

TECHNICAL CONSTRUCTION FILE FOR

***STRATA CLAMSHELL /DIGITAL MICROWAVE VIDEO TRANSPORT SYSTEM 2.
to 2.5GHz***

***APPLICATION CONSISTS OF DIGITAL TRANSMISSIONS FOR ENG MOBILE /
TELEVISION PICK-UP BROADCASTS***

**The objective of this TCF is to demonstrate the conformance of
Microwave Radio Communications' STRATA Video Transport System.**

**To the essential requirements of, FCC CFR 47 part 74 and 15 for a
12MHz digital channel bandwidth pursuant to the BAS relocation
program.**

**This document is intended as an addendum to the STRATA systems
present type acceptance FCC ID FC3 STATXU2D**

**Note that this document contains test data and operational limits that
are not specifically required or detailed by the governing compliance
limits, they are included to show Microwave Radio's due diligence in the
production of a quality product and verification of compliance and
public safety.**



STRATA TX System

Analog + Digital
Portable 1.9 - 2.5, 2.3 - 2.7 GHz
Microwave Transmitter

Technical Reference Manual

Manual Part No. 400502-1
Rev. 0 February 2005

Table of measurements

- 1. Occupied bandwidth**
- 2. Output power regulation over temperature**
- 3. Adjacent channel power and spectral masks**

Table of equipment

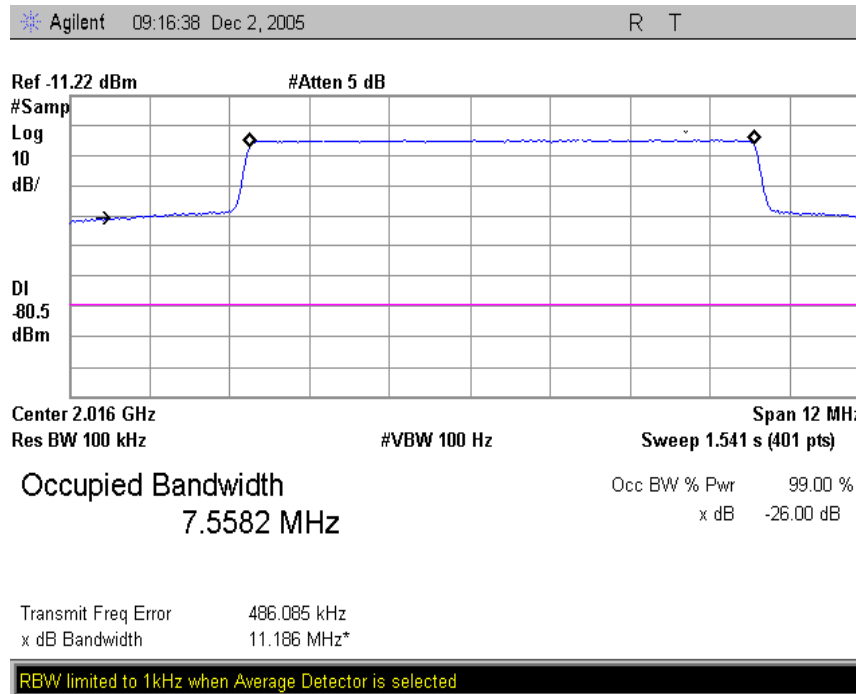
- 1. All spectral measurements made using an Agilent E4407 ESA series spectrum analyzer. Serial # 930381**
- 2. All frequency measurements made using a HP 5343A microwave frequency counter SN 33624**
- 3. All mean power measurements made using HP model 437B power meter SN# 33611 and sensor**
- 4. The DC source voltage was provided by an Agilent E3633A power supply SN# fo619**
- 5. Where attenuation was necessary for the protection of a measuring device Mecca attenuators of the relevant wattage and value were used**
- 6. All devices networked via GPIB interface and controlled using Labview virtual instrumentation and test platform**

Occupied Bandwidth

47CFR 2.1

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage Beta/2 of the total mean power of a given emission.

Mode COFDM modulated COFDM IF 8MHz ½ FEC



(2) When using transmissions employing digital modulation techniques:

(i) For operating frequencies below 15 GHz, in any 4 kHz reference bandwidth (BREF), the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 50 decibels:

$$A = 35 + 0.8 (G \nless 50) + 10 \text{ Log}_{10} B.$$

(Attenuation greater than 80 decibels is not required.)

Where:

A = Attenuation (in decibels) below the mean

output power level.

G = Percent removed from the carrier frequency.

B = Authorized bandwidth in megahertz.

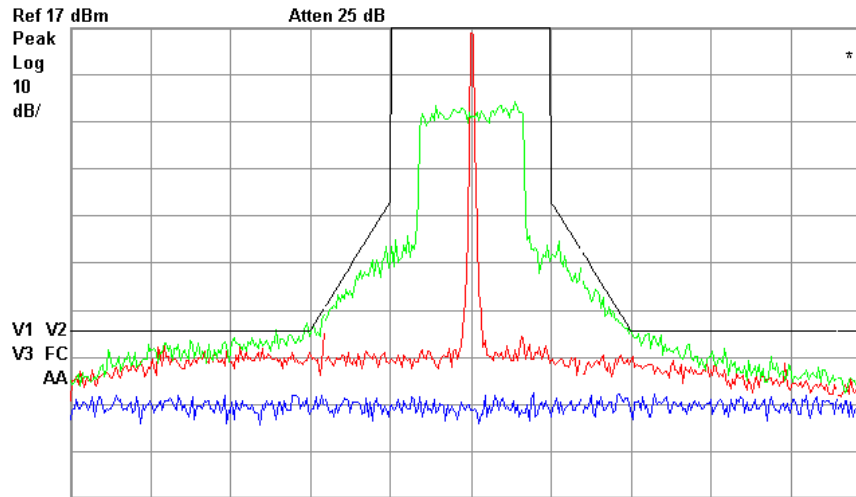
CHANNEL A1r SPECTRAL MASK CFR 47 PART 74 (a)

2033.5MHz .6 WATTS 28dbm QPSK 8 MHzFEC1/2 GUARD INTERVAL 1/8

TXU,TCU,

COMPLIANCE FACTOR = $10 \log (B_{ref} / B_{res.}) = 10 \log x .0046e6 / 100e3 = 13.3dbm$

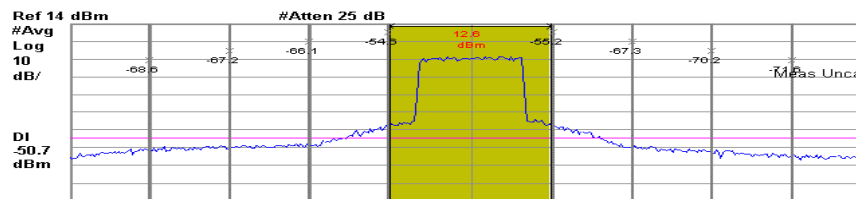
Agilent 08:51:05 Jan 5, 2006 R T



Center 2.034 GHz Span 60 MHz
#Res BW 120 kHz #VBW 10 kHz Sweep 61.65 ms (401 pts)

Query UNTERMINATED

Agilent 10:02:38 Jan 5, 2006 R T

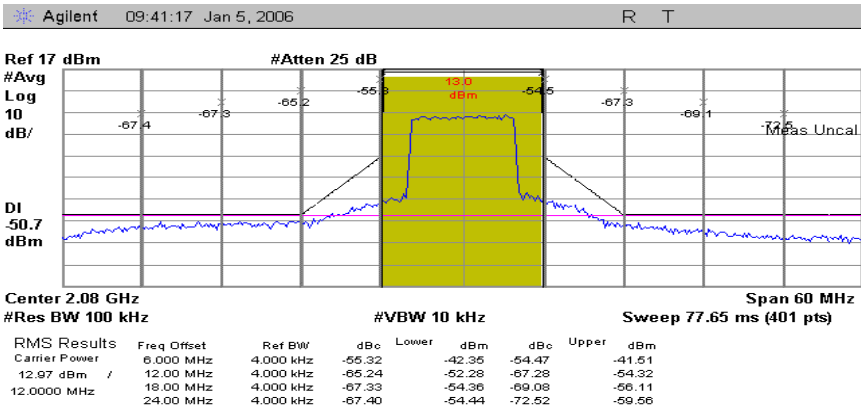
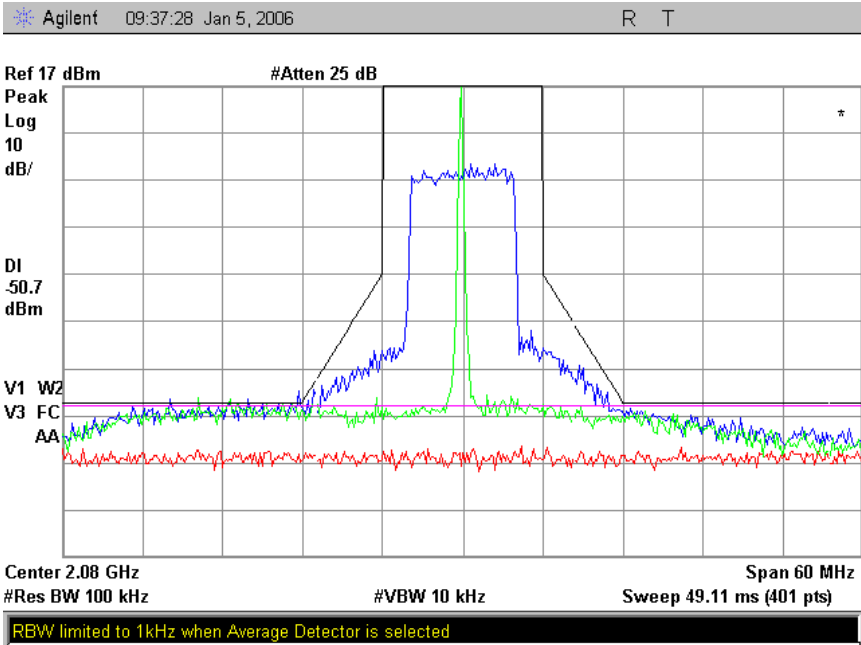


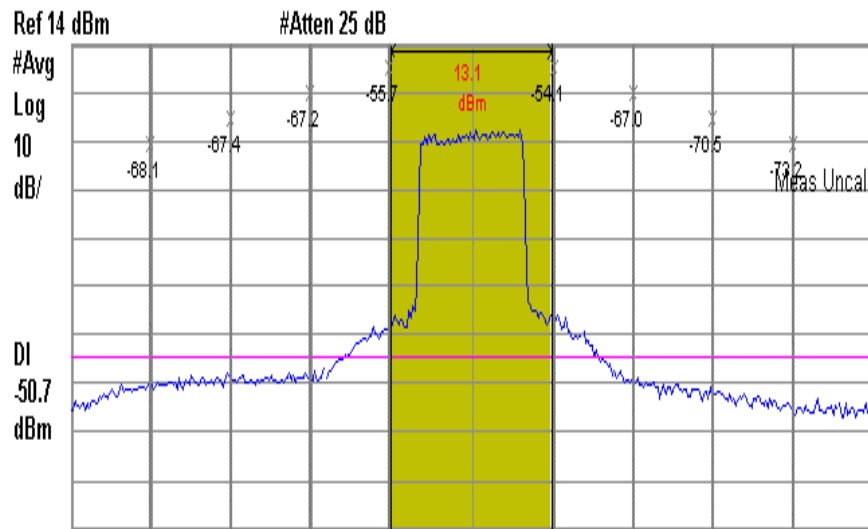
Center 2.034 GHz Span 60 MHz
#Res BW 100 kHz #VBW 10 kHz #Sweep 97.74 ms (401 pts)

RMS Results	Freq Offset	Ref BW	dBc	Lower	dBm	dBc	Upper	dBm
Carrier Power	0.000 MHz	4.000 kHz	-54.64	-42.03	-55.20	-42.60		
12.61 dBm	12.00 MHz	4.000 kHz	-66.14	-53.54	-67.34	-54.73		
16.00 MHz	16.00 MHz	4.000 kHz	-67.19	-54.58	-70.23	-57.62		
12.000 MHz	24.00 MHz	4.000 kHz	-68.64	-56.04	-71.57	-58.96		

RBW limited to 1kHz when Average Detector is selected

2080.25 .5WATTS 27dbm COFDM,QPSK 8MHz . FEC1/2 GUARD INTERVAL 1/8 HANNEL A5r
TXU,TCU,
COMPLIANCE FACTOR =10 log (B ref / B res.) =10log x .0046e6 / 100e3 =13.3dbm

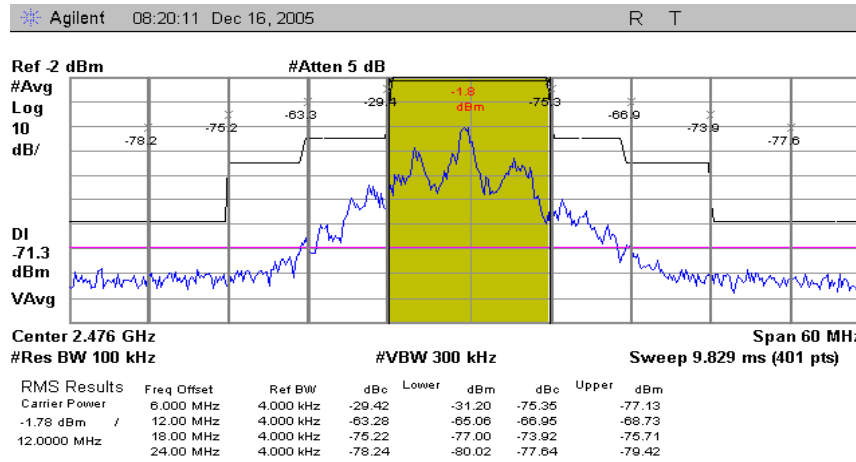




Center 2.102 GHz						Span 60 MHz	
#Res BW 100 kHz		#VBW 10 kHz		#Sweep 97.74 ms (401 pts)			
RMS Results		Freq Offset	Ref BW	dBc Lower	dBm	dBc Upper	dBm
Carrier Power		6.000 MHz	4.000 kHz	-55.66	-42.56	-54.14	-41.05
13.10 dBm /		12.00 MHz	4.000 kHz	-67.22	-54.13	-66.97	-53.87
12.0000 MHz		18.00 MHz	4.000 kHz	-67.37	-54.27	-70.53	-57.44
		24.00 MHz	4.000 kHz	-68.07	-54.97	-73.16	-60.06

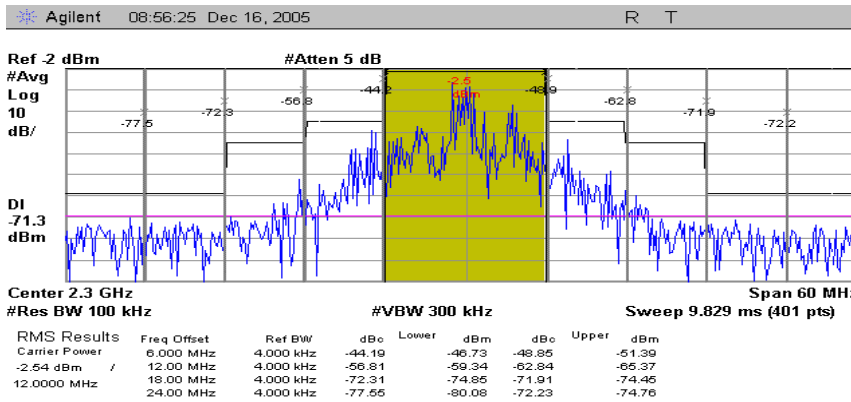
RBW limited to 1kHz when Average Detector is selected

**Analog output 38dbm 6.5 watts modulated ntsc color bars full field,
40db attenuation between out put and analyzer**

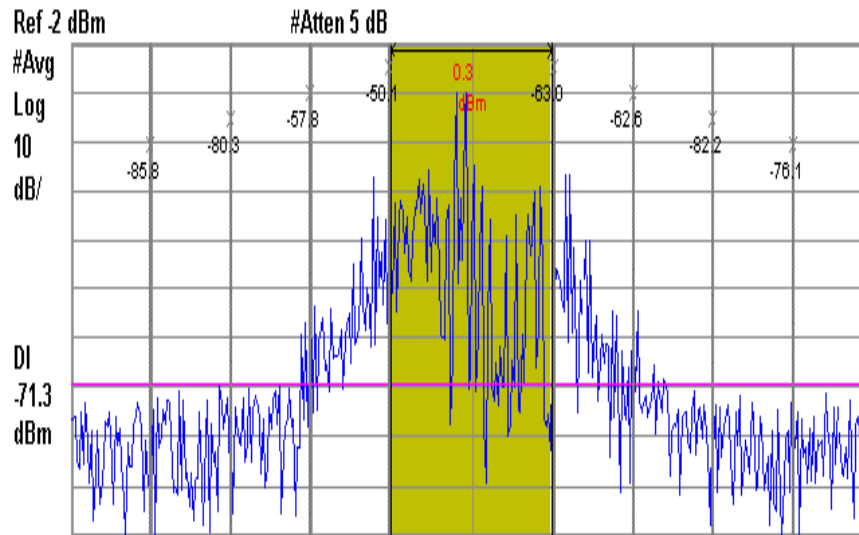


RBW limited to 1kHz when Average Detector is selected

DEVIATION +/- 3MHz AUDIO SUBS SET 4.83 & 5.8 MHz



RBW limited to 1kHz when Average Detector is selected



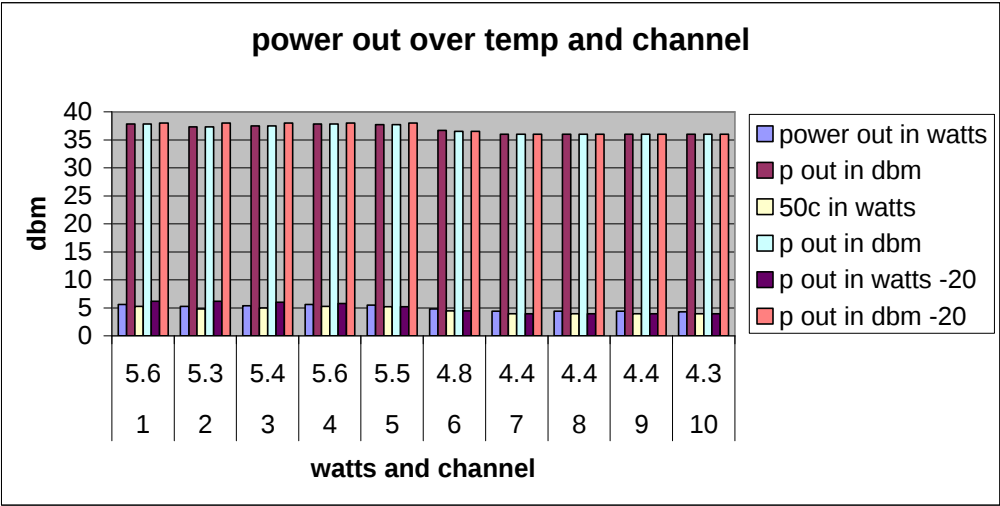
Center 2.458 GHz Span 60 MHz

#Res BW 100 kHz #VBW 300 kHz Sweep 9.829 ms (401 pts)

RMS Results	Freq Offset	Ref BW	dBc	Lower	dBm	dBc	Upper	dBm
Carrier Power	6.000 MHz	4.000 kHz	-50.15	-49.87	-62.98	-62.71		
0.28 dBm /	12.00 MHz	4.000 kHz	-57.84	-57.56	-62.61	-62.33		
12.0000 MHz	18.00 MHz	4.000 kHz	-80.25	-79.98	-82.24	-81.96		
	24.00 MHz	4.000 kHz	-85.77	-85.49	-76.11	-75.83		

RBW limited to 1kHz when Average Detector is selected

INDUCTED POWER OUTPUT OVER FREQUENCY OVER TEMPERATURE



ut	Pout	Temp	Pout	Pout	Temp	Pout	Pout	Temp -
atts	dbm	20c	Channelwatts	dbm	50c	Channelwatts	dbm	20
	5.6	37.8	1	5.3	37.8	1	6.2	38
	5.3	37.3	2	4.8	37.3	2	6.2	38
	5.4	37.5	3	5	37.5	3	6	38
	5.6	37.8	4	5.3	37.8	4	5.8	38
	5.5	37.7	5	5.2	37.7	5	5.2	38
	4.8	36.7	6	4.5	36.5	6	4.5	36.5
	4.4	36	7	4	36	7	4	36
	4.4	36	8	4	36	8	4	36
	4.4	36	9	4	36	9	4	36
	4.3	36	10	4	36	10	4	36

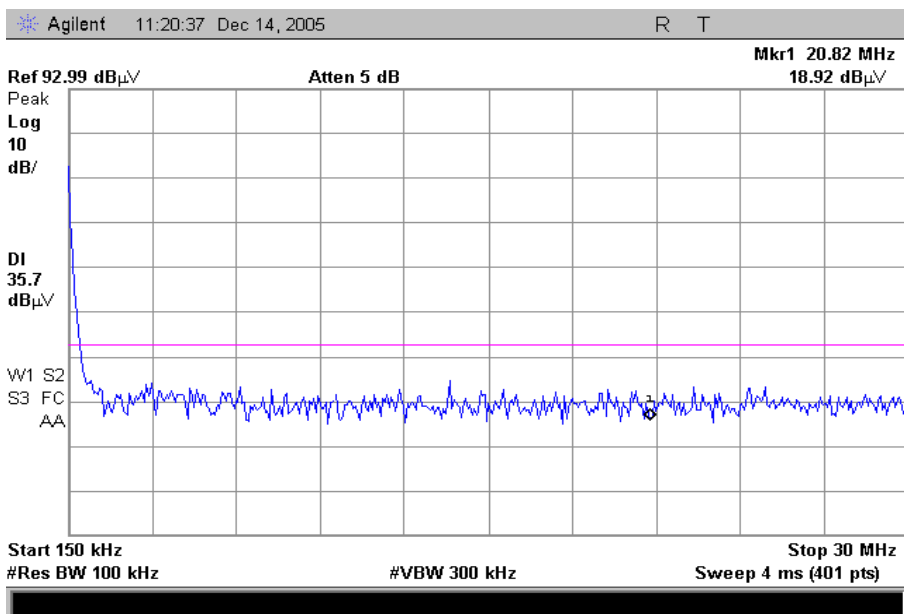
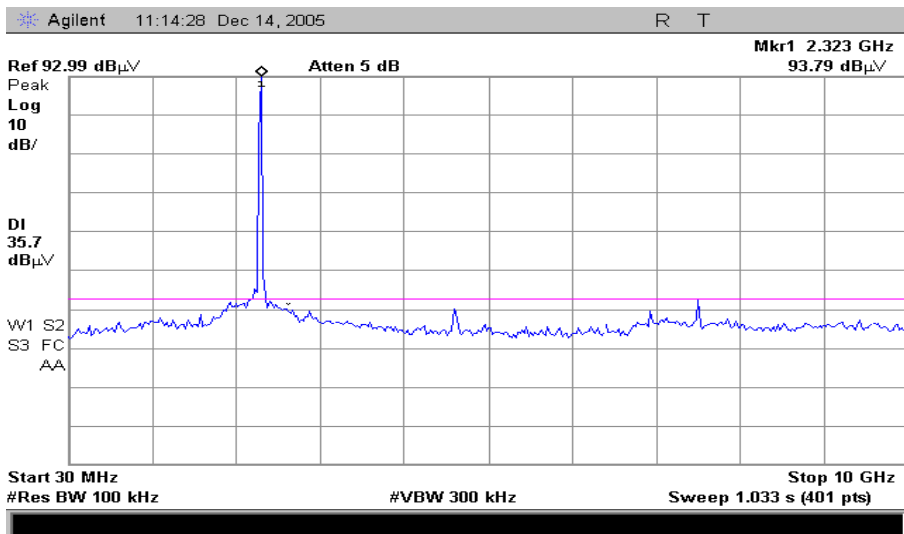


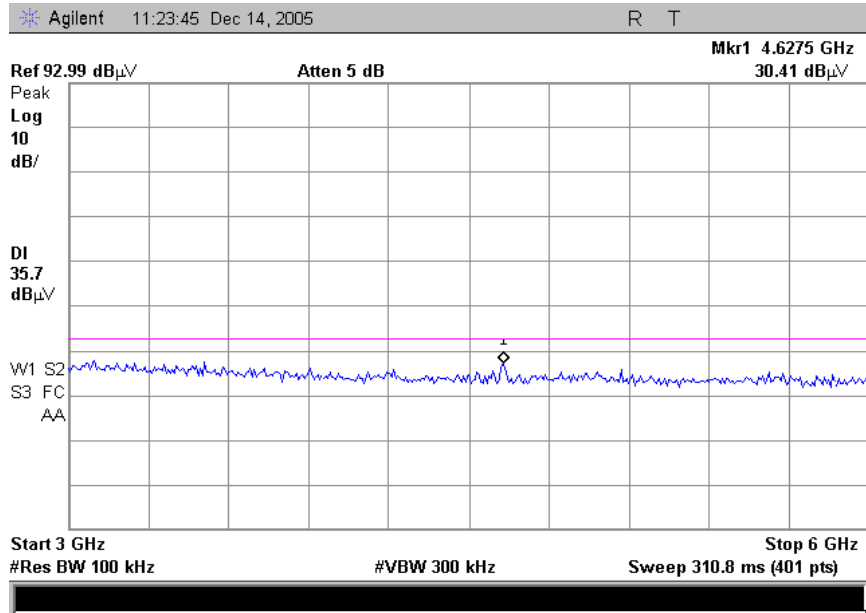
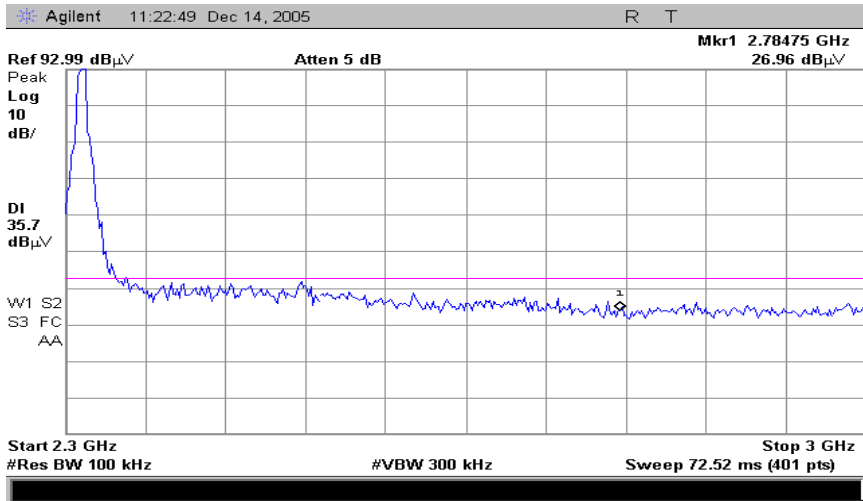
101 Billerica Ave., Bldg. 6
N. Billerica, MA 01862-1256
Tel: (978) 671-5700
Fax: (978) 671-5800

ANTENNA CONDUCTED RADIATION TEST

Re:
FC3STRATA2GHZD

150 KHz.	Nothing Found
300 KHz.	Nothing Found
500 KHz	Nothing Found
1.0 MHz	Nothing Found
2.0 MHz.	Nothing Found
3.0 MHz.	Nothing Found
4.0 MHz.	Nothing Found
5.0 MHz.	Nothing Found
6.0 MHz.	Nothing Found
7.0 MHz.	Nothing Found
8.0 MHz.	Nothing Found
9.0 MHz.	Nothing Found
10.0 MHz.	Nothing Found
30.0 MHz.	Nothing Found
50 MHz.	Nothing Found
100 MHz.	Nothing Found
500 MHz.	Nothing Found
2000 MHz.	Nothing Found
4000 MHz.	Nothing Found
8000 MHz.	Nothing Found
16000 MHz.	Nothing Found
26500 MHz.	Nothing Found





Mkr1 8.17 GHz

Ref 92.99 dB μ V

Atten 5 dB

27.28 dB μ V

Peak

Log

10

dB/

D1

35.7

dB μ V

W1 S2

S3 FC

AA

1

Start 6 GHz

Stop 10 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 414.4 ms (401 pts)



SET UP PICTURES SPECTRAL MASKS AND RADIO MEASUREMENTS



Temperature chamber output power and frequency stability



