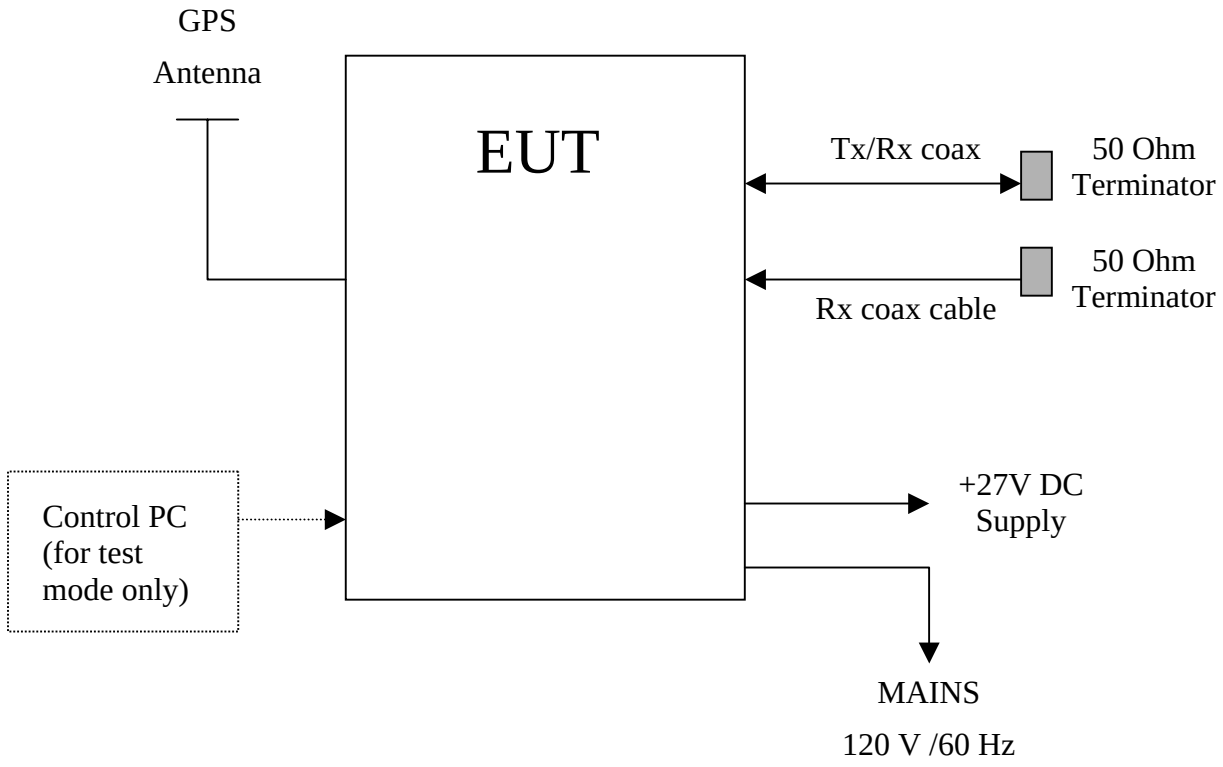
Table 1-2 contains the details of the cables associated with the EUT.

Table 1-2: External EUT cables

Cables					
Description	Length	Shielding	Ferrites	Connection	
				From	To
AC Power	10’	Yes	None	EUT	AC power source
Tx/Rx N-Type RG8 Coax	25’	Yes	None	EUT	Tx/Rx Port
Rx N-Type RG8 Coax	25’	Yes	None	EUT	Rx Port
GPS Antenna R658 Coax	30’	Yes	None	EUT	GPS module

1.3.3 System Block Diagram

The diagram shown below details the interconnection of the EUT and support equipment. For specific layout, refer to the test configuration photograph in the relevant section of this report.



1.4 Mode(s) of operation

The EUT was powered from 120 Vac / 60 Hz. A single channel was brought up at maximum power and with EDGE Modulation and pseudo-random data. Actual channels tested are listed in the test results.

1.5 Modifications required for compliance

No modifications were implemented by Intertek.

1.6 Related Submittal(s) Grants

None.

2 TEST FACILITY

The ITS-Duluth site is located at 1950 Evergreen Blvd., Suite 100, Duluth, Georgia. The radiated emission test site is a 10-meter semi-anechoic chamber. The chamber meets the characteristics of CISPR 16-1: 1999 and ANSI C63.4: 2003. For measurements, a remotely controlled flush-mount metal-top turntable is used to rotate the EUT a full 360 degrees. A remote controlled non-conductive antenna mast is used to scan the antenna height from one to four meters.

This site is on file with the FCC.

The Industry Canada file number for this site is IC 2077.

3 RF POWER OUTPUT

CFR 47 §2.1046

RSS-133 §6.2

3.1 Test Procedure

The transmitter antenna output (40W) and Backhaul antenna output (2W and 1W) were individually connected to a spectrum analyzer, via a calibrated 40dB coaxial attenuator and low-loss coax cable for RF power measurements. Measured power was read off the spectrum analyzer in dBm units. The power output at the transmitter antenna port was determined by adding cable loss and the attenuator value to the power meter reading.

Tests were performed at three frequencies (low, middle, and high channels) and on all power levels, which can be setup on each of the transmitters.

The spectrum analyzer bandwidth settings were set to 1 MHz or greater.

3.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration Due Date
Spectrum Analyzer	R&S	FSEK 30	100253	8/30/05
40 dB Attenuator	Weinschel Corp	48-40-34	BK5886	6/23/05

3.3 Test Results

Table 3-1 RF Power Output

Peak/Average Detector	Nominal Power Level (Watts)	Frequency (MHz)	Channel	Power Output (dBm)	Power Output (Watts)
P	40	1975.4	738	45.1	32.4
P	40	1982.0	771	45.1	32.4
P	40	1989.6	809	45.4	34.7
P	2	1895.4	738	30.7	1.2
P	2	1902.0	771	30.7	1.2
P	2	1909.6	809	30.6	1.2
P	1	1895.4	738	29.6	0.9
P	1	1902.0	771	29.8	1.0
P	1	1909.6	809	29.9	1.0

4 EMISSION LIMITATIONS, OCCUPIED BANDWIDTH

CFR 47 §2.1049

RSS-133 §5.6

4.1 Test Procedure

The transmitter antenna output (40W) and Backhaul antenna output (2W and 1W) were individually connected to a spectrum analyzer, via a calibrated 40dB coaxial attenuator and low-loss coax cable. The 99% bandwidth function of the spectrum analyzer was used to measure occupied bandwidth.

4.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration Due Date
Spectrum Analyzer	R&S	FSEK 30	100253	8/30/05
40 dB Attenuator	Weinschel Corp	48-40-34	BK5886	6/23/05

4.3 Test Results

Power Level (Watts)	Frequency (MHz)	Channel	Occupied Bandwidth (kHz)
40	1975.4	738	234.5
40	1982.0	771	232.4
40	1989.6	809	234.5
2	1895.4	738	214.4
2	1902.0	771	218.4
2	1909.6	809	212.4
1	1895.4	738	210.4
1	1902.0	771	206.4
1	1909.6	809	206.4

Figure 4-1: 99% Bandwidth measurement, Channel 738, 40W

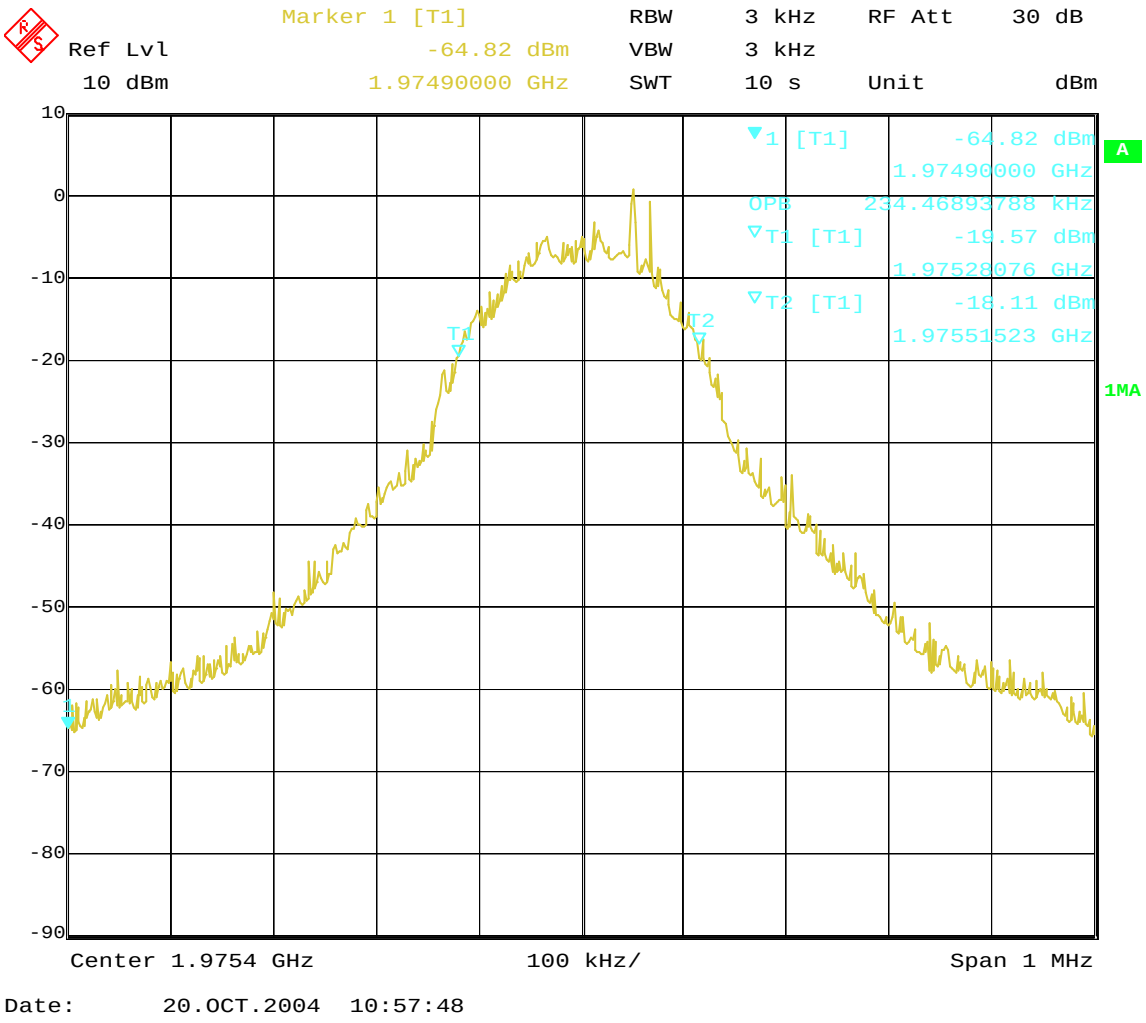


Figure 4-2: 99% Bandwidth measurement, Channel 771, 40W

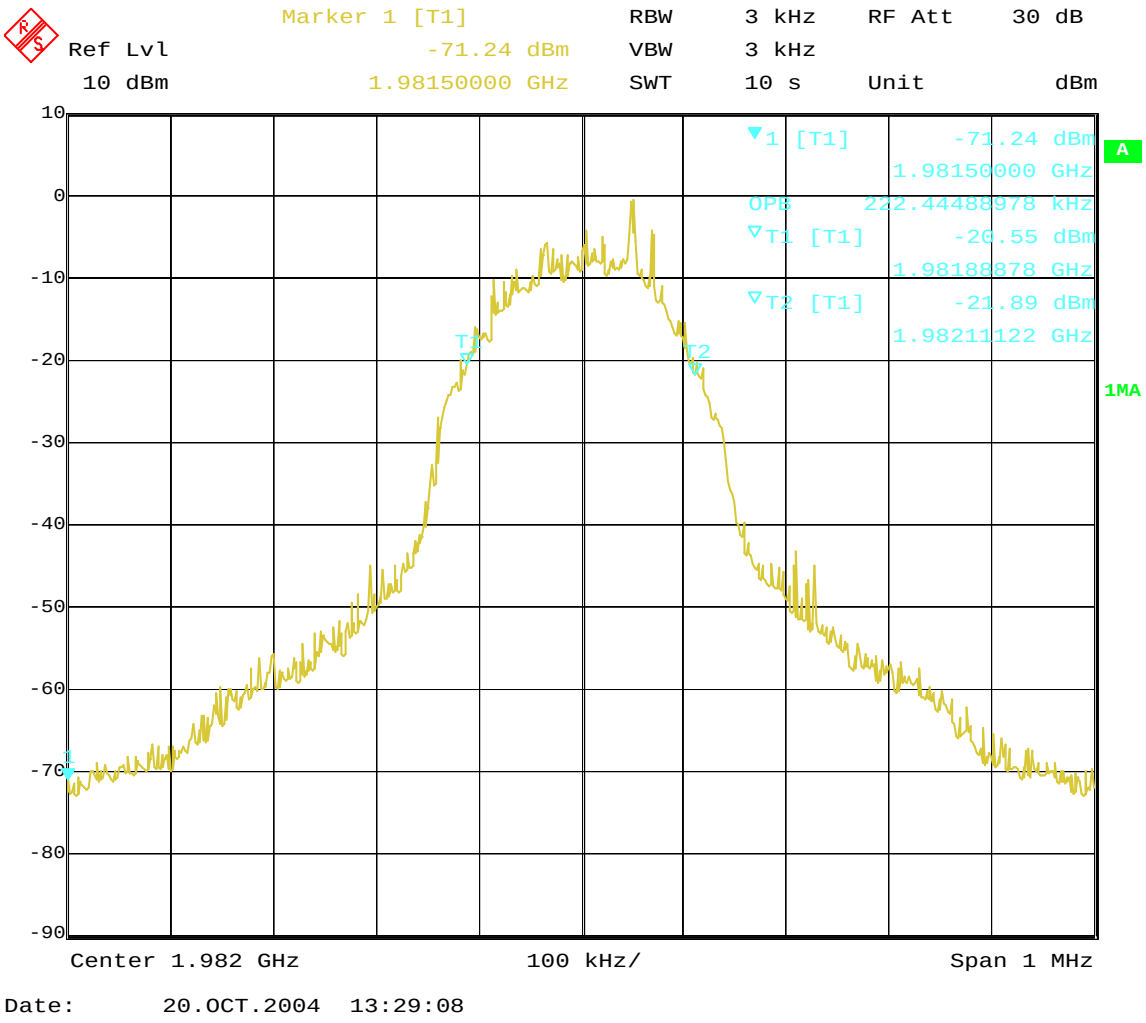


Figure 4-3: 99% Bandwidth measurement, Channel 809, 40W

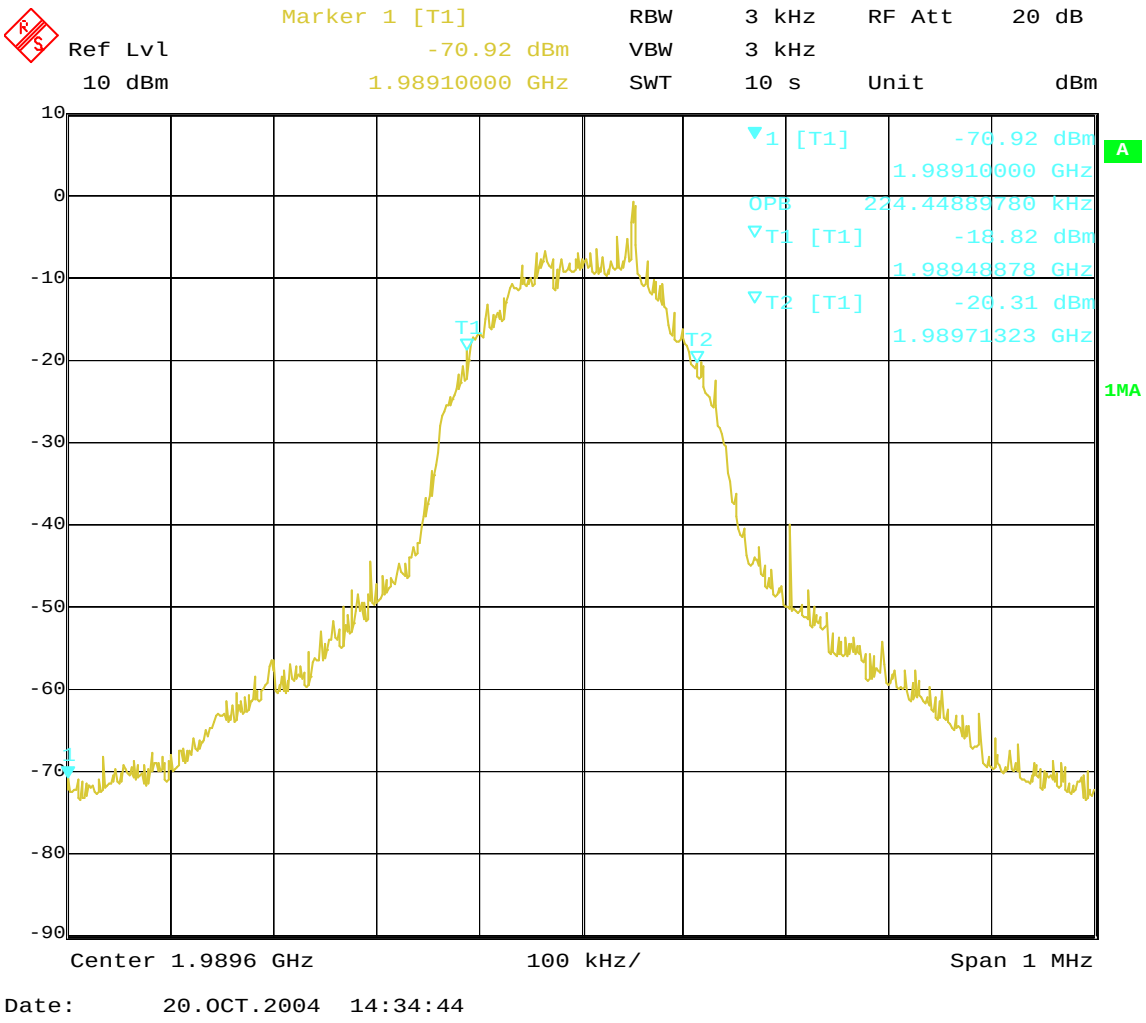


Figure 4-4: 99% Bandwidth measurement, Channel 738, 2W Backhaul

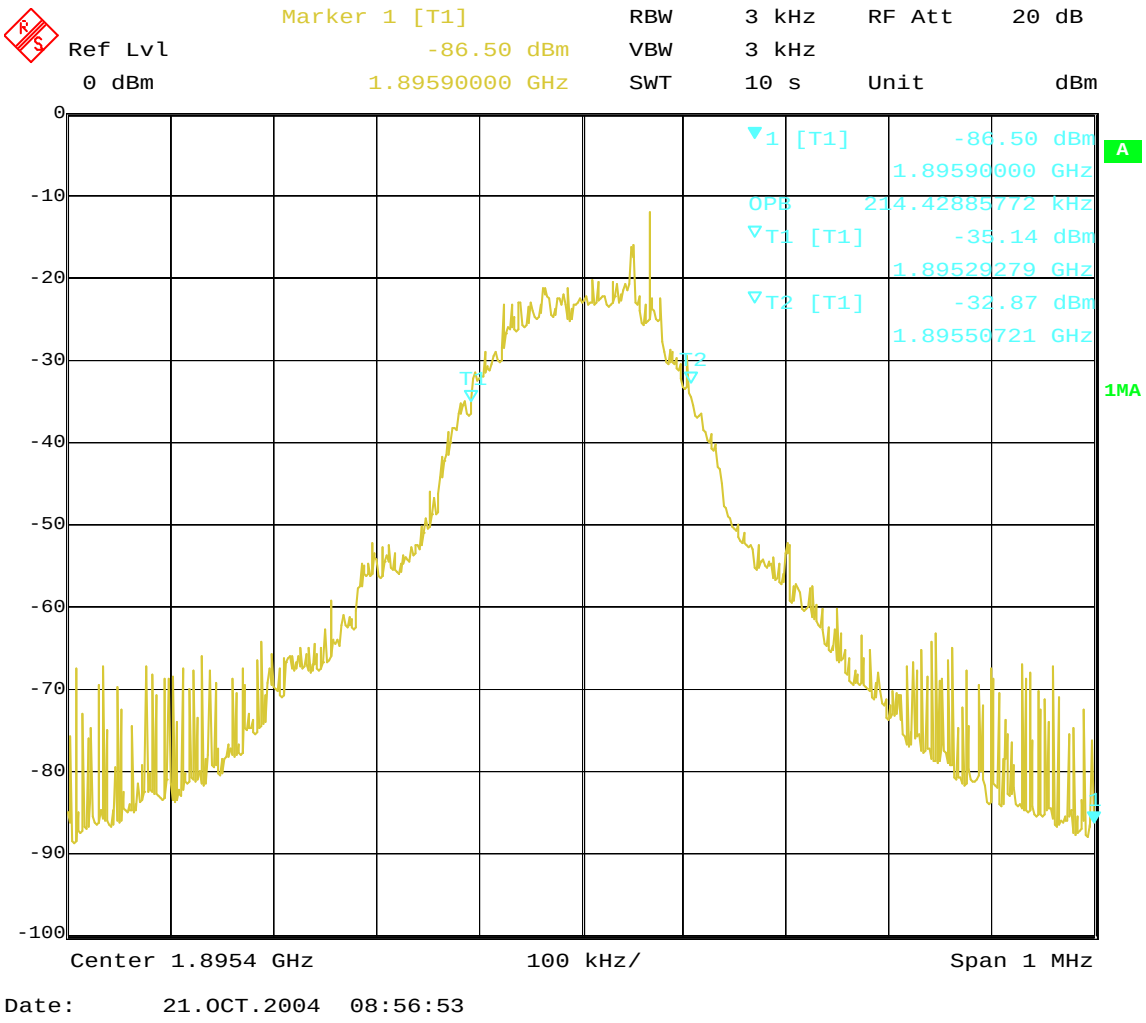


Figure 4-5: 99% Bandwidth measurement, Channel 771, 2W Backhaul

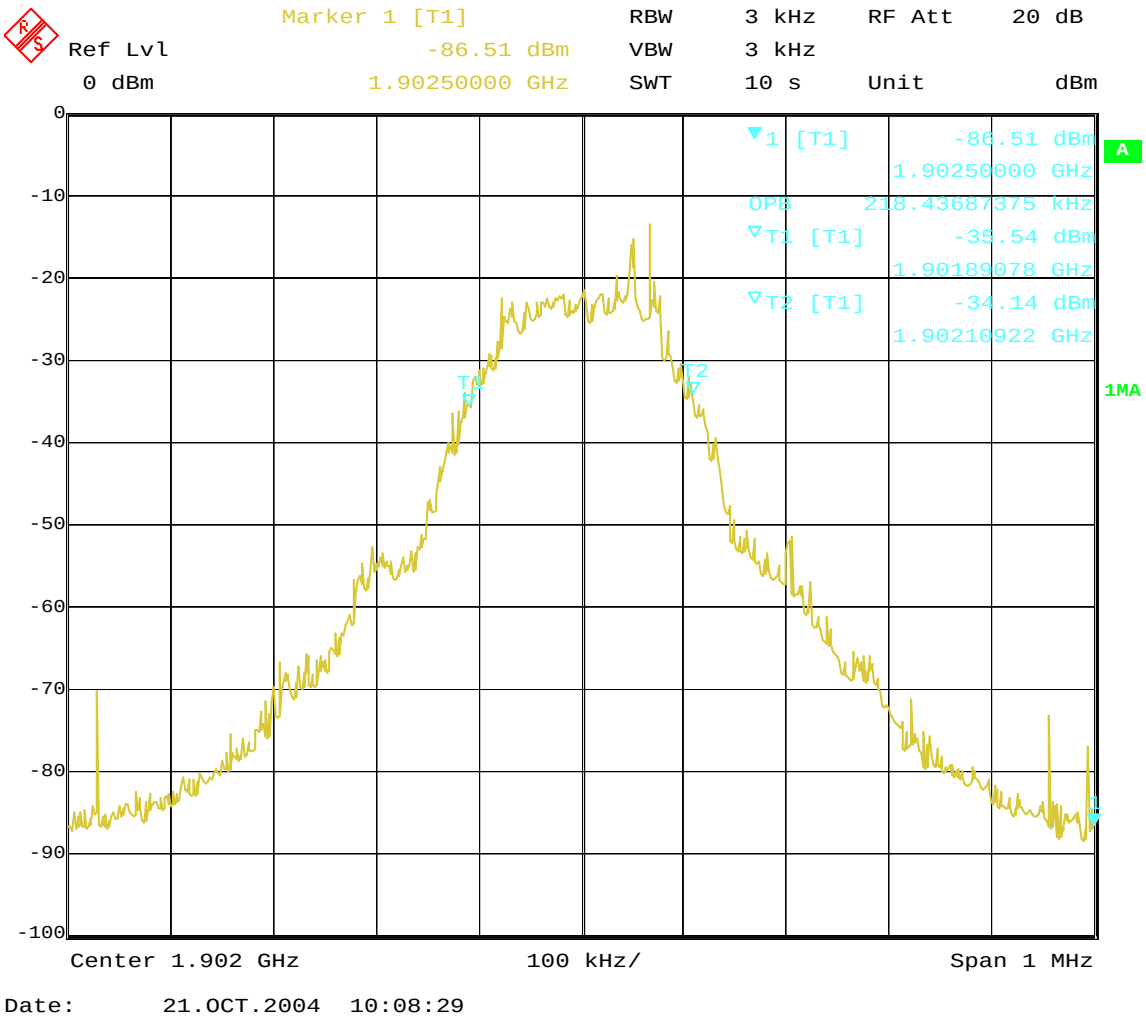


Figure 4-6: 99% Bandwidth measurement, Channel 809, 2W Backhaul

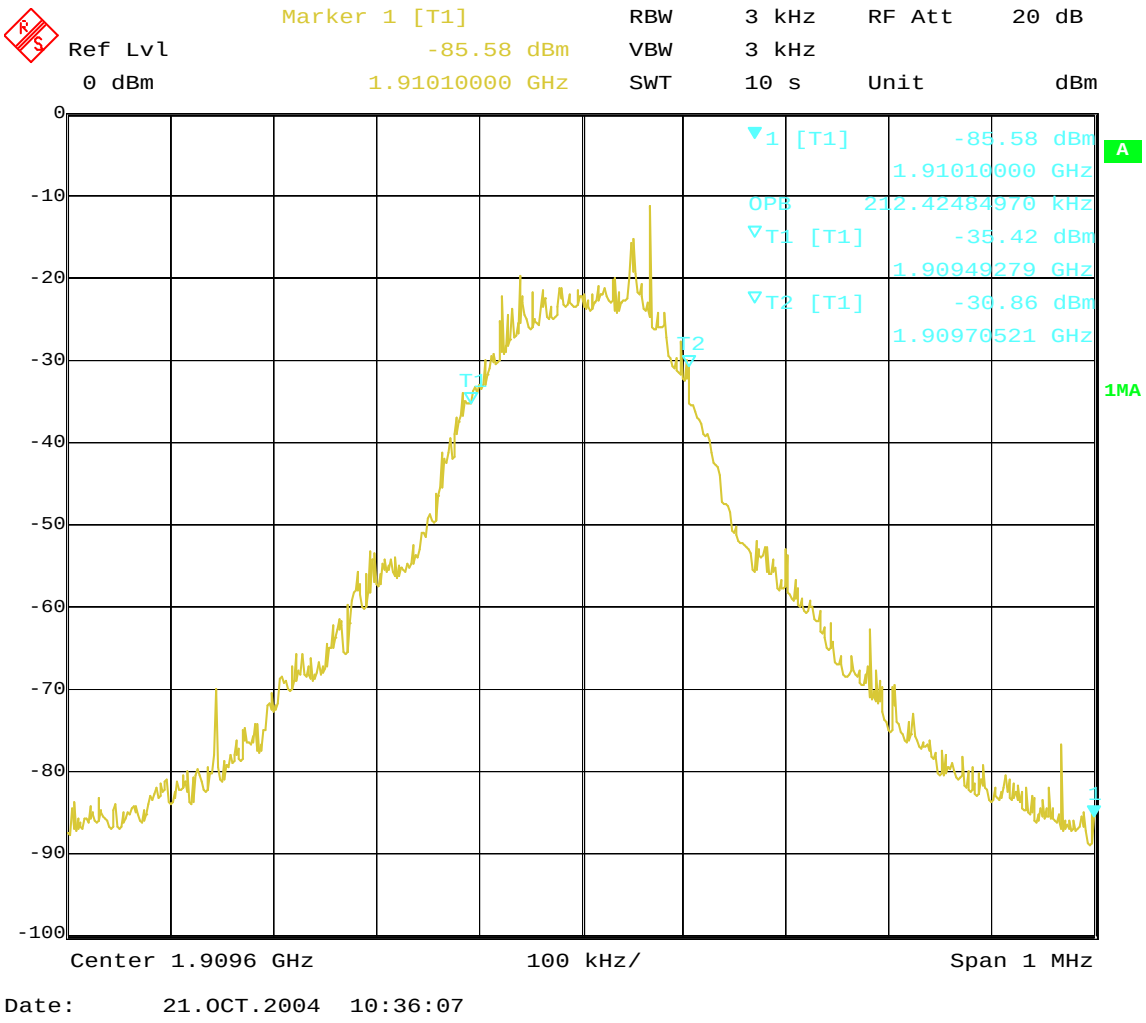


Figure 4-7: 99% Bandwidth measurement, Channel 738, 1W Backhaul

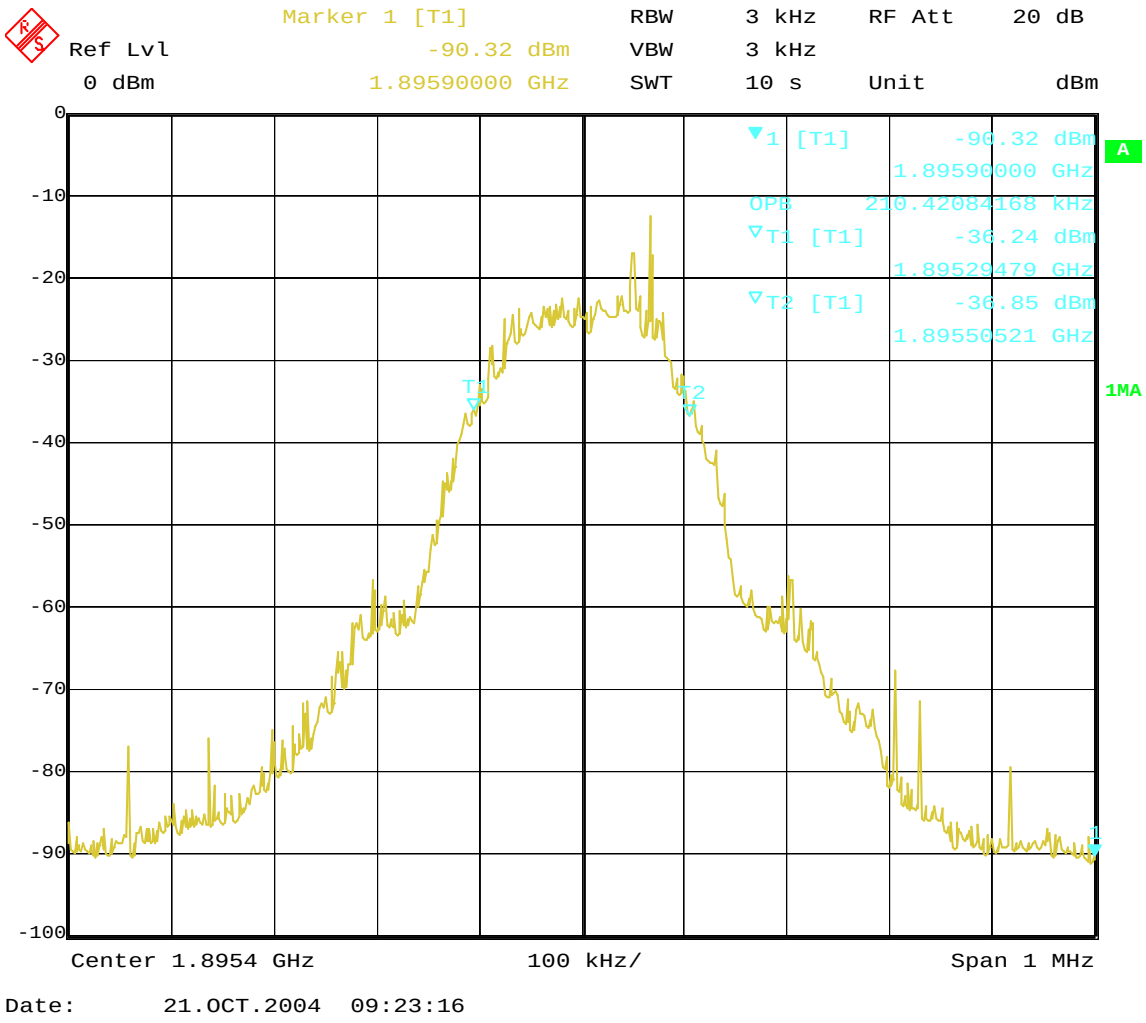


Figure 4-8: 99% Bandwidth measurement, Channel 771, 1W Backhaul

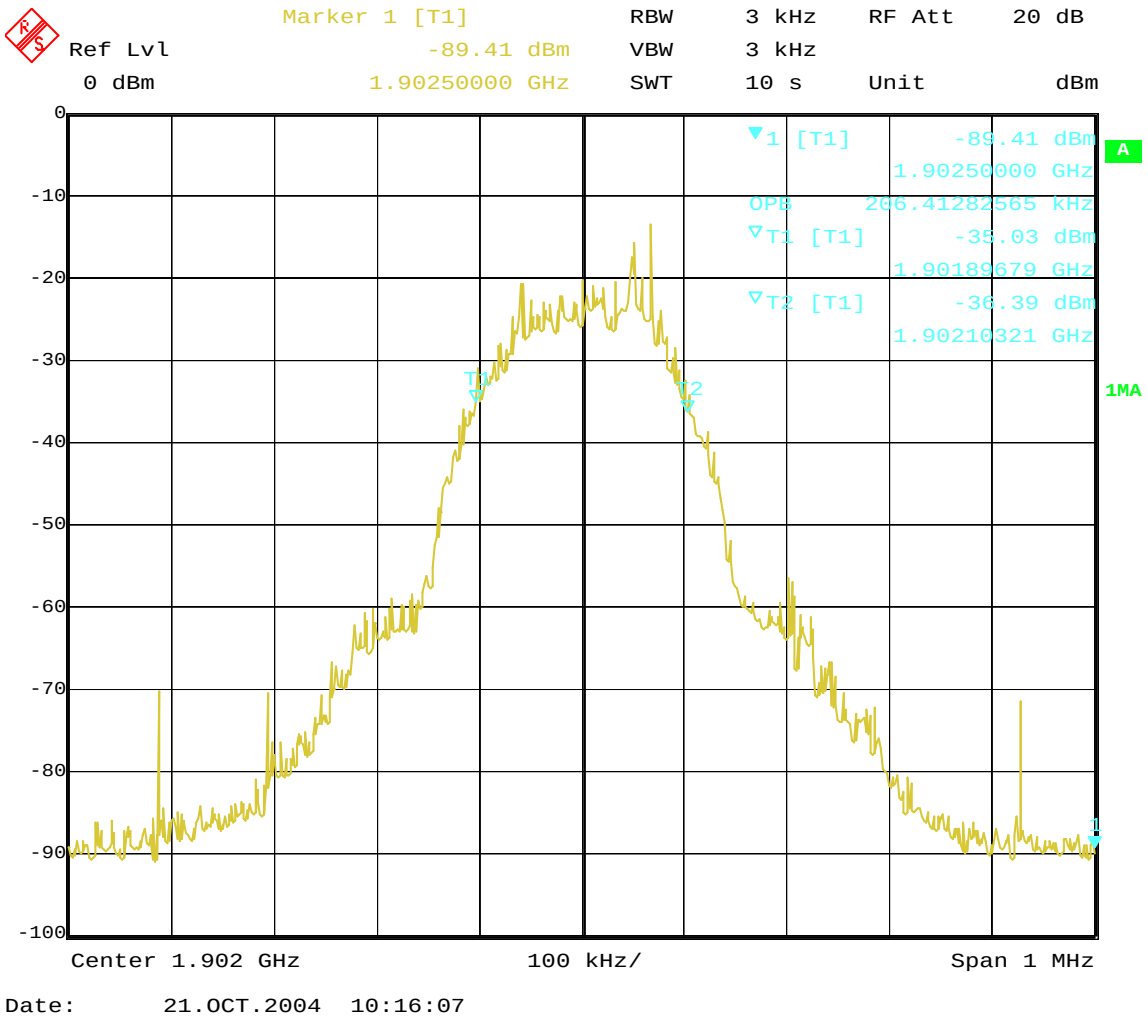
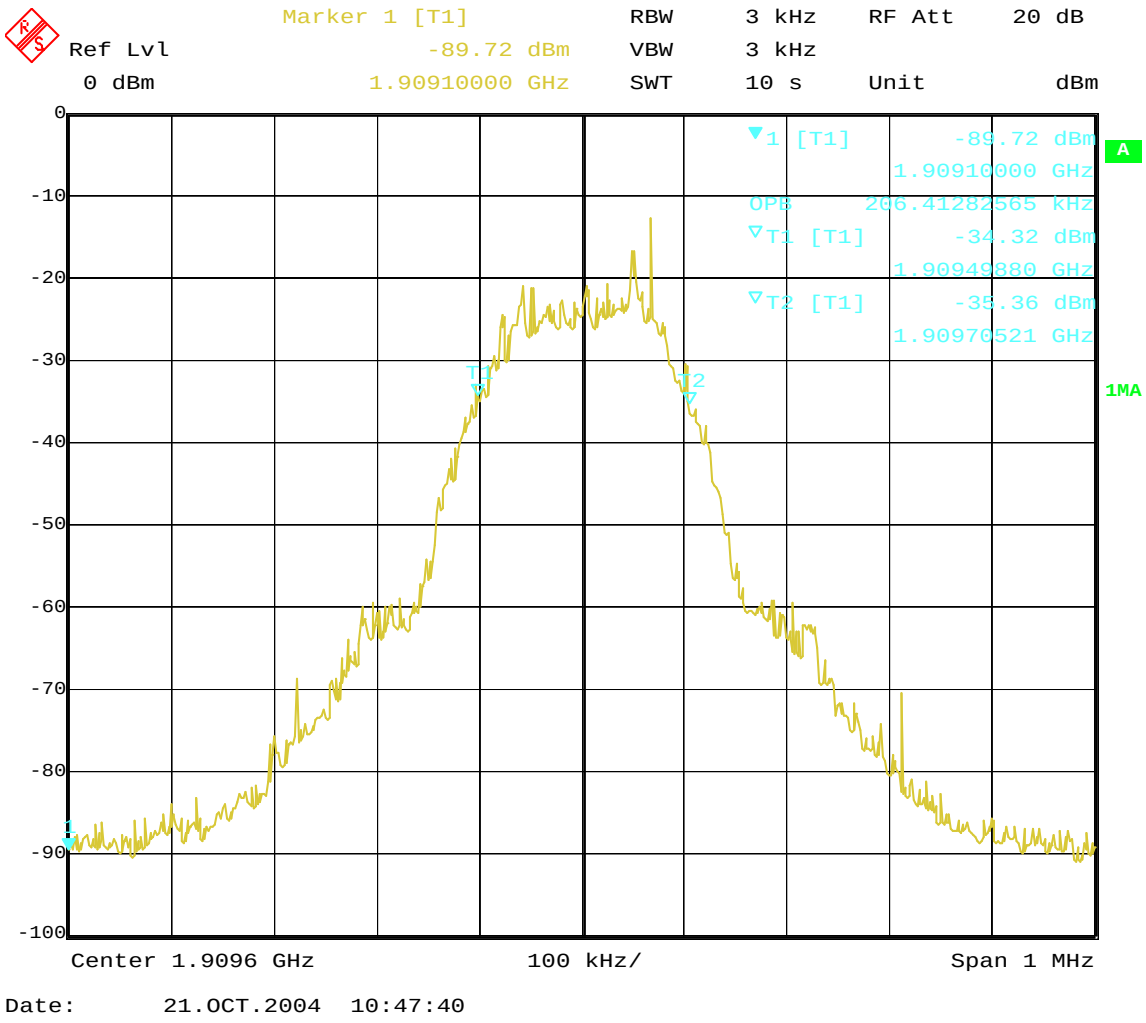


Figure 4-9: 99% Bandwidth measurement, Channel 809, 1W Backhaul



5 OUT OF BAND EMISSION AT ANTENNA TERMINALS

CFR 47 §2.1047, 24.238(a)

RSS-133

Out of Band Emissions: The mean power of emissions must be attenuated below the mean power of the un-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least 43 + 10 log P dB.

5.1 Test Procedure

The transmitter antenna output (40W) and Backhaul antenna output (2W and 1W) were individually connected to a spectrum analyzer, via a calibrated 40dB coaxial attenuator and low-loss coax cable. The resolution and video bandwidth of the spectrum analyzer were set to 1 MHz. Sufficient scans were taken to show the out of band Emissions if any up to the 10th harmonic.

5.2 Test Equipment

Description	Manufacturer	Model Number	Serial Number	Calibration Due Date
Spectrum Analyzer	R&S	FSEK 30	100253	8/30/05
40 dB Attenuator	Weinschel Corp	48-40-34	BK5886	6/23/05

5.3 Test Results

Table 5-1: Summary of test result locations

Location	Power Level	Channel	Description
Transmitter	40W	738	Conducted spurious emissions, 30 MHz to 20 GHz
Transmitter	40W	738	Emissions within 1 MHz of band edge
Transmitter	40W	771	Conducted spurious emissions, 30 MHz to 20 GHz
Transmitter	40W	809	Conducted spurious emissions, 30 MHz to 20 GHz
Transmitter	40W	809	Emissions within 1 MHz of band edge
Backhaul	2W	738	Conducted spurious emissions, 30 MHz to 20 GHz
Backhaul	2W	738	Emissions within 1 MHz of band edge
Backhaul	2W	771	Conducted spurious emissions, 30 MHz to 20 GHz
Backhaul	2W	809	Conducted spurious emissions, 30 MHz to 20 GHz
Backhaul	2W	809	Emissions within 1 MHz of band edge
Backhaul	1W	738	Conducted spurious emissions, 30 MHz to 20 GHz
Backhaul	1W	738	Emissions within 1 MHz of band edge
Backhaul	1W	771	Conducted spurious emissions, 30 MHz to 20 GHz
Backhaul	1W	809	Conducted spurious emissions, 30 MHz to 20 GHz
Backhaul	1W	809	Emissions within 1 MHz of band edge

Figure 5-1: Out of band emissions at antenna terminals, Channel 738, 40W

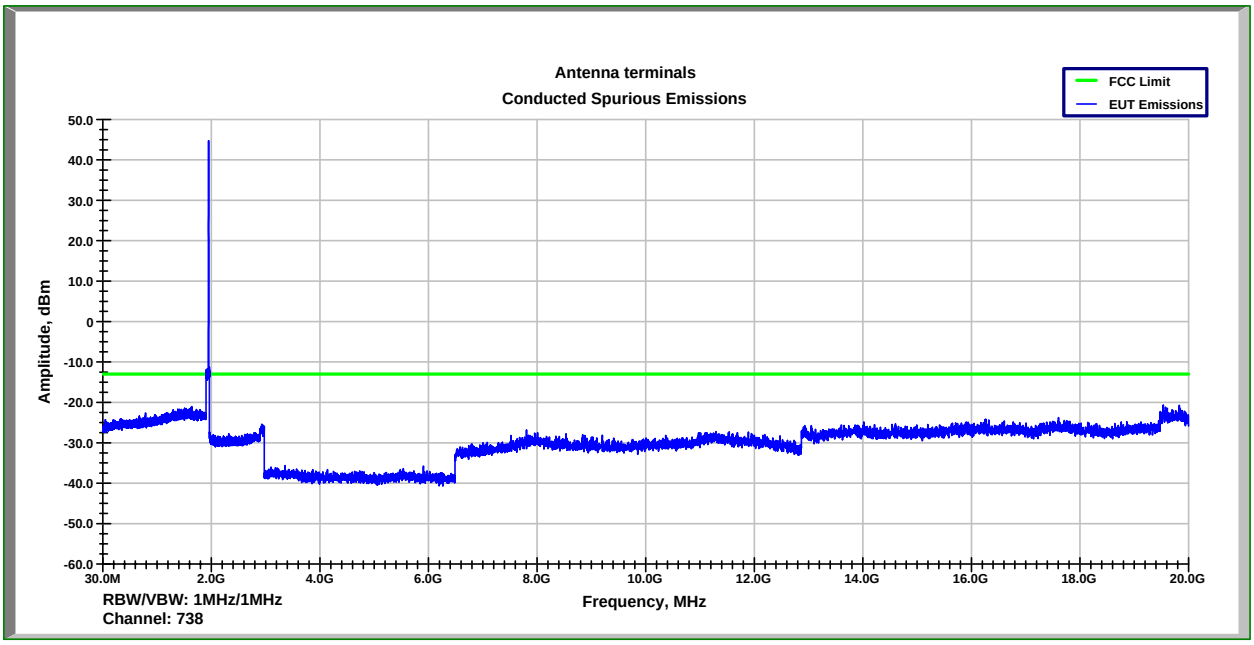


Figure 5-2: Emissions within 1 MHz of Bandedge, Channel 738, 40W

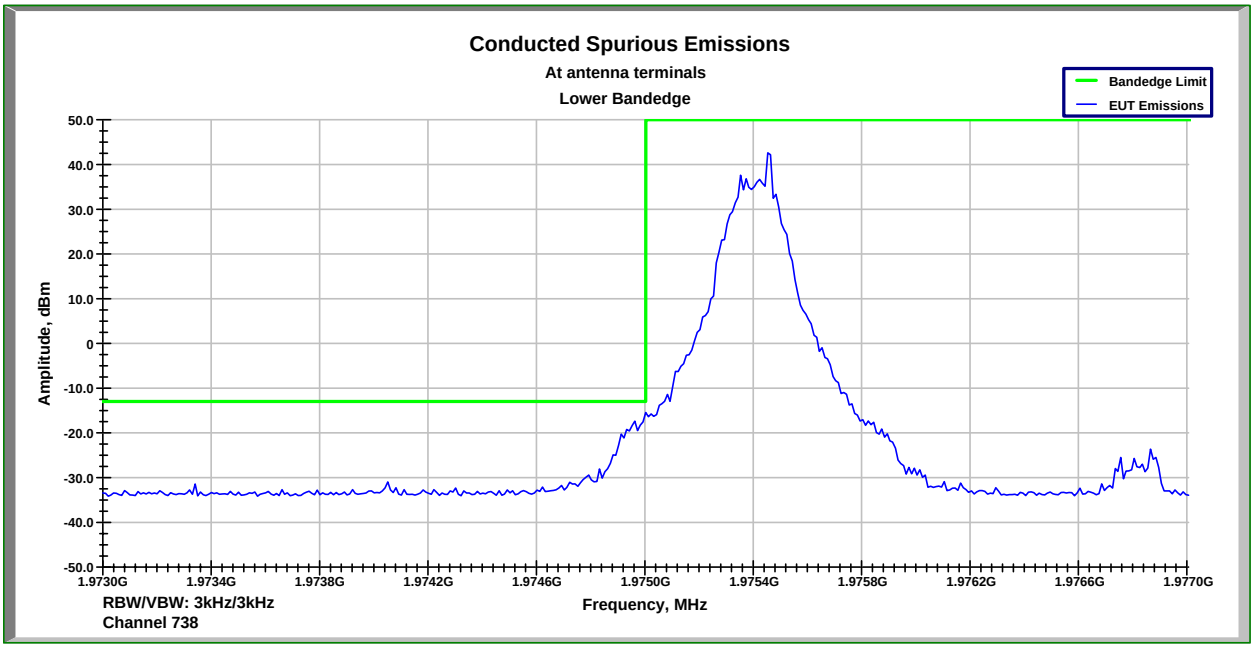


Figure 5-3: Out of band emissions at antenna terminals, Channel 771, 40W

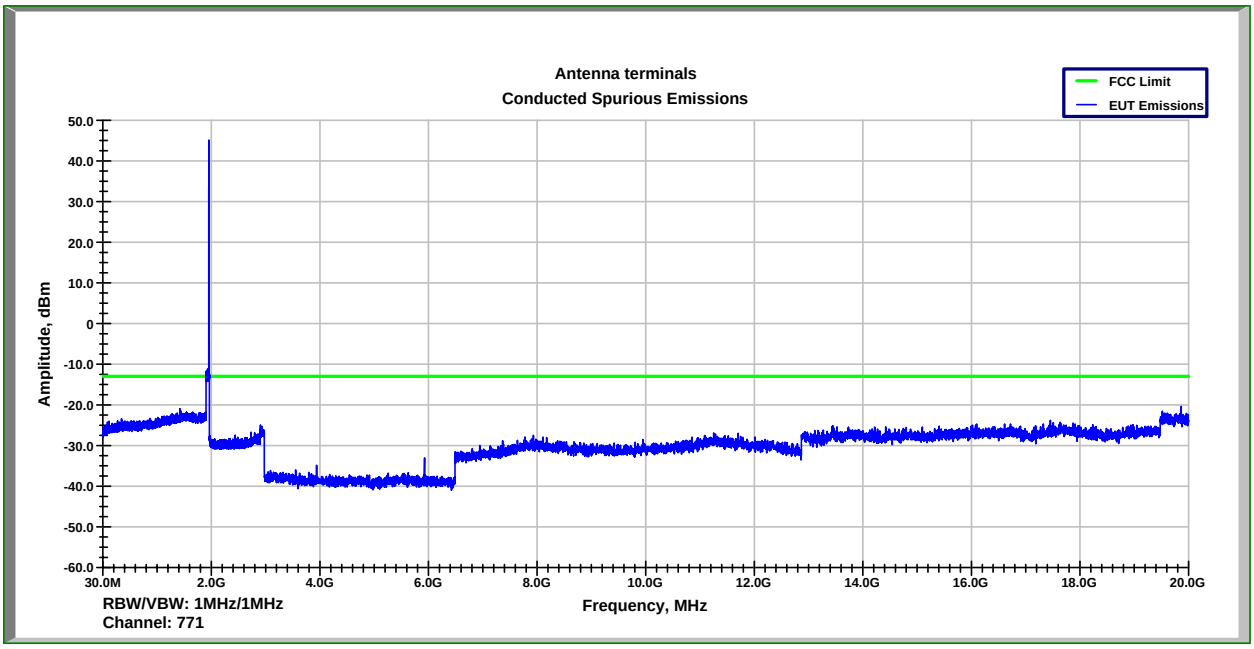


Figure 5-4: Out of band emissions at antenna terminals, Channel 809, 40W

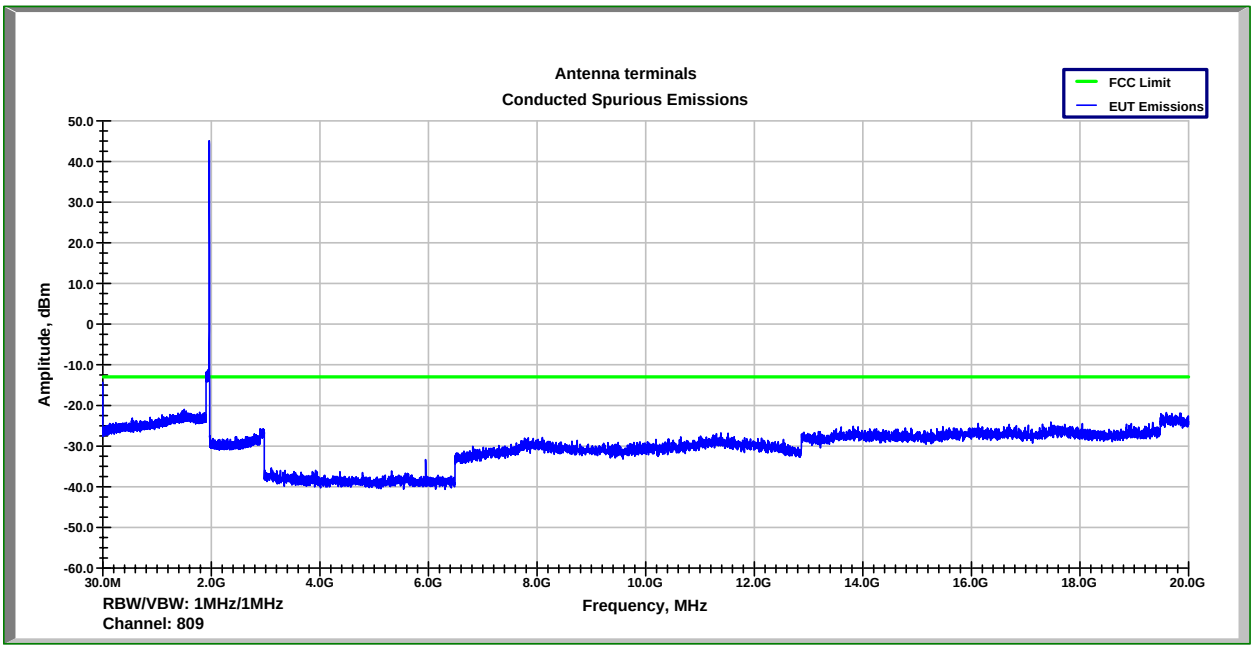


Figure 5-5: Emissions within 1 MHz of Bandedge, Channel 809, 40W

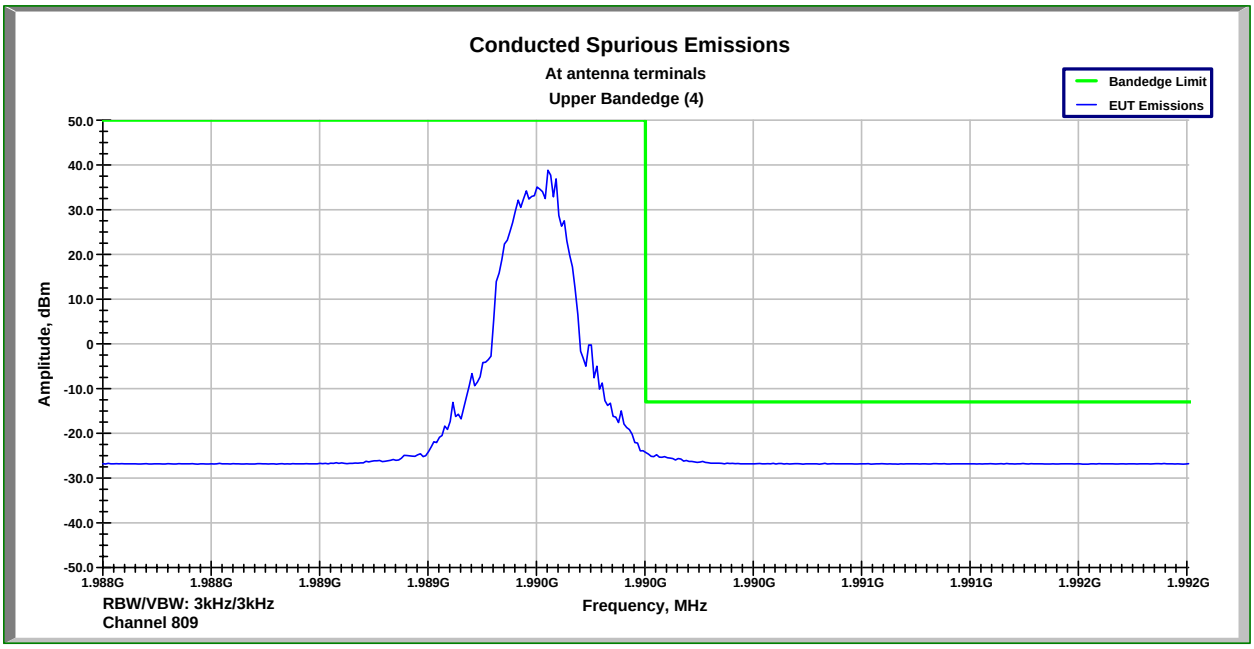


Figure 5-6: Out of band emissions at antenna terminals, Channel 738, 2W

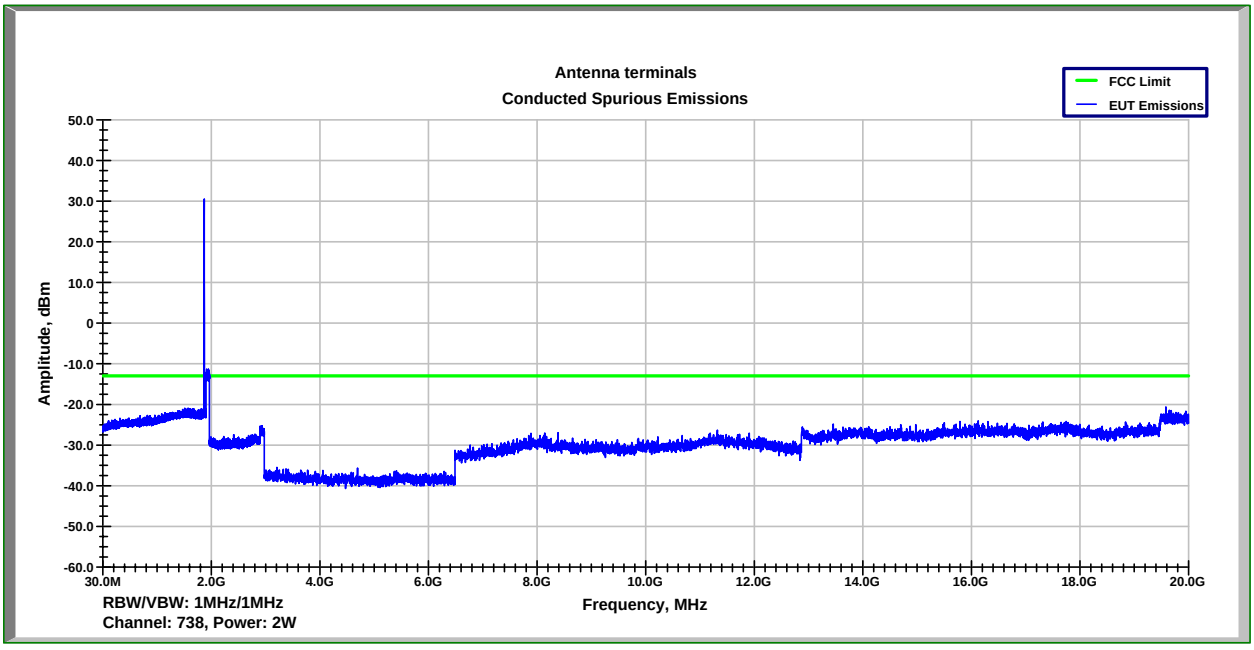


Figure 5-7: Emissions within 1 MHz of Bandedge, Channel 738, 2W

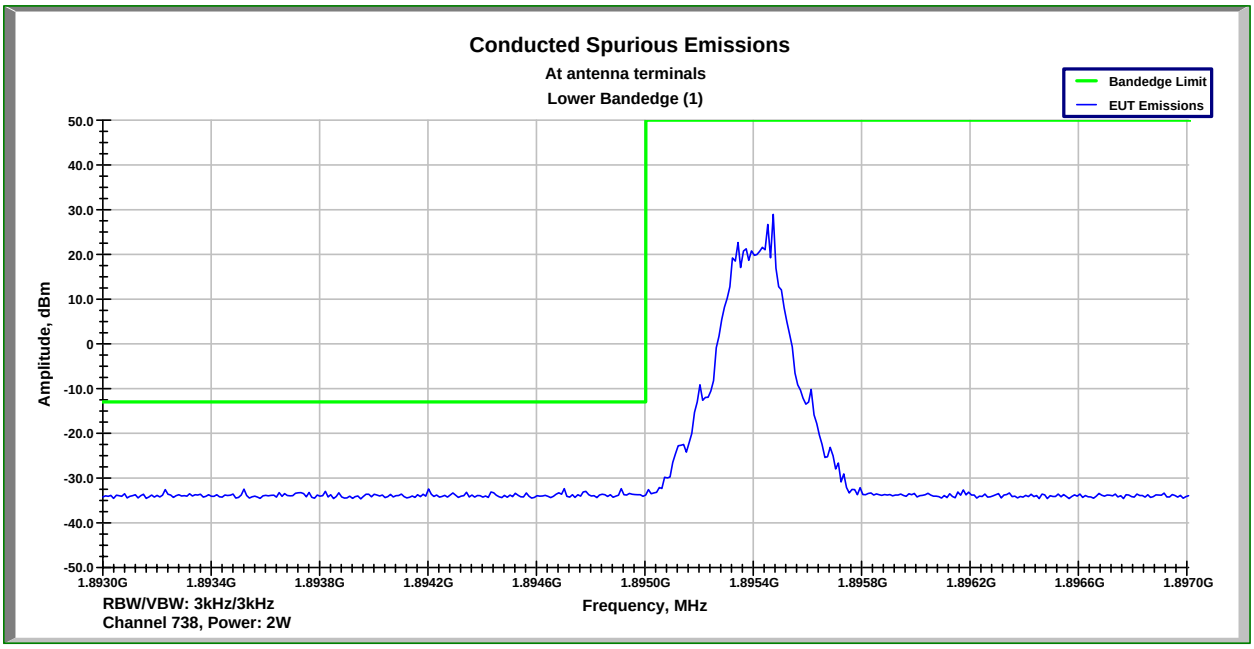


Figure 5-8: Out of band emissions at antenna terminals, Channel 771, 2W

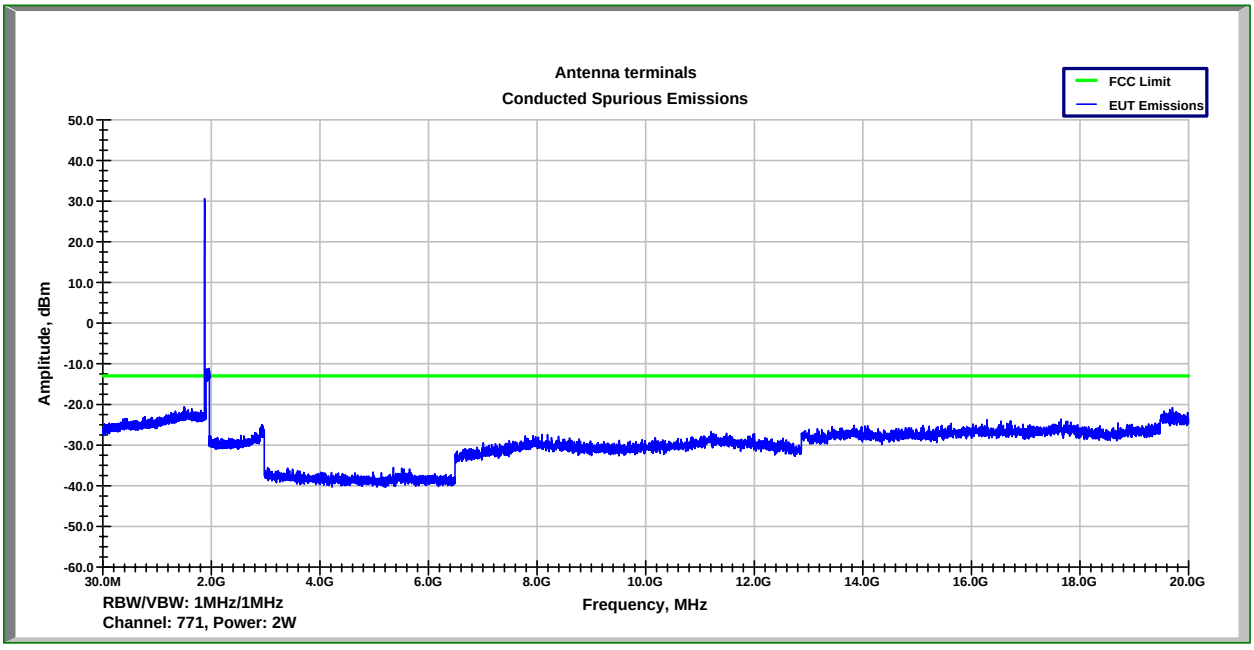


Figure 5-9: Out of band emissions at antenna terminals, Channel 809, 2W

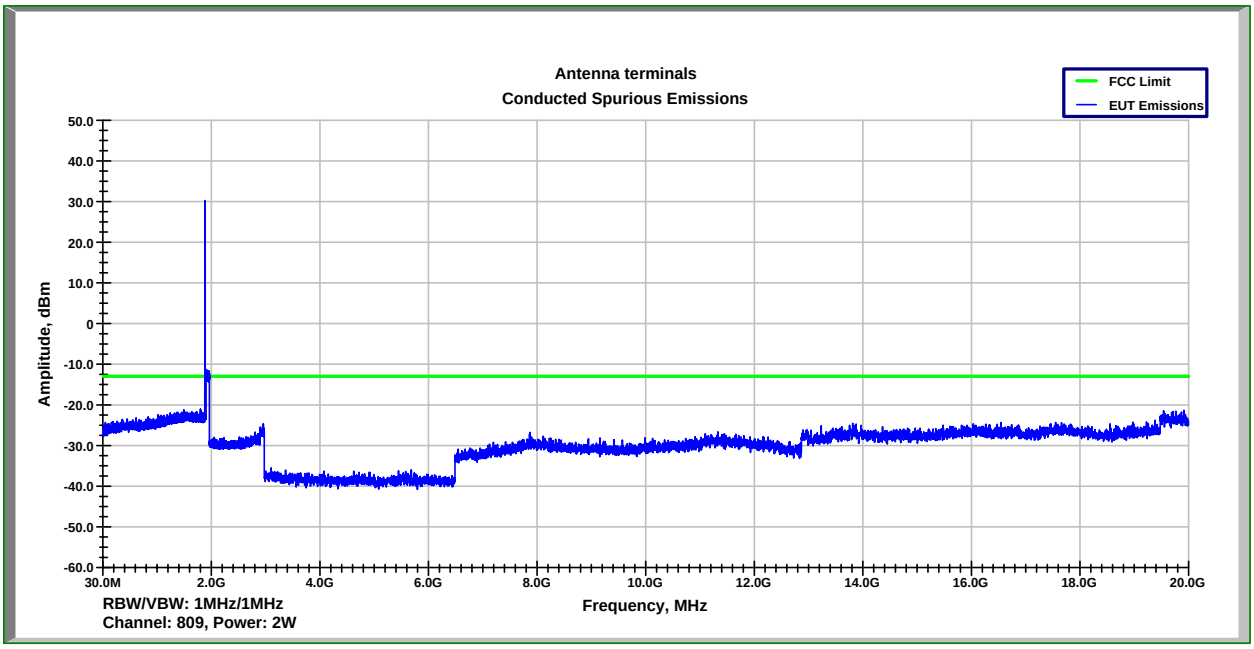


Figure 5-10: Emissions within 1 MHz of Bandedge, Channel 809, 2W

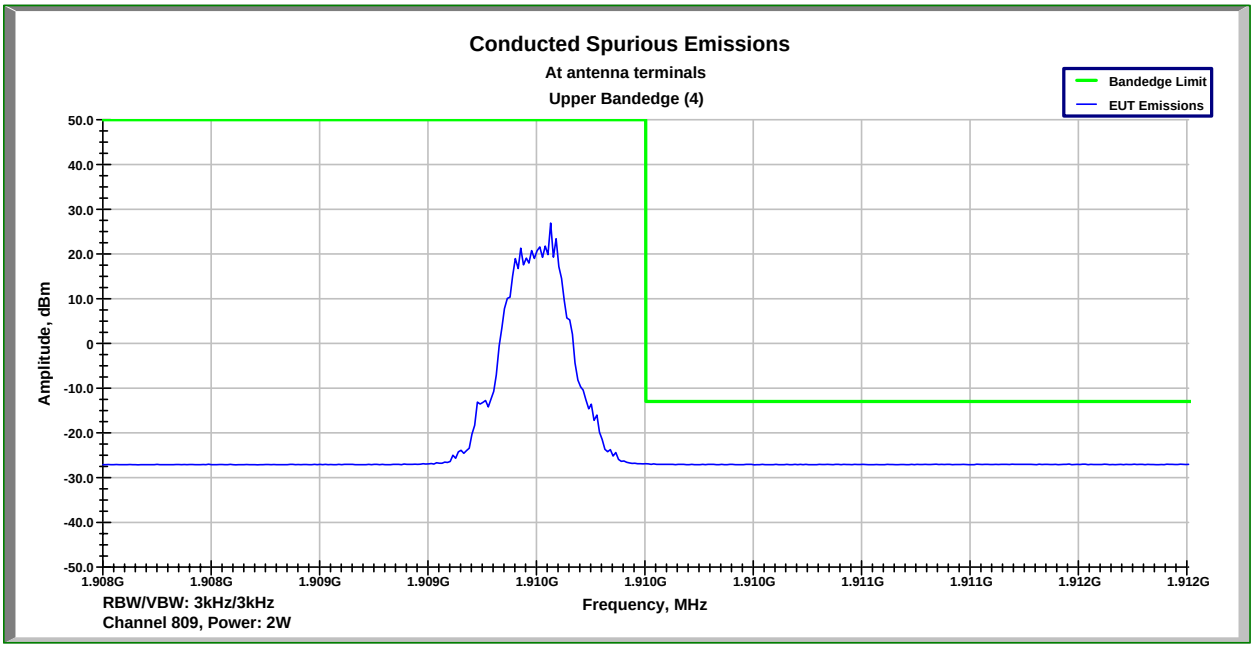


Figure 5-11: Out of band emissions at antenna terminals, Channel 738, 1W

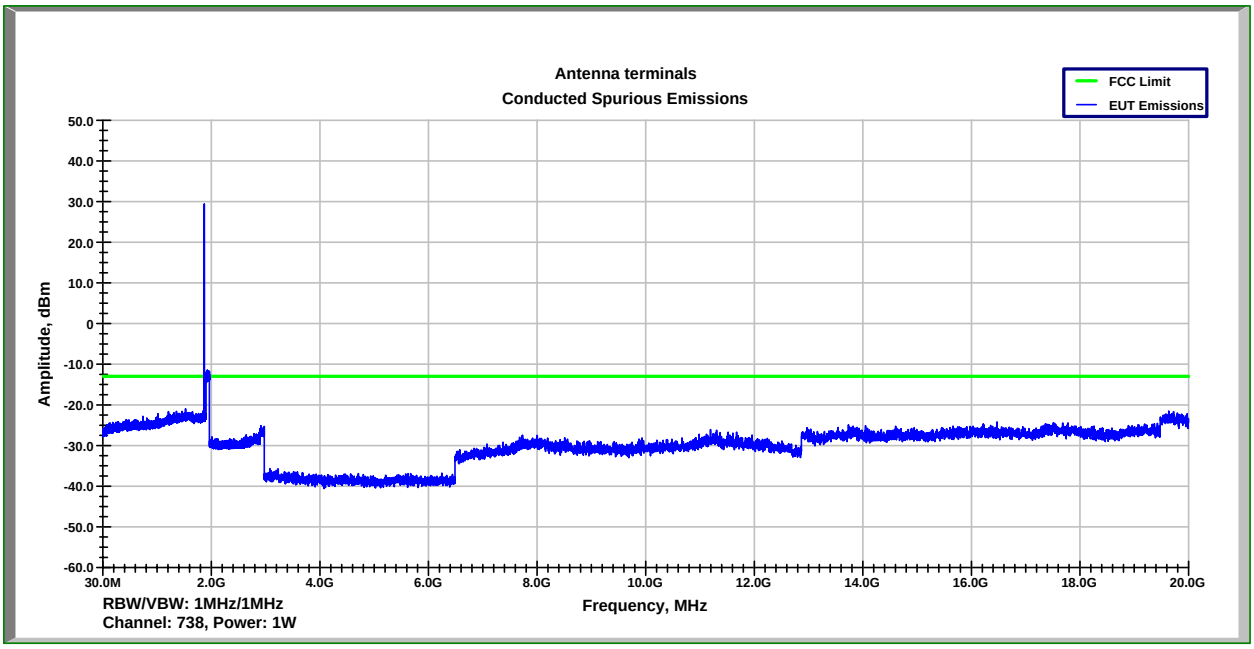


Figure 5-12: Emissions within 1 MHz of Bandedge, Channel 738, 1W

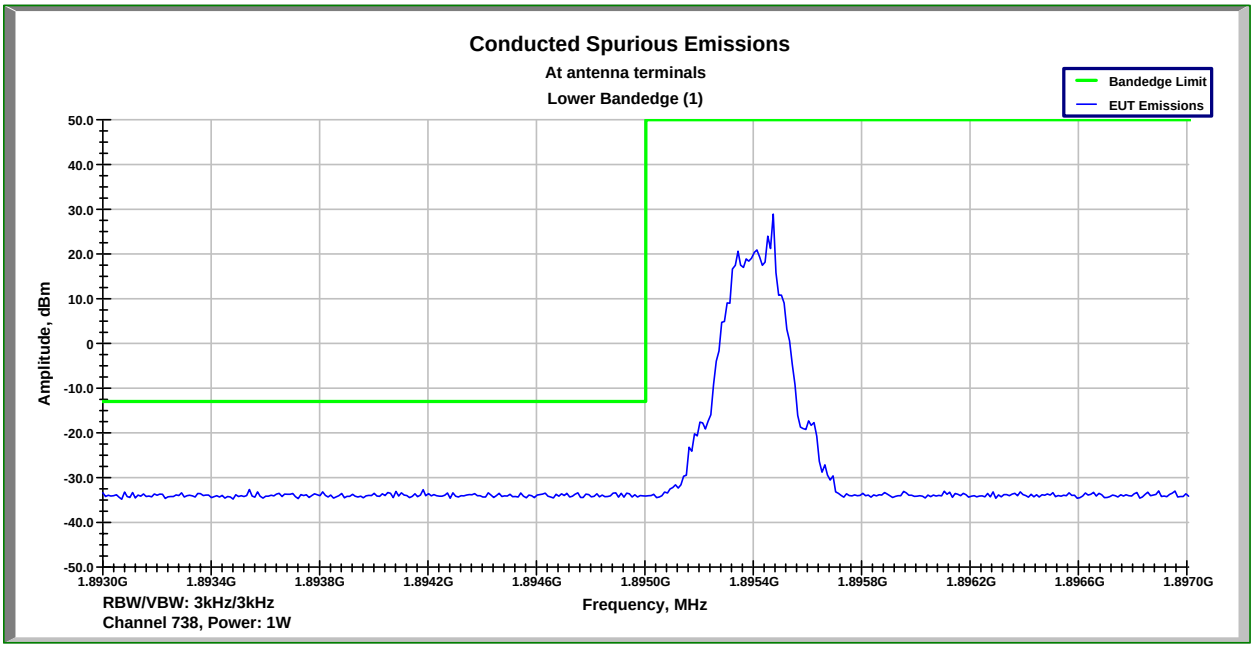


Figure 5-13: Out of band emissions at antenna terminals, Channel 771, 1W

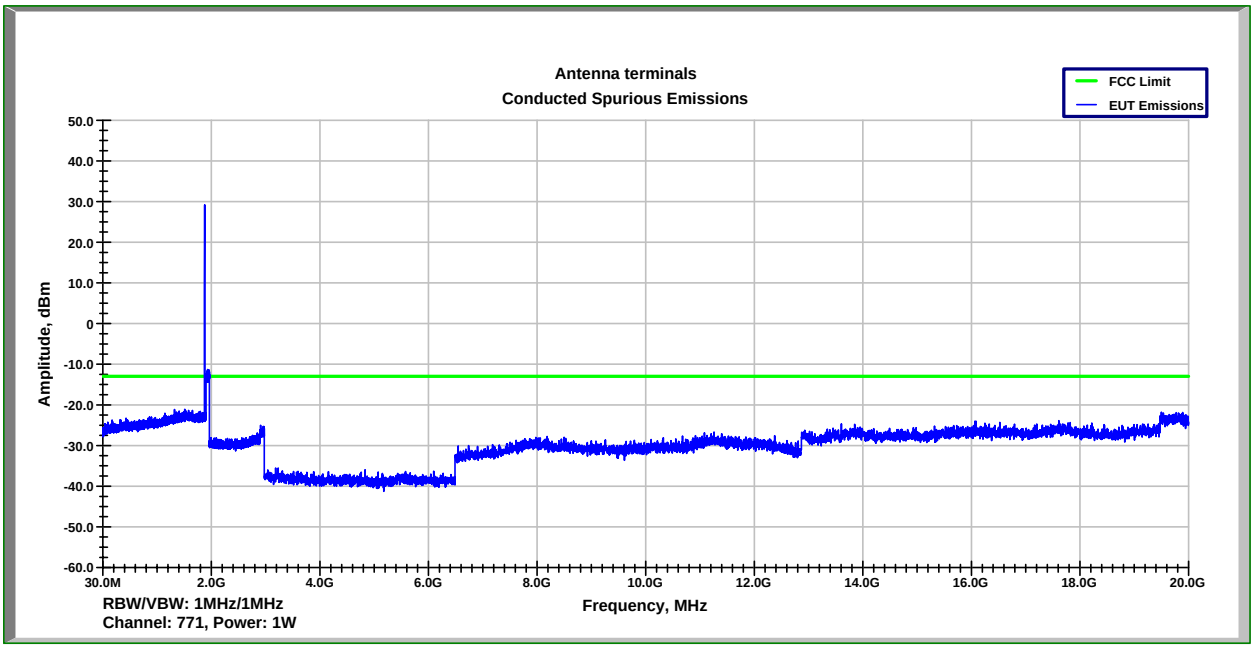


Figure 5-14: Out of band emissions at antenna terminals, Channel 809, 1W

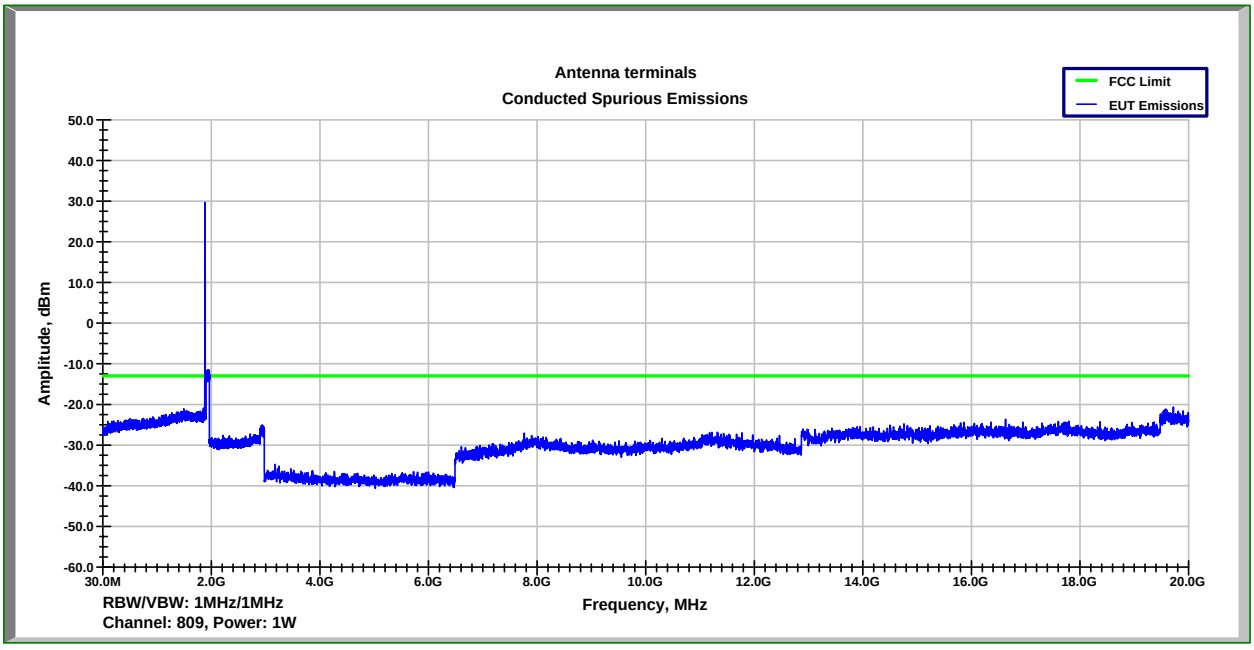
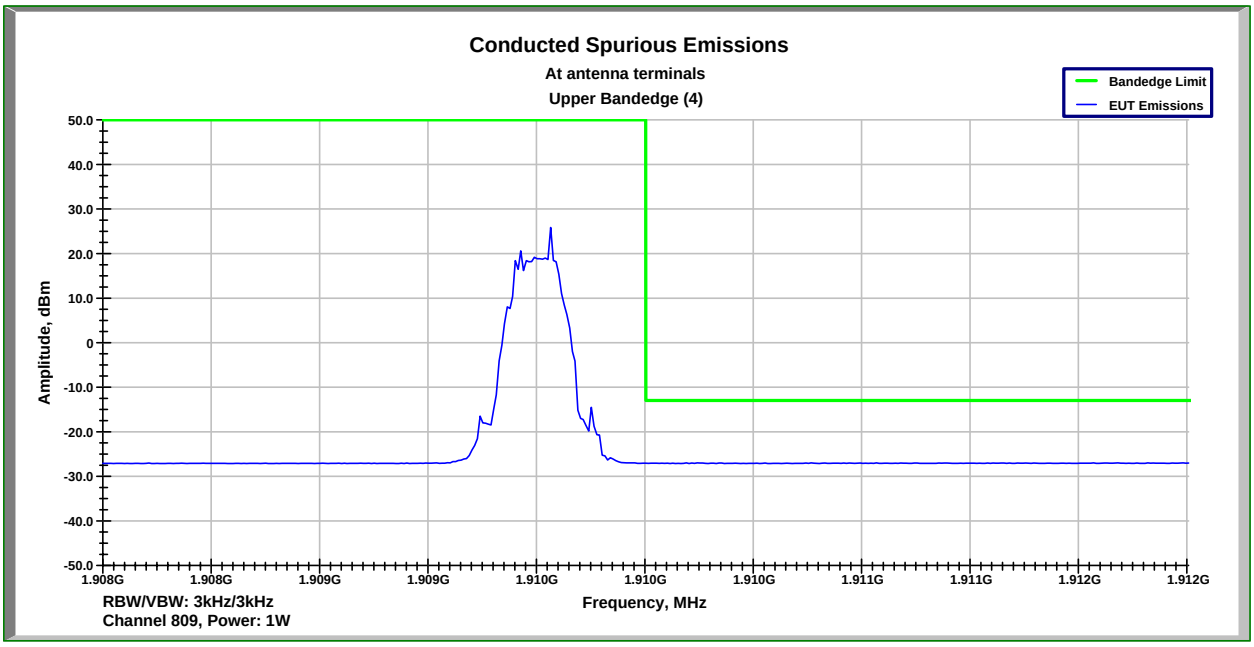


Figure 5-15: Emissions within 1 MHz of Bandedge, Channel 809, 1W



6 FIELD STRENGTH OF SPURIOUS RADIATION

Evaluation Not Within Scope

7 POWER LINE CONDUCTED EMISSIONS

Evaluation Not Within Scope

8 SPECIFIC ABSORPTION RATE

Evaluation Not Within Scope

9 FREQUENCY STABILITY

Evaluation Not Within Scope

10 RECEIVER SPURIOUS EMISSIONS

Evaluation Not Within Scope