



# **Appendix A**

## **Modulation Characteristic Measurement**

According to CFR 47 (FCC) part 2.1047



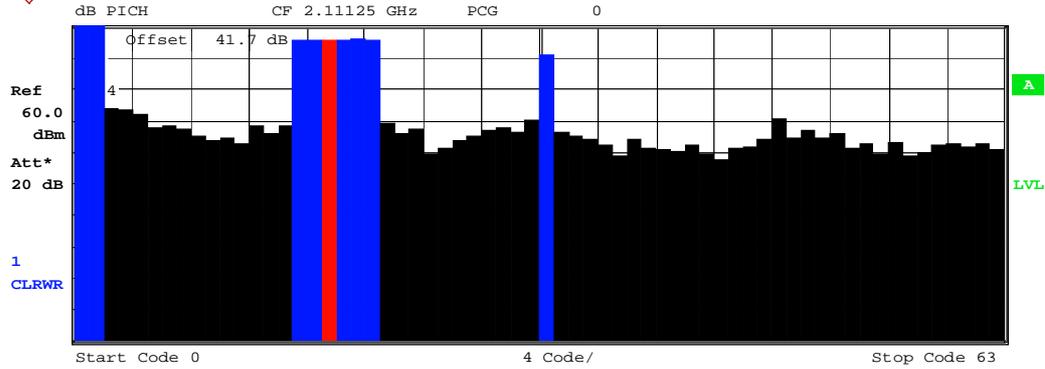
# CDMA2000 1X:

## RC1 Channel 25



BS,1X,C6 : CODE POWER

SR 19.2 kbps  
 Chan 17.64  
 PCG 0



RESULT SUMMARY TABLE

SR 19.2 kbps  
 Chan 17.64  
 Offset 41.7 dB CF 2.11125 GHz PCG 0

EXT

RESULTS FOR SET 0 PCG 0:		GLOBAL RESULTS FOR SET 0:	
Total PWR	43.62 dBm	Carr Freq Error	2.09 Hz
Pilot PWR	36.48 dBm	Carr Freq Error	0.00 ppm
RHO	0.95337	Chip Rate Error	-0.36 ppm
Composite EVM	22.12 %	Trg to Frame	-.----- s
Pk CDE (SF 64)	-25.53 dB	Active Channels	9
IQ Imbal/Offset	0.58/0.12 %		
CHANNEL RESULTS:		Modulation	
Symbol Rate	19.2 kbps	Modulation	BPSK
Channel.SF	17.64	Timing Offset	-.-- ns
Channel Power Rel	-3.42 dB	Phase Offset	-.-- mrad
Symbol EVM	11.67 % rms	Channel Power Abs	33.06 dBm
		Symbol EVM	25.12 % Pk

AB

Date: 21.APR.2008 12:25:27



# Channel 450



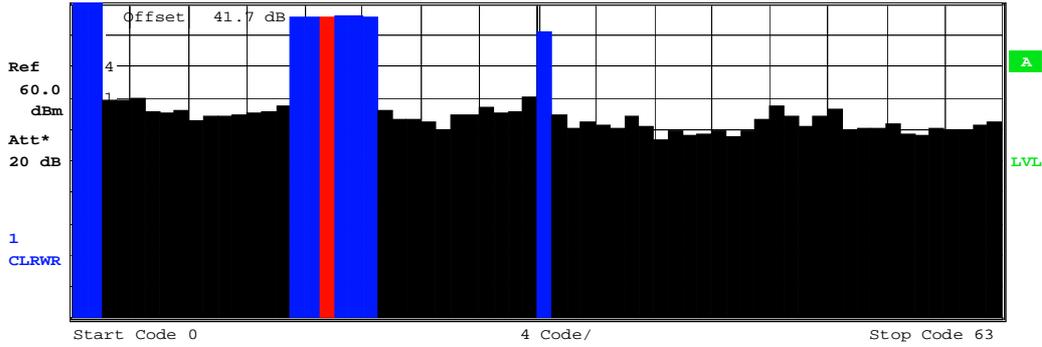
BS,IX,C6 :CODE POWER

SR 19.2 ksps

Chan 17.64

dB PICH CF 2.1325 GHz

PCG 0



RESULT SUMMARY TABLE

SR 19.2 ksps

Chan 17.64

EXT

Offset 41.7 dB CF 2.1325 GHz

PCG 0

RESULTS FOR SET 0 PCG 0:		GLOBAL RESULTS FOR SET 0:		
Ref	Total PWR	43.66 dBm	Carr Freq Error	-4.01 Hz
60.0	Pilot PWR	36.57 dBm	Carr Freq Error	-0.00 ppm
dBm	RHO	0.96484	Chip Rate Error	0.12 ppm
Att*	Composite EVM	19.09 %	Trg to Frame	-.----- s
20 dB	Pk CDE (SF 64)	-28.22 dB	Active Channels	9
	IQ Imbal/Offset	0.92/0.31 %		
	CHANNEL RESULTS:		Modulation	BPSK
1	Symbol Rate	19.2 ksps	Timing Offset	-.-- ns
CLRWR	Channel.SF	17.64	Phase Offset	-.-- mrad
	Channel Power Rel	-3.39 dB	Channel Power Abs	33.19 dBm
	Symbol EVM	9.84 % rms	Symbol EVM	18.04 % Pk

AB

Date: 21.APR.2008 12:24:17



# Channel 875



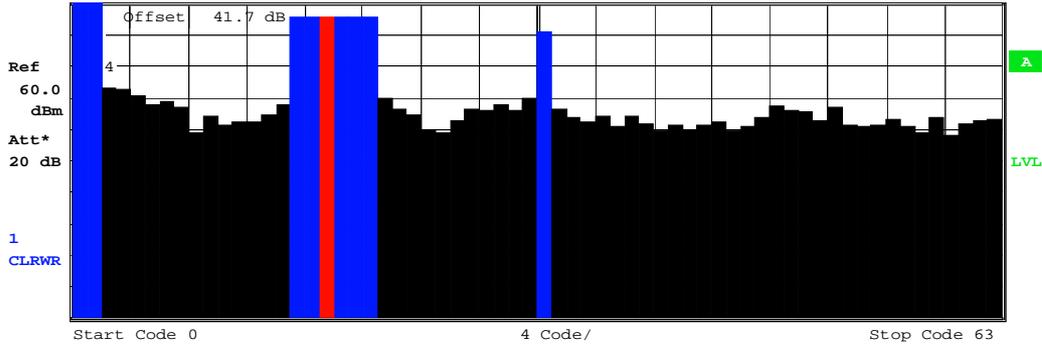
BS,IX,C6 :CODE POWER

SR 19.2 ksps

Chan 17.64

dB PICH CF 2.15:~5 GHz

PCG 0



RESULT SUMMARY TABLE

SR 19.2 ksps

Chan 17.64

EXT

Offset 41.7 dB CF 2.15375 GHz

PCG 0

RESULTS FOR SET 0 PCG 0:		GLOBAL RESULTS FOR SET 0:	
Total PWR	43.51 dBm	Carr Freq Error	2.00 Hz
Pilot PWR	36.45 dBm	Carr Freq Error	0.00 ppm
RHO	0.95744	Chip Rate Error	-0.24 ppm
Composite EVM	21.08 %	Trg to Frame	-.----- s
Pk CDE (SF 64)	-26.05 dB	Active Channels	9
IQ Imbal/Offset	0.72/0.55 %		
CHANNEL RESULTS:		Modulation	BPSK
Symbol Rate	19.2 ksps	Timing Offset	-.-- ns
Channel.SF	17.64	Phase Offset	-.-- mrad
Channel Power Rel	-3.54 dB	Channel Power Abs	32.91 dBm
Symbol EVM	10.14 % rms	Symbol EVM	16.54 % Pk

AB

Date: 21.APR.2008 12:26:44

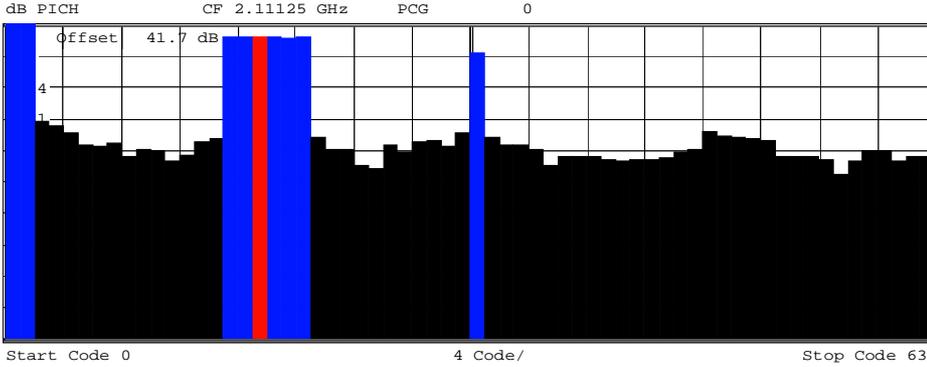


# RC3 Channel 25



BS,1X,C6 : CODE POWER

SR 19.2 kbps  
Chan 17.64  
PCG 0



RESULT SUMMARY TABLE

SR 19.2 kbps  
Chan 17.64  
Offset 41.7 dB CF 2.11125 GHz PCG 0

RESULTS FOR SET 0 PCG 0:		GLOBAL RESULTS FOR SET 0:	
Total PWR	43.47 dBm	Carr Freq Error	-12.14 Hz
Pilot PWR	36.37 dBm	Carr Freq Error	-0.01 ppm
RHO	0.97531	Chip Rate Error	0.03 ppm
Composite EVM	15.91 %	Trg to Frame	-.----- s
Pk CDE (SF 64)	-28.88 dB	Active Channels	9
IQ Imbal/Offset	1.07/0.39 %		
CHANNEL RESULTS:		Modulation	
Symbol Rate	19.2 kbps	Modulation	QPSK
Channel.SF	17.64	Timing Offset	-.-- ns
Channel Power Rel	-3.24 dB	Phase Offset	-.-- mrad
Symbol EVM	9.72 % rms	Channel Power Abs	33.13 dBm
		Symbol EVM	16.38 % Pk

AB

Date: 18.APR.2008 12:35:56



# Channel 450



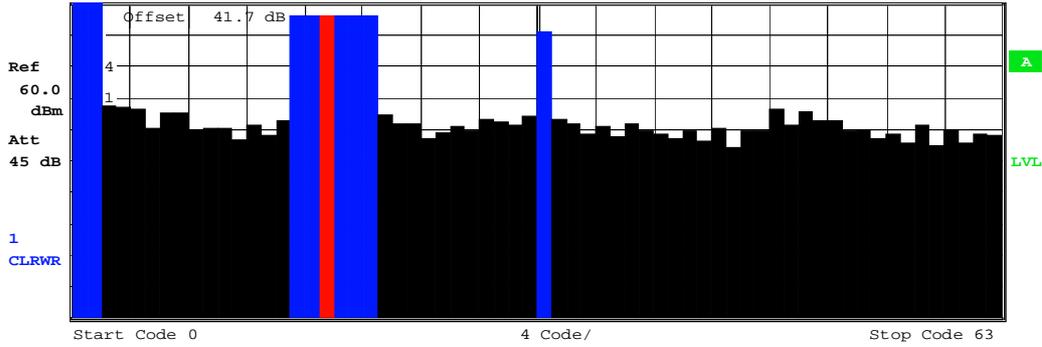
BS,IX,C6 :CODE POWER

SR 19.2 ksps

Chan 17.64

dB PICH CF 2.1325 GHz

PCG 0



RESULT SUMMARY TABLE

SR 19.2 ksps

Chan 17.64

EXT

Offset 41.7 dB CF 2.1325 GHz

PCG 0

RESULTS FOR SET 0 PCG 0:		GLOBAL RESULTS FOR SET 0:	
Total PWR	43.29 dBm	Carr Freq Error	41.75 Hz
Pilot PWR	36.13 dBm	Carr Freq Error	0.02 ppm
RHO	0.97568	Chip Rate Error	-0.06 ppm
Composite EVM	15.79 %	Trg to Frame	-.----- s
Pk CDE (SF 64)	-30.22 dB	Active Channels	9
IQ Imbal/Offset	0.96/0.25 %		
CHANNEL RESULTS:		Modulation	QPSK
Symbol Rate	19.2 ksps	Timing Offset	-.-- ns
Channel.SF	17.64	Phase Offset	-.-- mrad
Channel Power Rel	-3.07 dB	Channel Power Abs	33.06 dBm
Symbol EVM	9.38 % rms	Symbol EVM	18.20 % Pk

AB

Date: 18.APR.2008 12:03:20

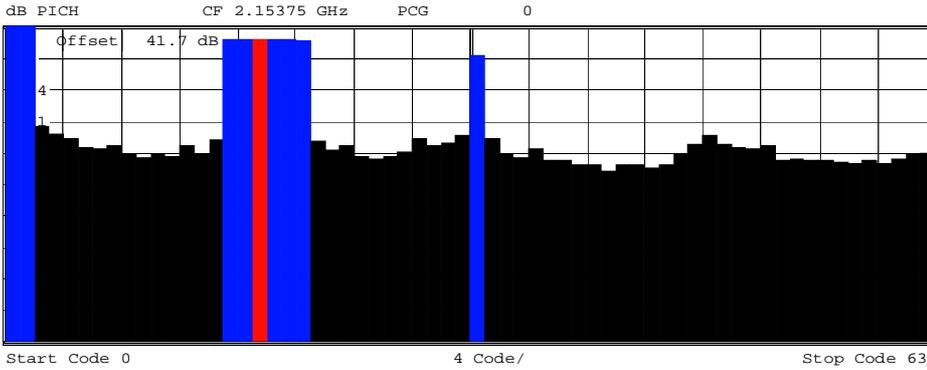


# Channel 875



BS,IX,C6 :CODE POWER

SR 19.2 ksps  
 Chan 17.64  
 PCG 0



RESULT SUMMARY TABLE

SR 19.2 ksps  
 Chan 17.64  
 PCG 0

RESULTS FOR SET 0 PCG 0:		GLOBAL RESULTS FOR SET 0:	
Total PWR	43.19 dBm	Carr Freq Error	1.32 Hz
Pilot PWR	36.09 dBm	Carr Freq Error	0.00 ppm
RHO	0.97716	Chip Rate Error	0.34 ppm
Composite EVM	15.29 %	Trg to Frame	-.----- s
Pk CDE (SF 64)	-29.66 dB	Active Channels	9
IQ Imbal/Offset	0.79/0.13 %		
CHANNEL RESULTS:		Modulation	
Symbol Rate	19.2 ksps	Modulation	QPSK
Channel.SF	17.64	Timing Offset	-.-- ns
Channel Power Rel	-3.22 dB	Phase Offset	-.-- mrad
Symbol EVM	8.37 % rms	Channel Power Abs	32.88 dBm
		Symbol EVM	15.37 % Pk

AB

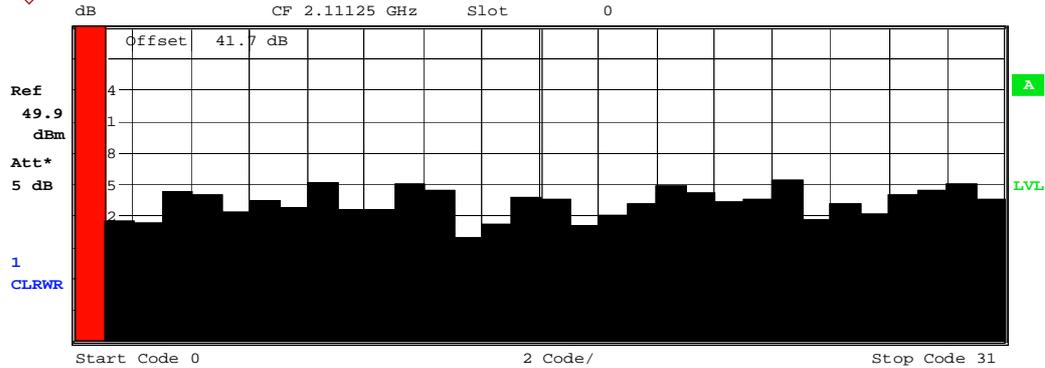
Date: 18.APR.2008 12:22:03



# CDMA2000 1X EV-DO: Channel 25



BS,DO,C6 :CODE POWER Type PILOT-I  
 Code 0.32  
 Slot 0



GENERAL RESULTS

Type ALL

EXT

Offset 41.7 dB CF 2.11125 GHz

Global Results for Set 0:			
Ref	Carr Freq Error	1.05 Hz	RHO Pilot 0.99483
49.9	Carr Freq Error	0.00 ppm	RHO ov-1/-2 0.98188/0.98176
dBm	Chip Rate Error	0.03 ppm	RHO MAC 0.99374
	Trg to Frame	-.----- s	RHO DATA 0.97855
Results for Set 0 / Slot 0:			
Att*	Power PILOT	43.97 dBm	Data Modulation Type 16-QAM
5 dB	Power MAC	43.39 dBm	Act. MAC Channels 46
	Power DATA	43.37 dBm	Act. DATA Channels 16
1	Power PREAMBLE	44.00 dBm	Preamble Length 64 Chips
CLRWR	Composite EVM	12.87 %	RHO 0.98372
	Max. Pwr DATA	-14.20 dB	Max. inact. Pwr MAC -34.92 dB
	Min. Pwr DATA	-16.03 dB	

AB

Date: 17.APR.2008 18:58:54

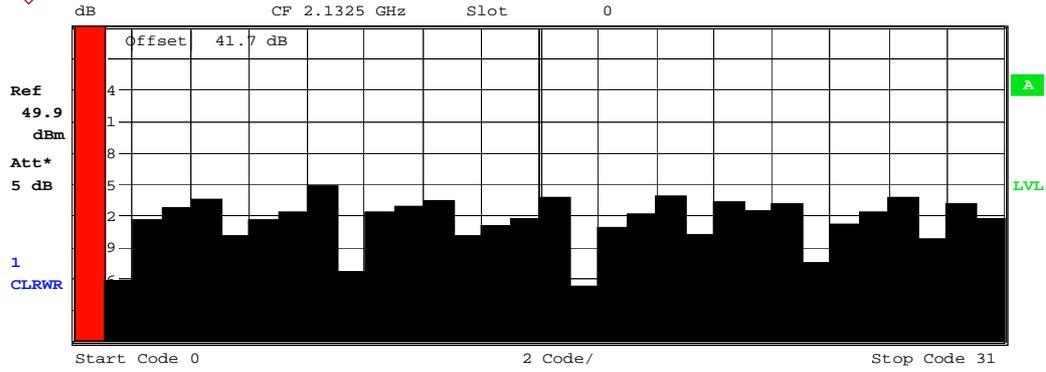


## Channel 450



BS,DO,C6 : CODE POWER

Type PILOT-I  
 Code 0.32  
 Slot 0



GENERAL RESULTS

Type ALL

EXT

Offset 41.7 dB CF 2.1325 GHz

Global Results for Set 0:			
Ref	Carr Freq Error	1.58 Hz	RHO Pilot 0.99619
49.9	Carr Freq Error	0.00 ppm	RHO ov-1/-2 0.98366/0.98288
dBm	Chip Rate Error	0.03 ppm	RHO MAC 0.99162
	Trg to Frame	-.----- s	RHO DATA 0.97989
Results for Set 0 / Slot 0:			
Att*	Power PILOT	44.03 dBm	Data Modulation Type 16-QAM
5 dB	Power MAC	43.86 dBm	Act. MAC Channels 22
	Power DATA	43.40 dBm	Act. DATA Channels 16
1	Power PREAMBLE	44.03 dBm	Preamble Length 64 Chips
CLRWR	Composite EVM	12.91 %	RHO 0.98361
	Max. Pwr DATA	-14.12 dB	Max. inact. Pwr MAC -38.89 dB
	Min. Pwr DATA	-16.07 dB	

AB

Date: 17.APR.2008 18:59:51



# Channel 875

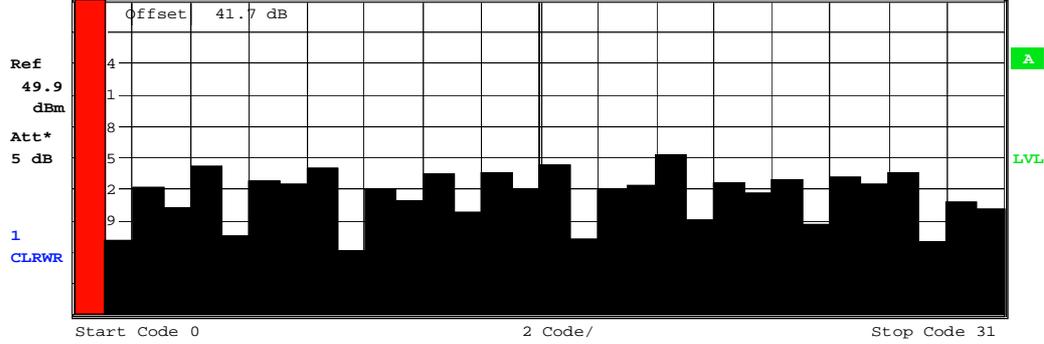


BS,DO,C6 :CODE POWER

Type PILOT-I

Code 0.32

dB CF 2.15375 GHz Slot 0



GENERAL RESULTS

Type ALL

EXT

Offset 41.7 dB CF 2.15375 GHz

		Global Results for Set 0:			
Ref	Carr Freq Error	3.40 Hz	RHO Pilot	0.99634	B
49.9	Carr Freq Error	0.00 ppm	RHO ov-1/-2	0.98253/0.98229	
dBm	Chip Rate Error	0.16 ppm	RHO MAC	0.99157	
Att*	Trg to Frame	-.----- s	RHO DATA	0.97963	
5 dB		Results for Set 0 / Slot 0:			
	Power PILOT	43.84 dBm	Data Modulation Type	16-QAM	LVL
	Power MAC	42.95 dBm	Act. MAC Channels	59	
	Power DATA	43.26 dBm	Act. DATA Channels	16	
1	Power PREAMBLE	43.81 dBm	Preamble Length	64 Chips	
CLRWR	Composite EVM	13.18 %	RHO	0.98293	
	Max. Pwr DATA	-14.38 dB	Max. inact. Pwr MAC	-32.74 dB	
	Min. Pwr DATA	-15.48 dB			

AB

Date: 17.APR.2008 19:00:36



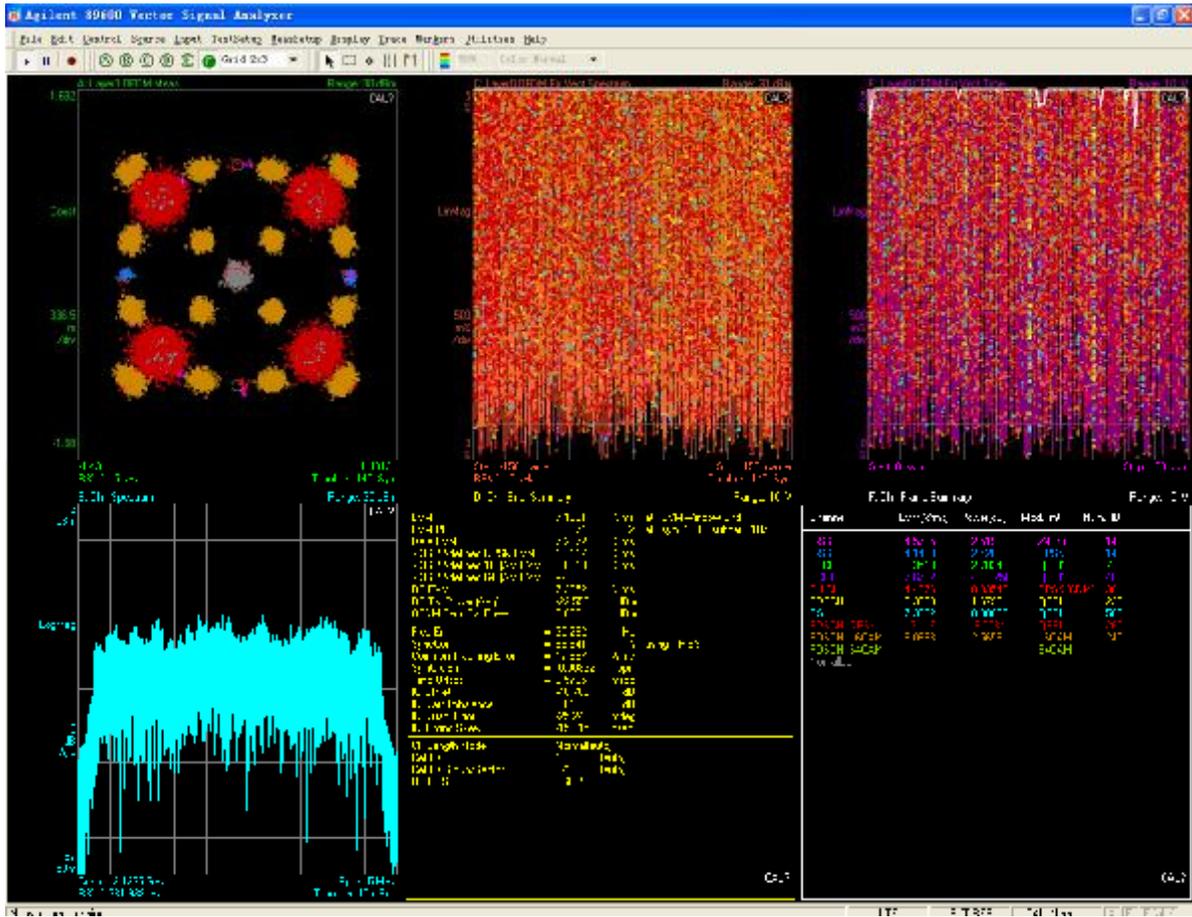






# TM3.3: QPSK

## Channel 2175





## **Appendix B**

# Occupied Bandwidth Measurement

According to CFR 47 (FCC) part 2.1049



# CDMA2000 1X

## Channel 25



BS,1X,C6 :OCC BANDWDT

\* RBW 20 kHz

Marker 1 [T1 ]

\* VBW 300 kHz

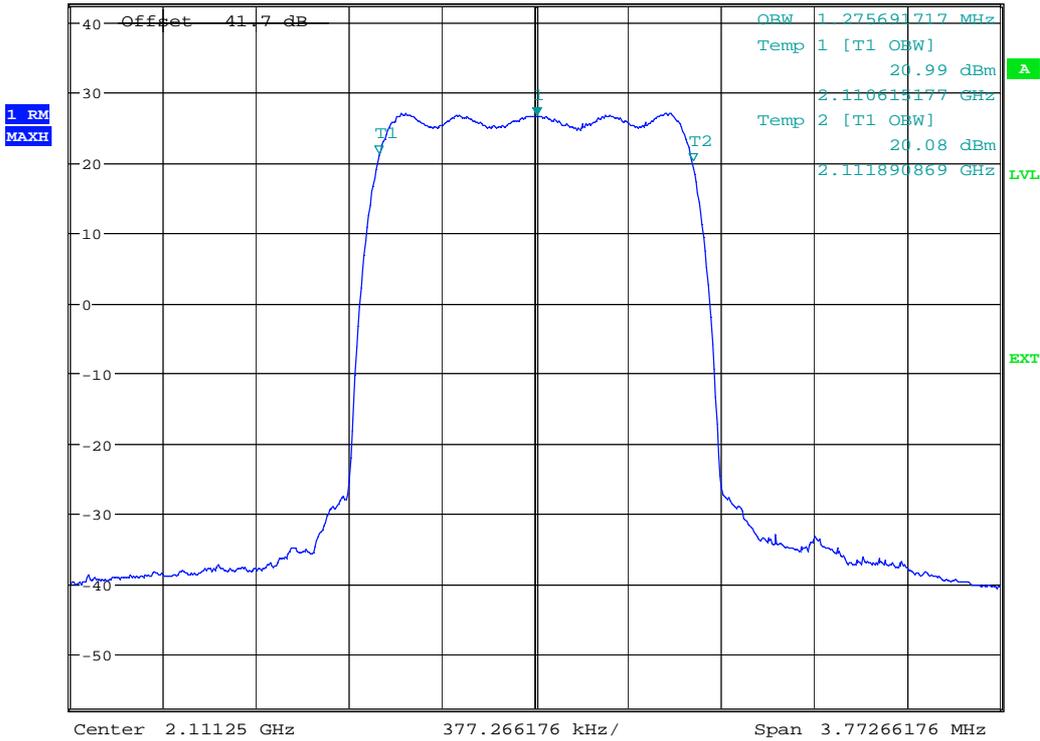
26.56 dBm

\* SWT 5 s

2.111256689 GHz

Ref 42.4 dBm

\* Att 10 dB



AB

Date: 18.APR.2008 12:38:46



# Channel 450



BS,1X,C6 :OCC BANDWDT

\* RBW 20 kHz

Marker 1 [T1 ]

\* VBW 300 kHz

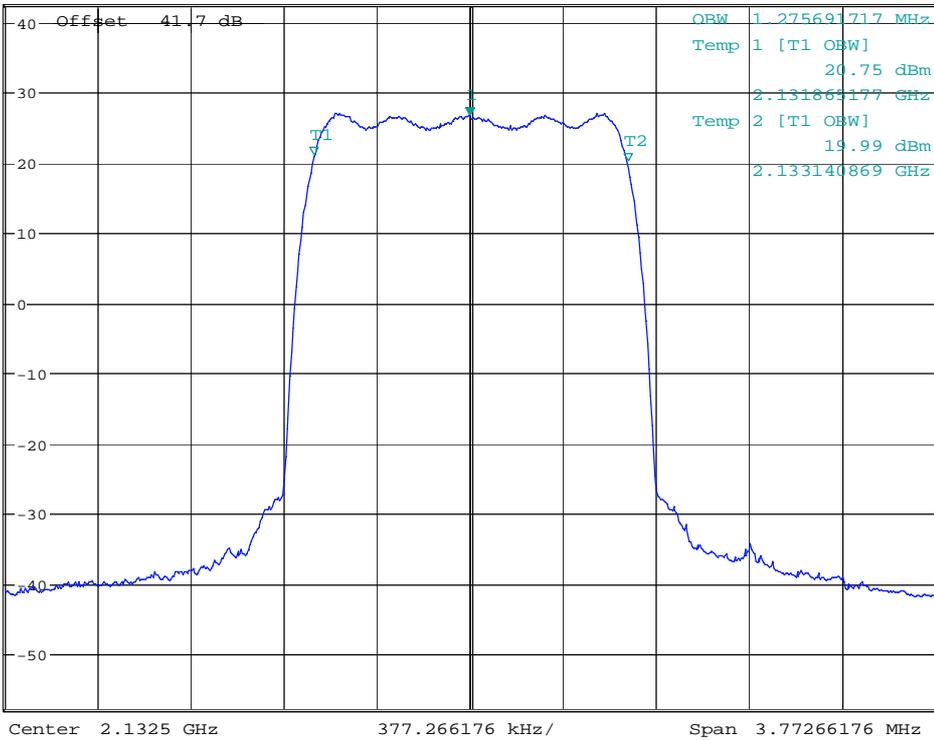
26.44 dBm

\* SWT 5 s

2.132499543 GHz

Ref 42.4 dBm

\* Att 10 dB



AB

Date: 18.APR.2008 12:04:42



# Channel 875



BS,1X,C6 :OCC BANDWDT

\* RBW 20 kHz

Marker 1 [T1 ]

\* VBW 300 kHz

25.98 dBm

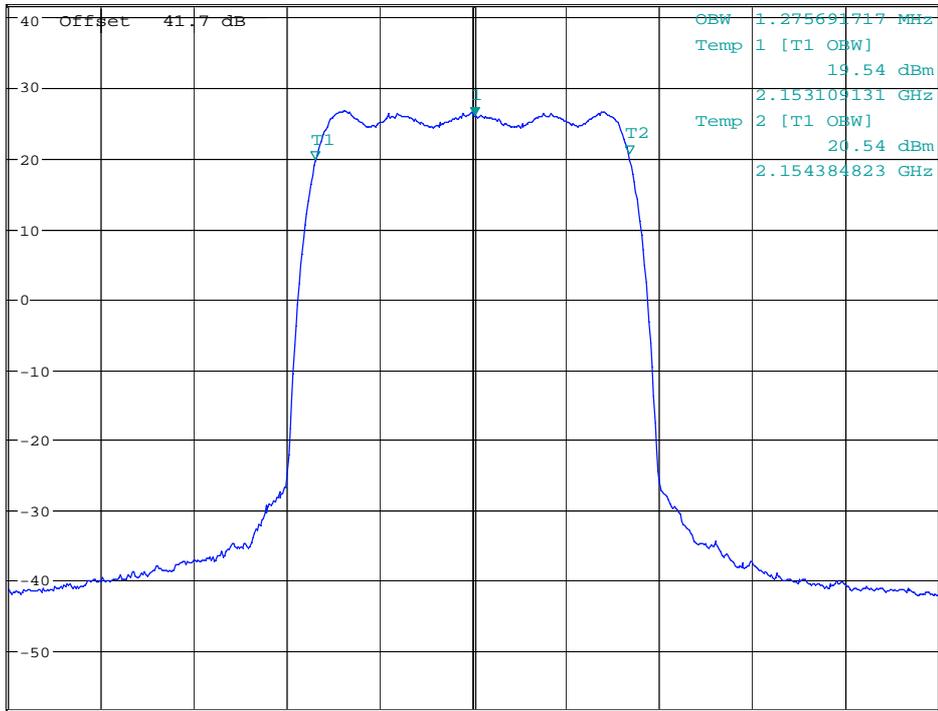
\* SWT 5 s

2.153757921 GHz

Ref 41.8 dBm

\* Att 10 dB

1 RM  
MAXH



Center 2.15375 GHz

377.266176 kHz/

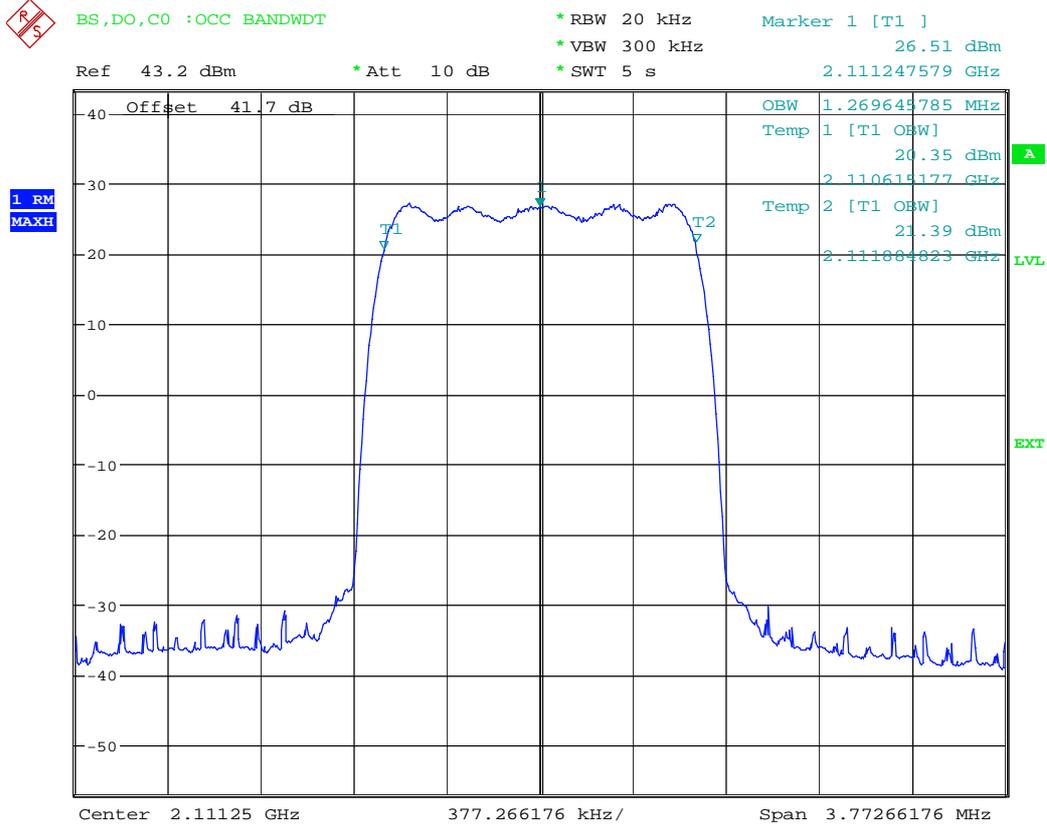
Span 3.77266176 MHz

AB

Date: 18.APR.2008 12:23:33



# CDMA2000 1X EV-DO Channel 25



AB

Date: 17.APR.2008 17:46:18



# Channel 450



BS,DO,C6 :OCC BANDWDT

\* RBW 20 kHz

Marker 1 [T1 ]

\* VBW 300 kHz

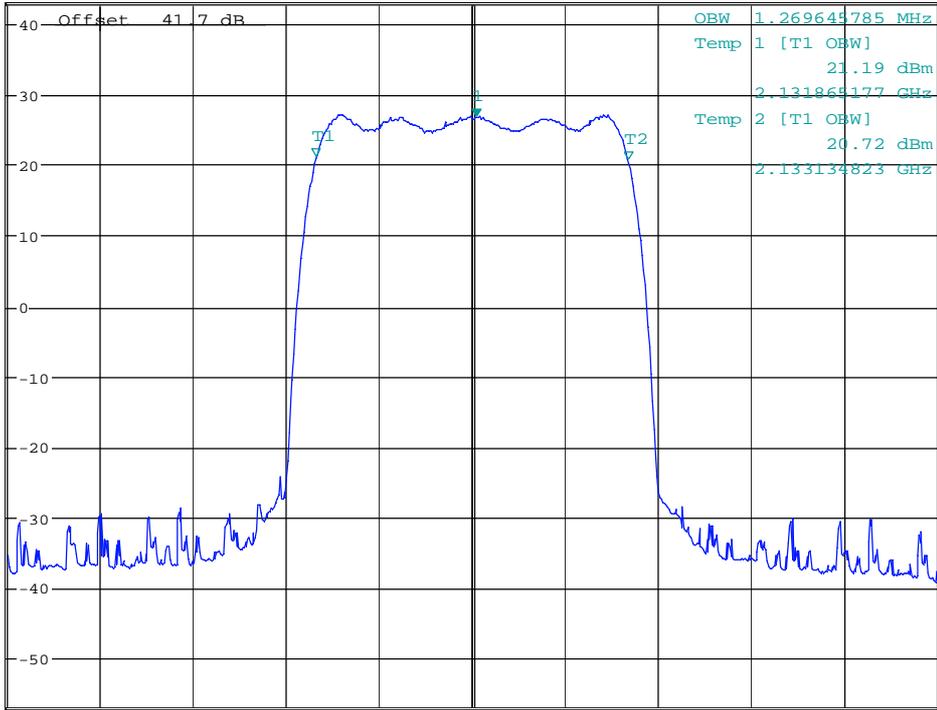
26.82 dBm

\* SWT 5 s

2.132520763 GHz

Ref 43.1 dBm

\* Att 10 dB



Center 2.1325 GHz 377.266176 kHz/ Span 3.77266176 MHz

AB

Date: 17.APR.2008 18:12:21



# Channel 875



BS,DO,C6 :OCC BANDWDT

\* RBW 20 kHz

Marker 1 [T1 ]

\* VBW 300 kHz

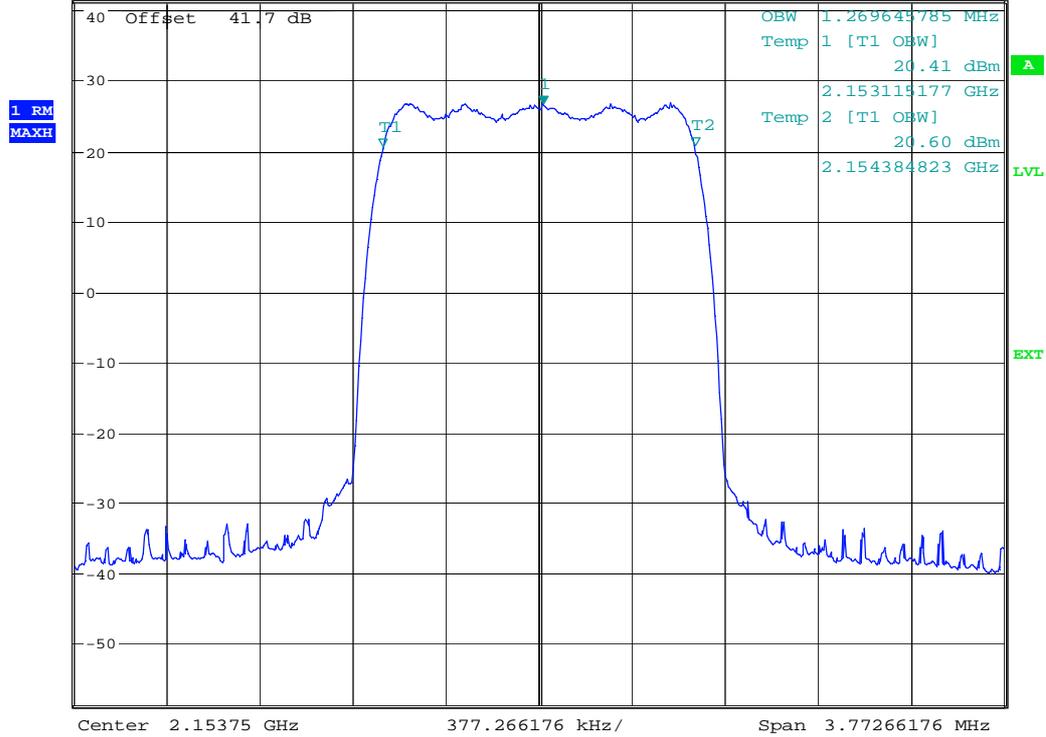
26.40 dBm

\* SWT 5 s

2.153767169 GHz

Ref 41.3 dBm

\* Att 10 dB



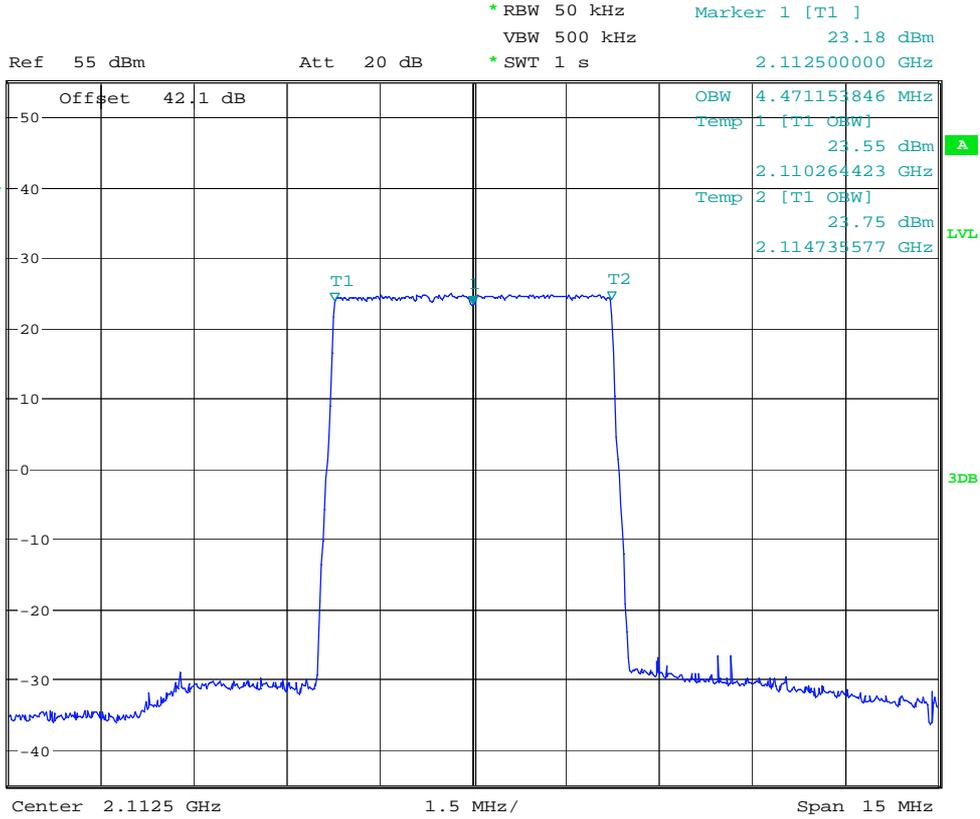
AB

Date: 17.APR.2008 18:38:00



# LTE 5MHz bandwidth E-TM1.1

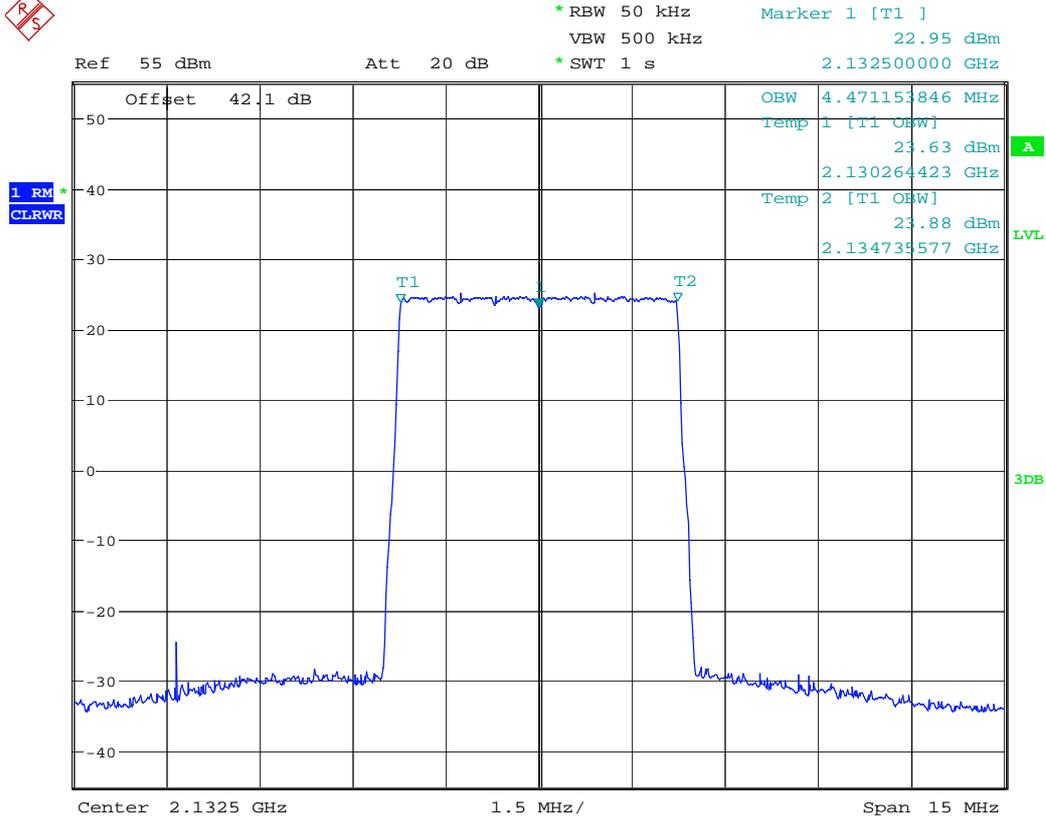
## Channel 1975



Date: 2.MAY.2010 15:32:07



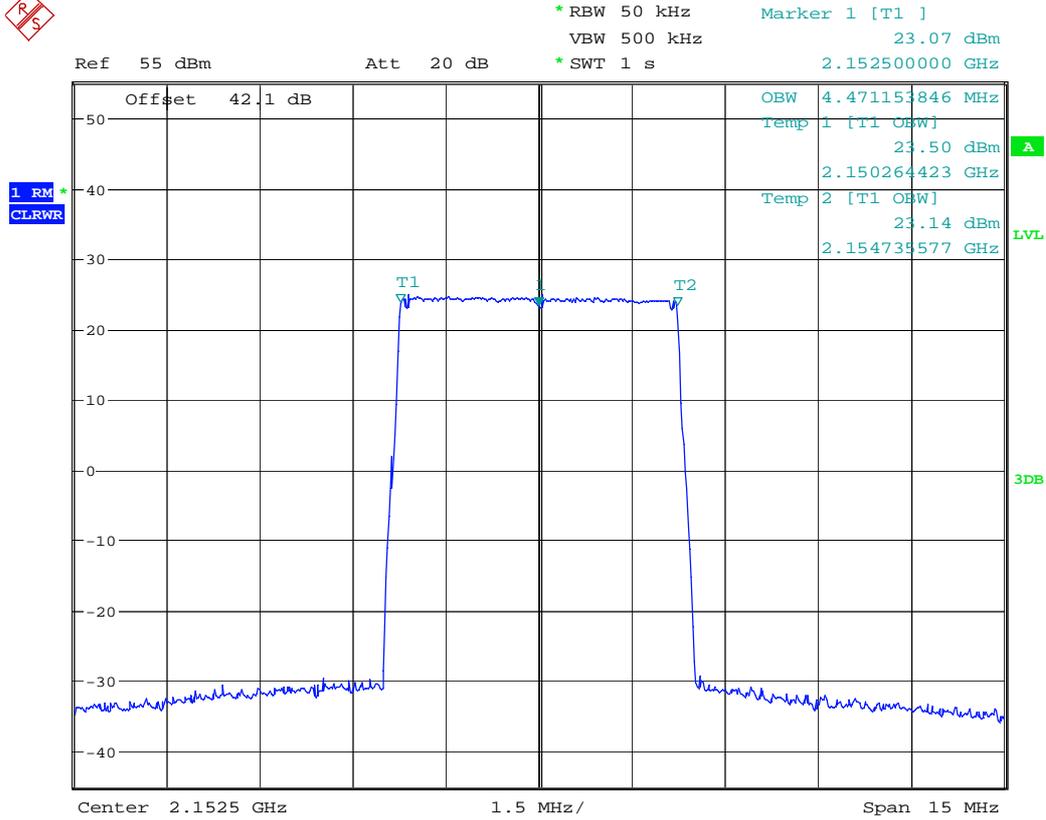
# Channel 2175



Date: 2.MAY.2010 12:43:20



# Channel 2375



Date: 2.MAY.2010 18:35:24



# Appendix C

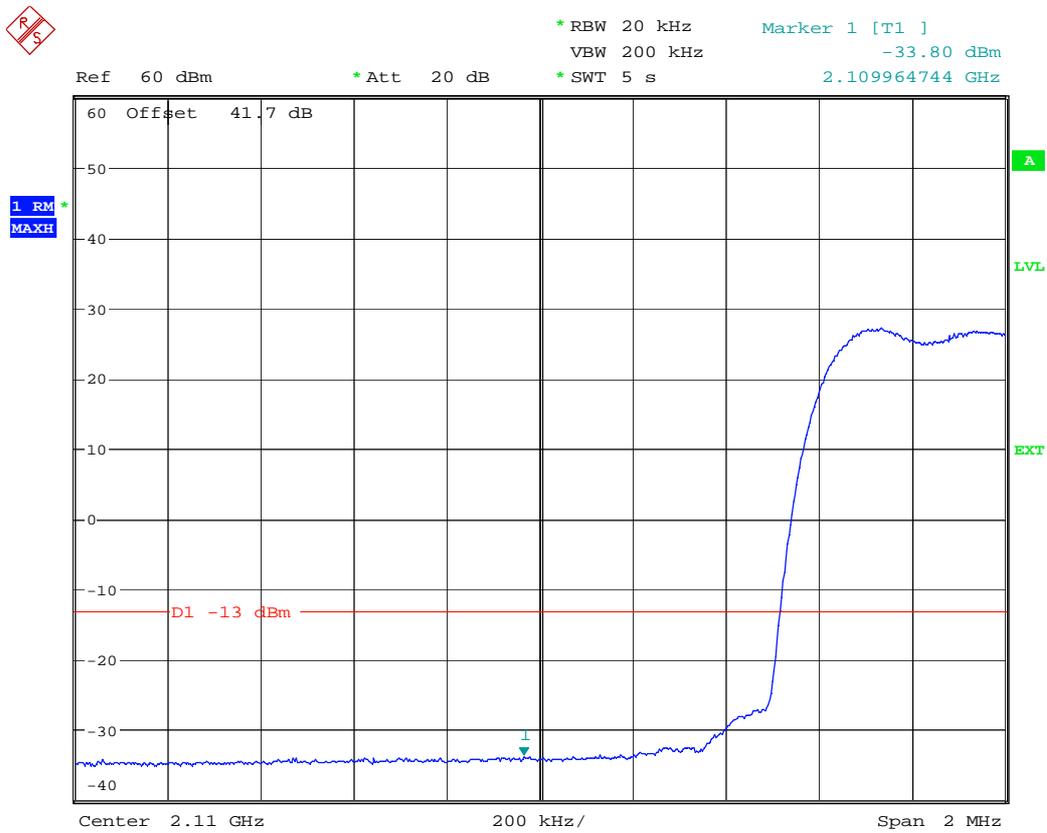
## Band Edge Measurements According to FCC Part 2.1051 & 27.53(g)



# CDMA2000 1X:

## A. Single Carrier:

### Channel 25 (2111.25 MHz)



AB

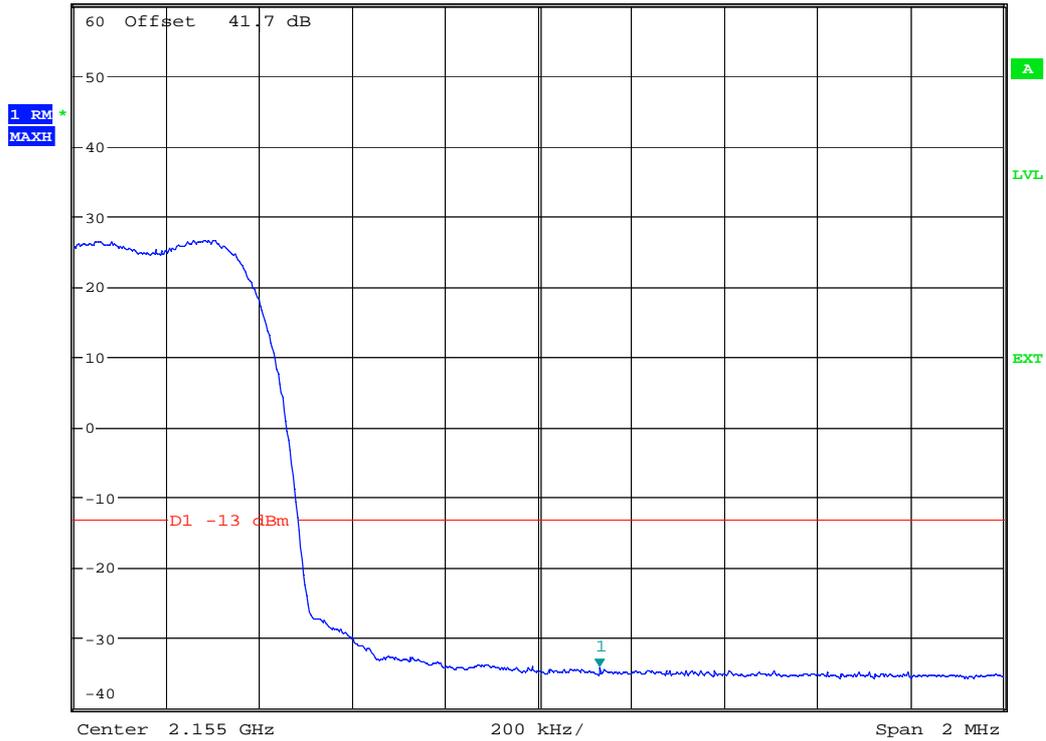
Date: 18.APR.2008 12:40:42



# Channel 875 (2153.75 MHz)



Ref 60 dBm      \* Att 20 dB      \* RBW 20 kHz      Marker 1 [T1 ]  
 \* VBW 200 kHz      -34.29 dBm  
 \* SWT 4.9 s      2.155131410 GHz



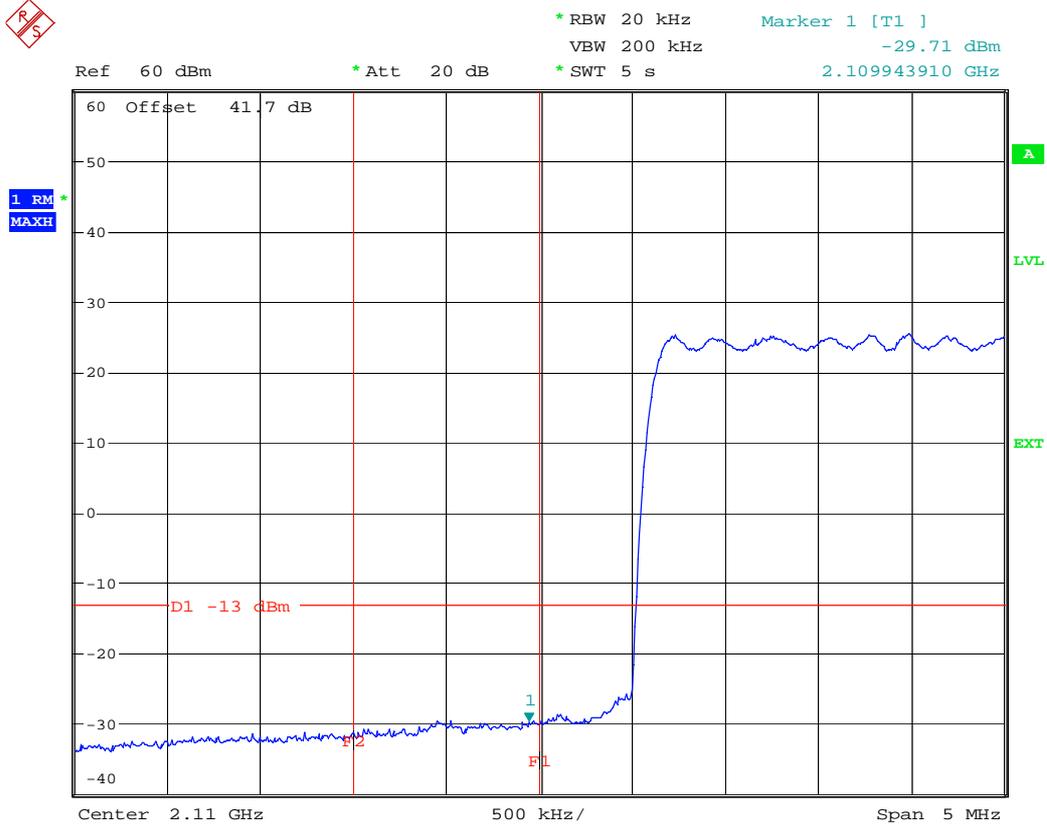
AB

Date: 18.APR.2008 12:26:24



## B. Multiple Carriers:

### Channel Number: 25/50/75/100



AB

Date: 18.APR.2008 14:48:11

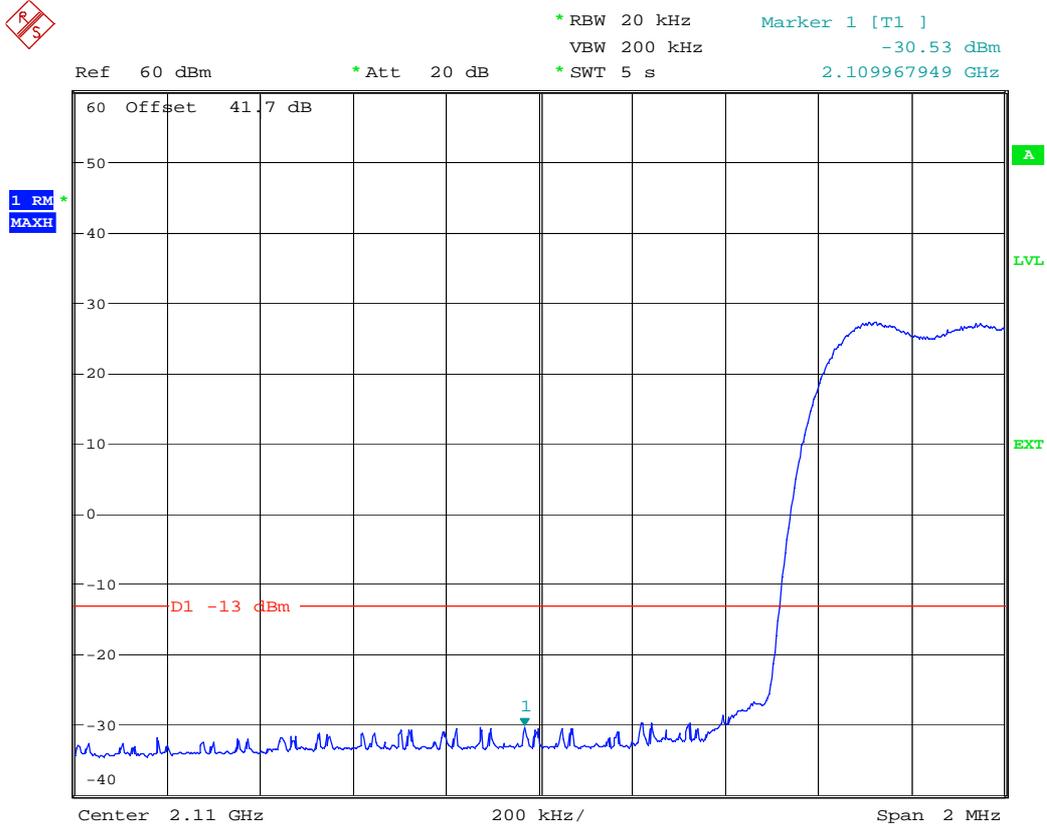




# CDMA2000 EVDO:

## A. Single Carrier:

### Channel 25 (2111.25 MHz)

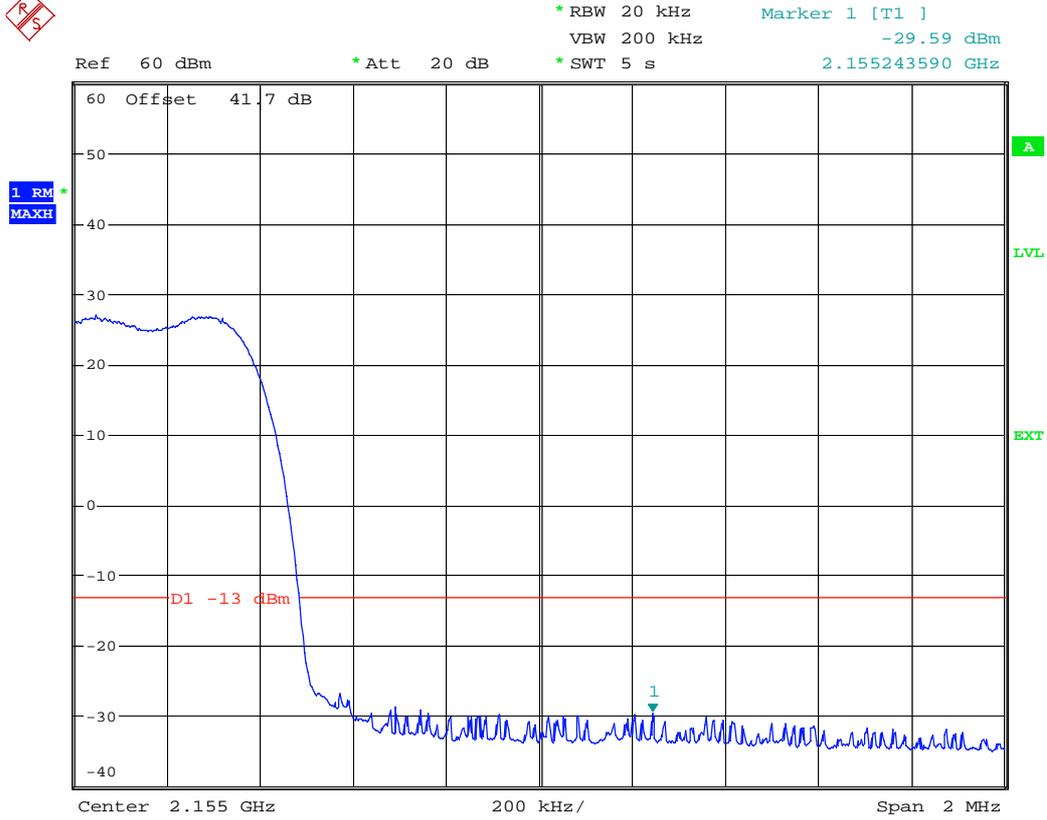


AB

Date: 17.APR.2008 17:53:19



# Channel 875 (2153.75 MHz)



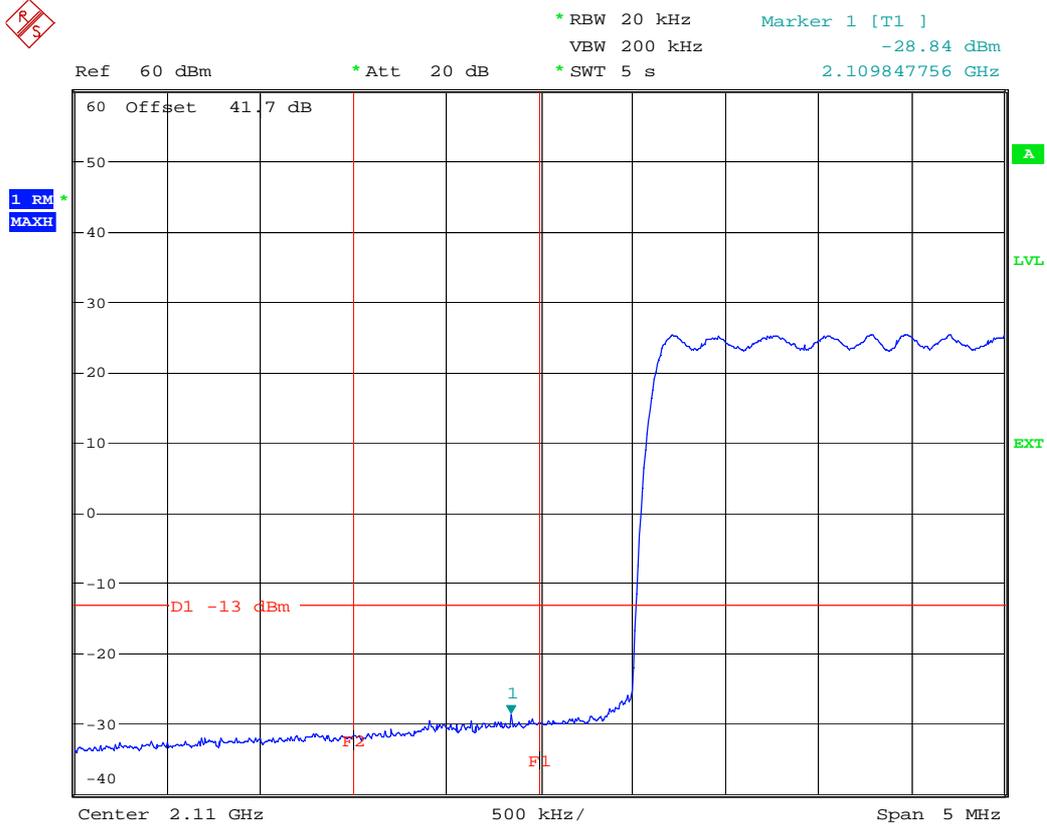
AB

Date: 17.APR.2008 18:41:02



## B. Multiple Carriers:

### Channel Number: 25/50/75/100



AB

Date: 18.APR.2008 10:40:52

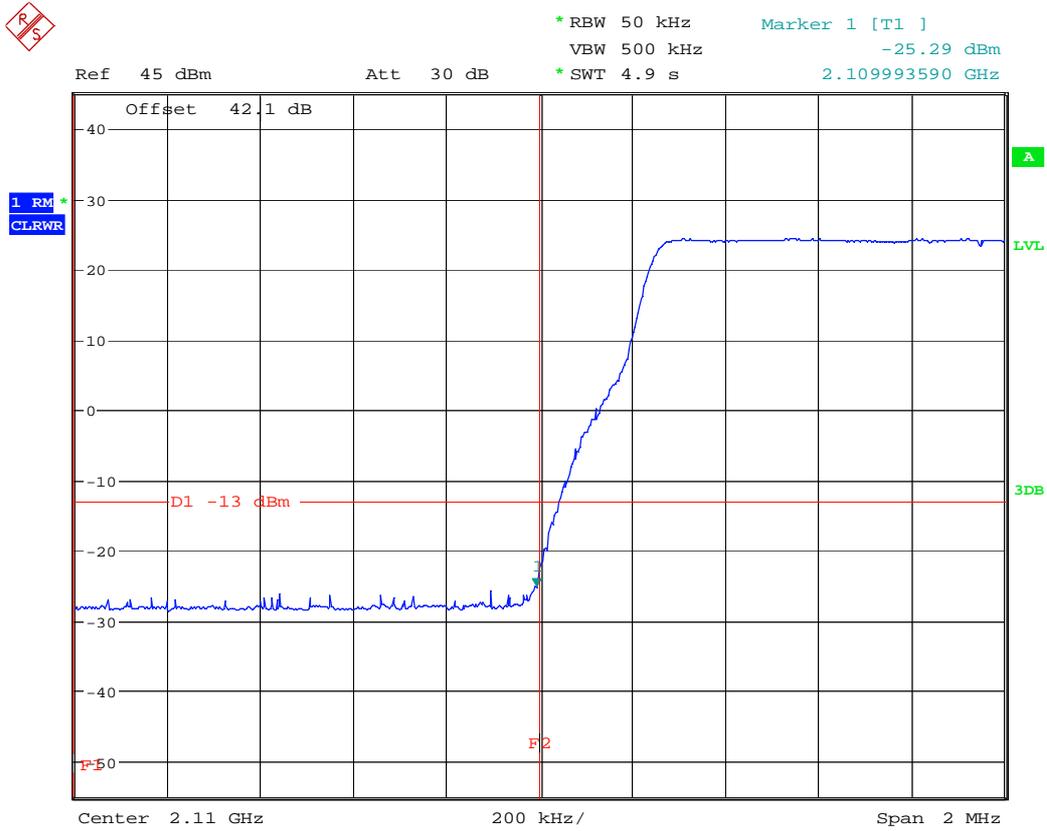




# LTE 5MHz bandwidth:

## A. E-TM1.1

### Channel 1975 (2112.5 MHz)



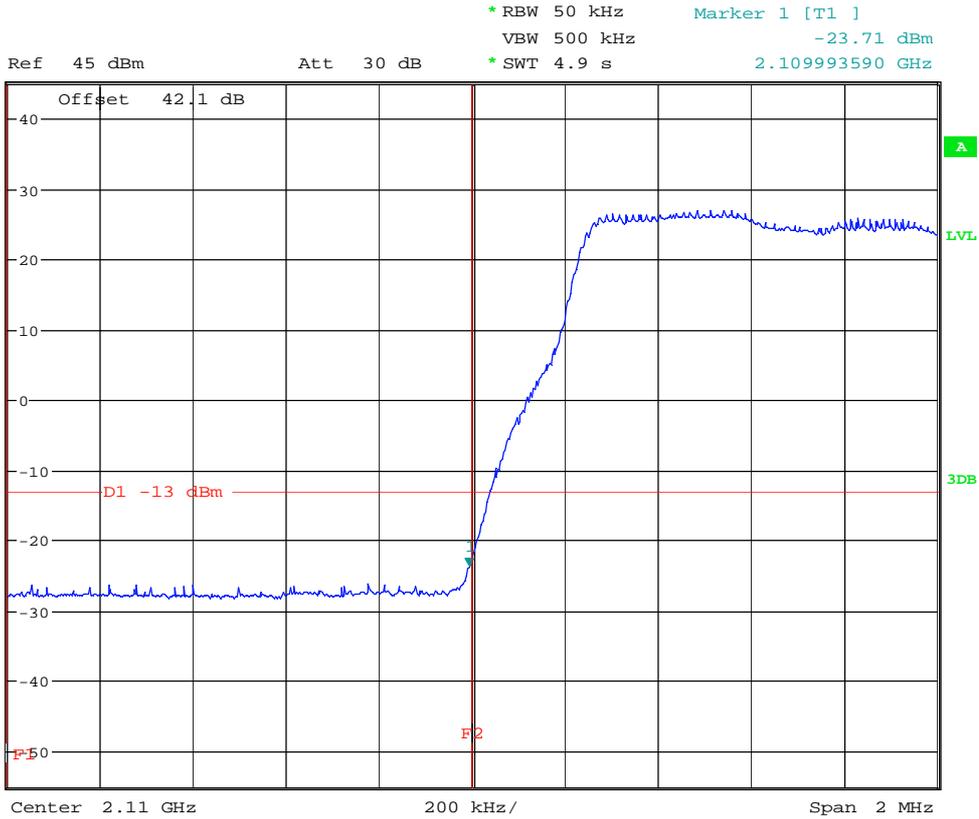
Date: 2.MAY.2010 17:53:35





## B. E-TM1.2

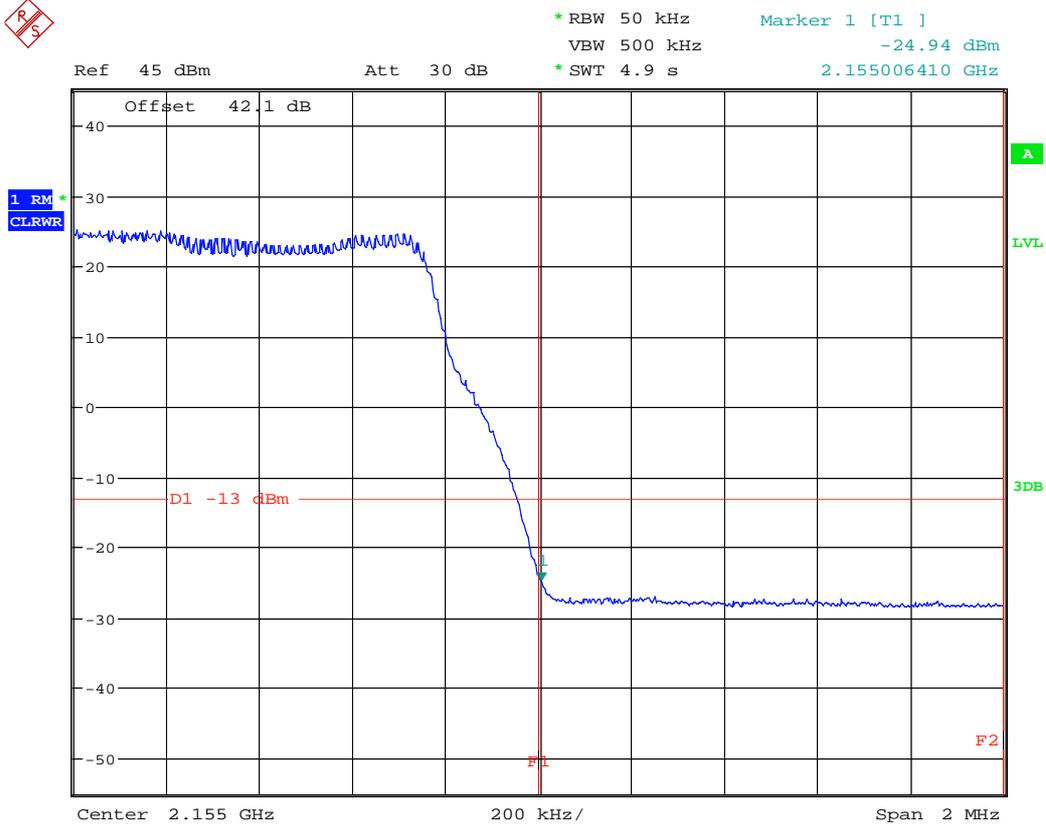
### Channel1975(2112.5 MHz)



Date: 2.MAY.2010 18:00:46



# Channel 2375 (2152.5 MHz)



Date: 2.MAY.2010 18:32:29



## **Appendix D**

# Conducted Spurious Emission Measurements

According to FCC Part 2.1051 & 27.53(g)

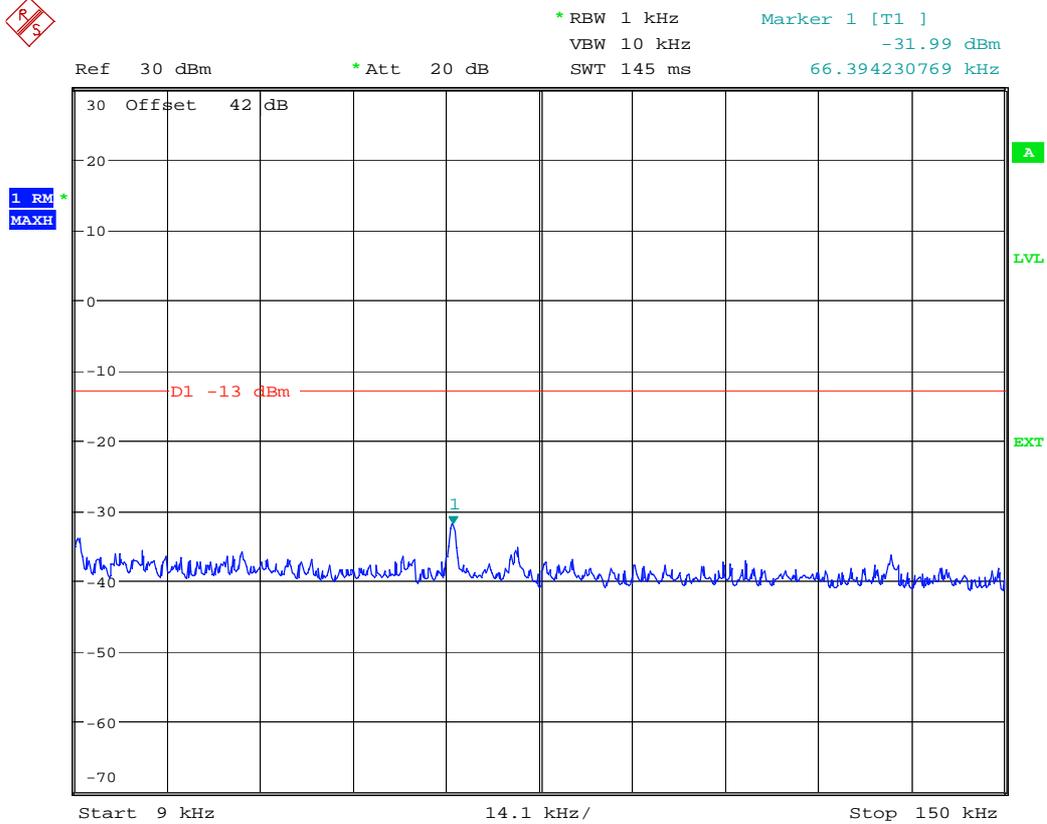


# CDMA2000 1X:

## A. Single Carrier

### Channel Number: 25

### (9k ~ 150k)



AB

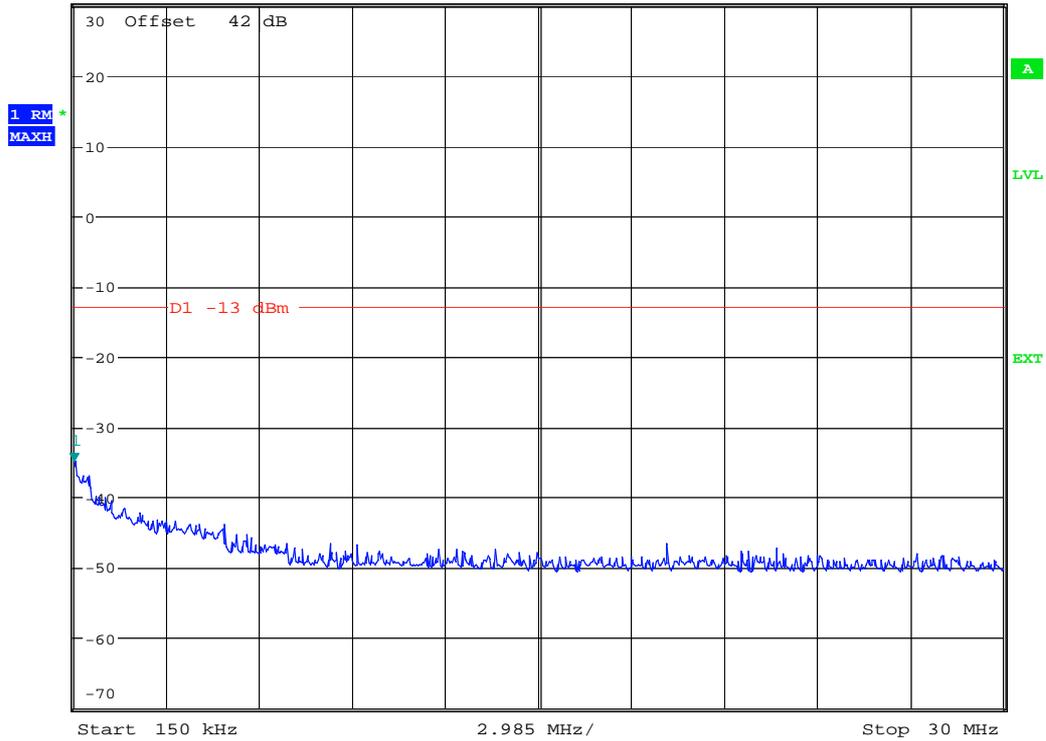
Date: 18.APR.2008 12:42:34



# (150k ~ 30M)



\* RBW 10 kHz      Marker 1 [T1 ]  
 VBW 100 kHz      -35.10 dBm  
 SWT 300 ms      150.00000000 kHz  
 Ref 30 dBm      \* Att 20 dB

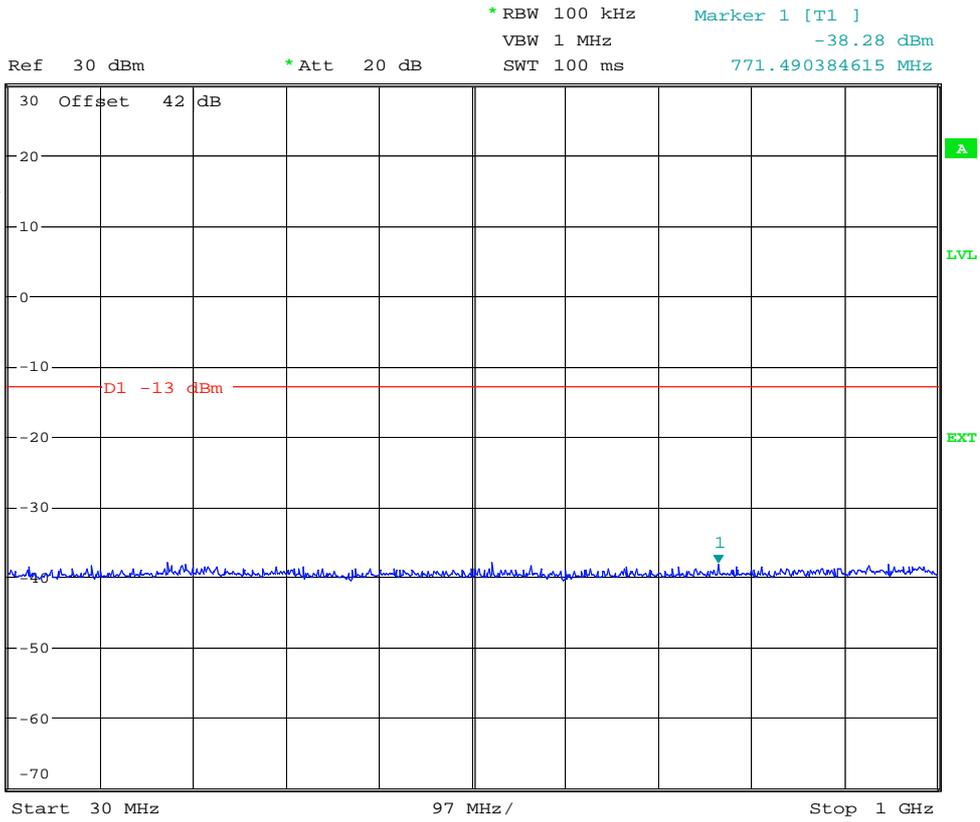


AB

Date: 18.APR.2008 12:43:19



# (30M ~ 1G)

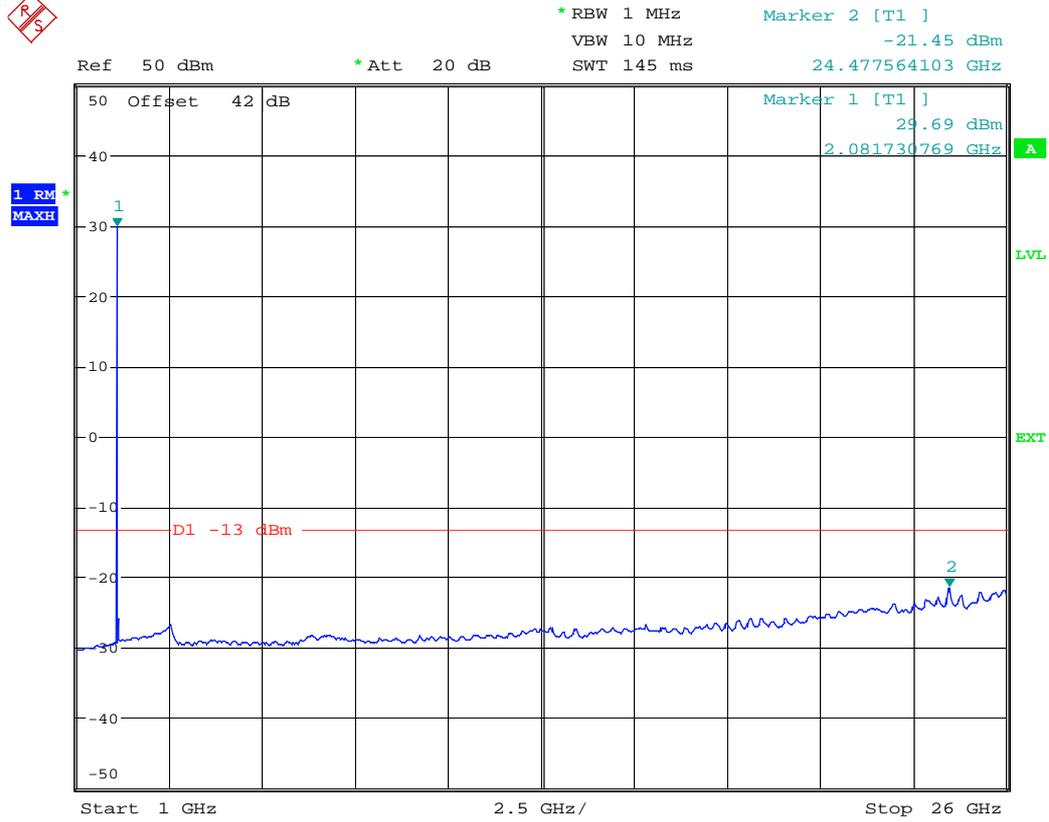


AB

Date: 18.APR.2008 12:44:00



# (1G ~ 26G)



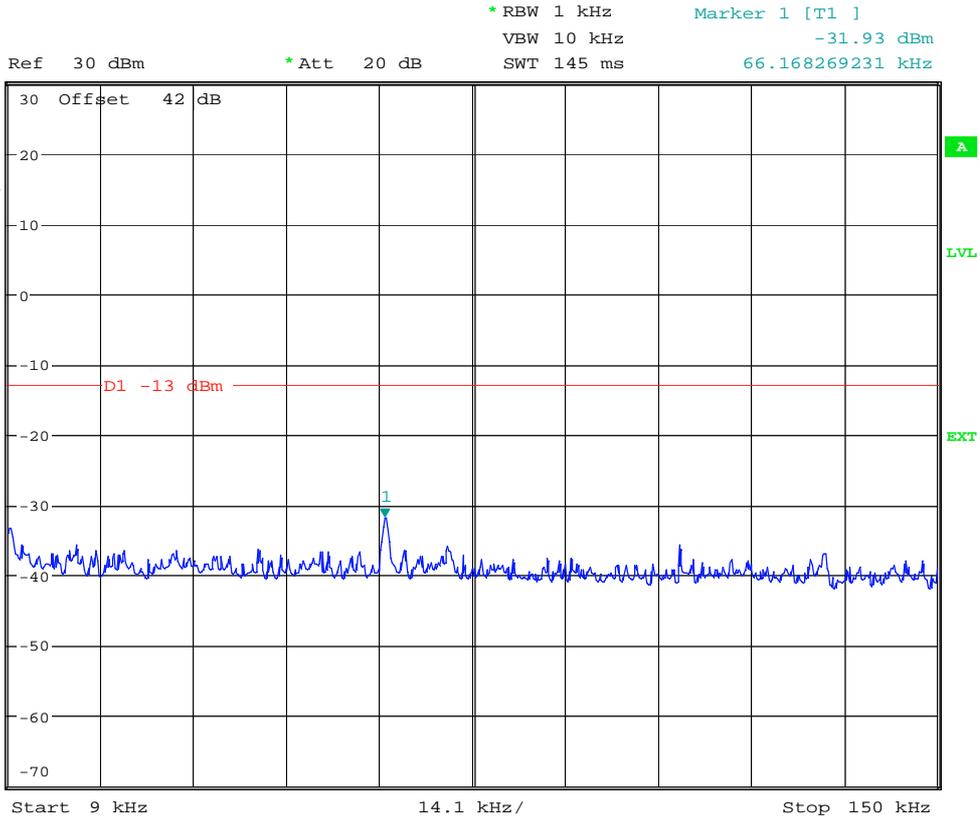
AB

Date: 18.APR.2008 12:44:48



# Channel Number: 450

## (9k ~ 150k)

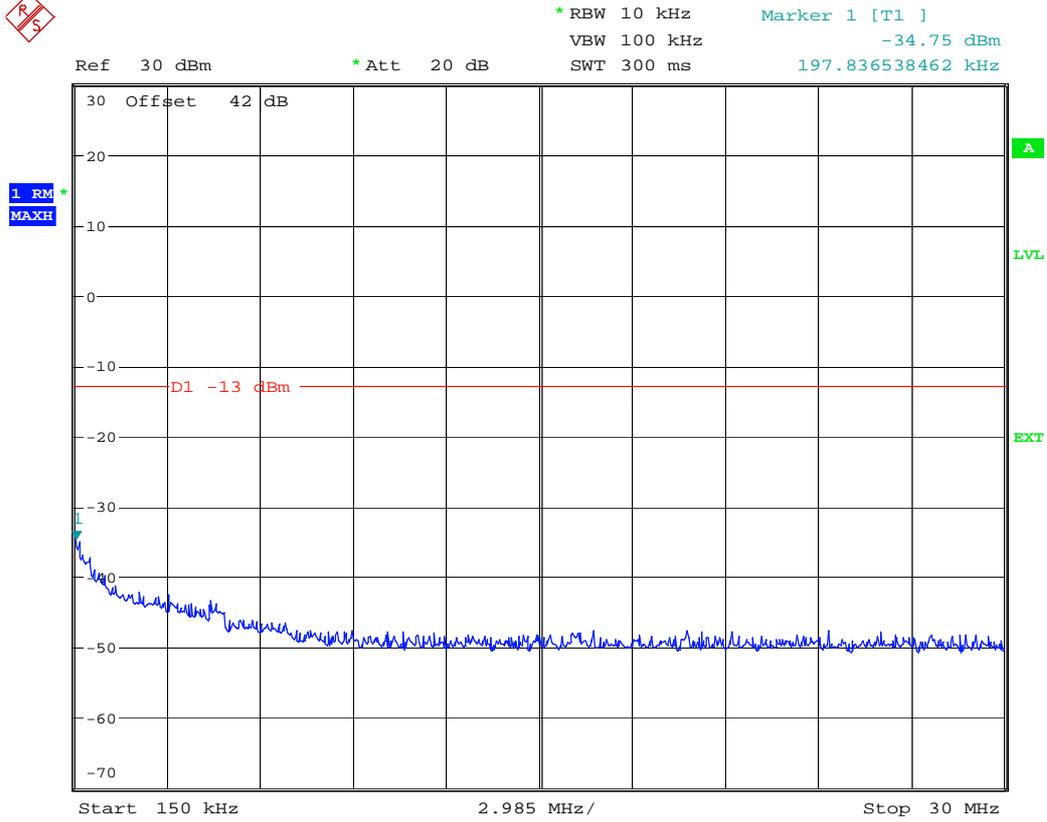


AB

Date: 18.APR.2008 12:07:05



# (150k ~ 30M)

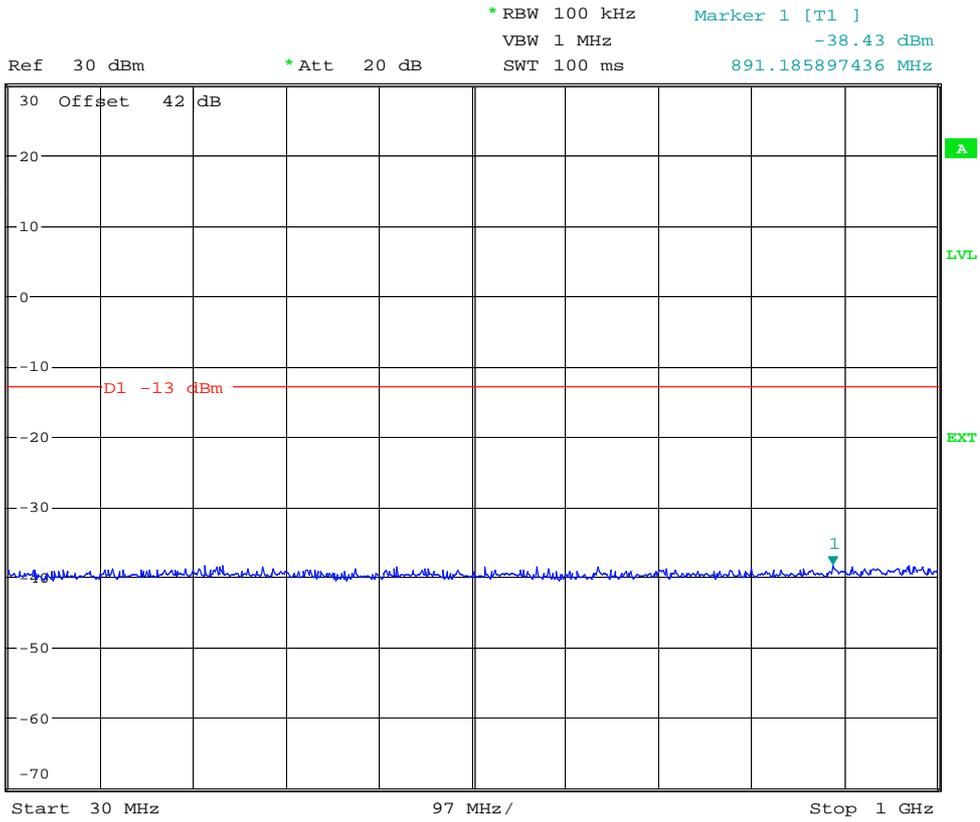


AB

Date: 18.APR.2008 12:08:02



# (30M ~ 1G)

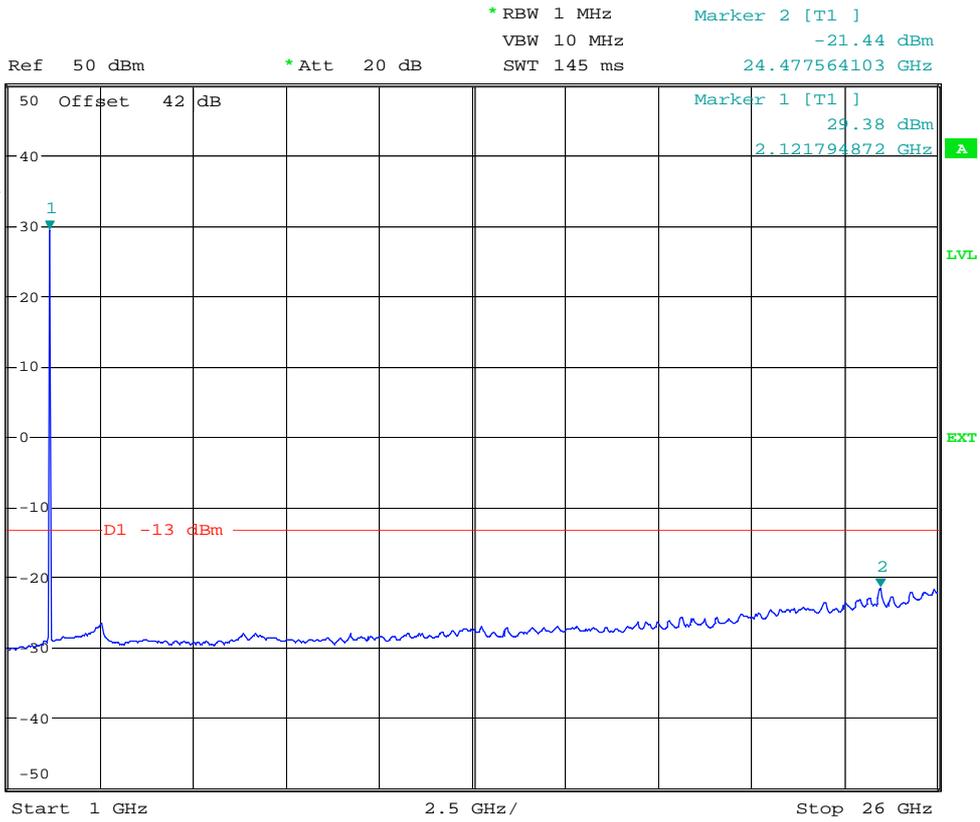


AB

Date: 18.APR.2008 12:08:37



# (1G ~ 26G)



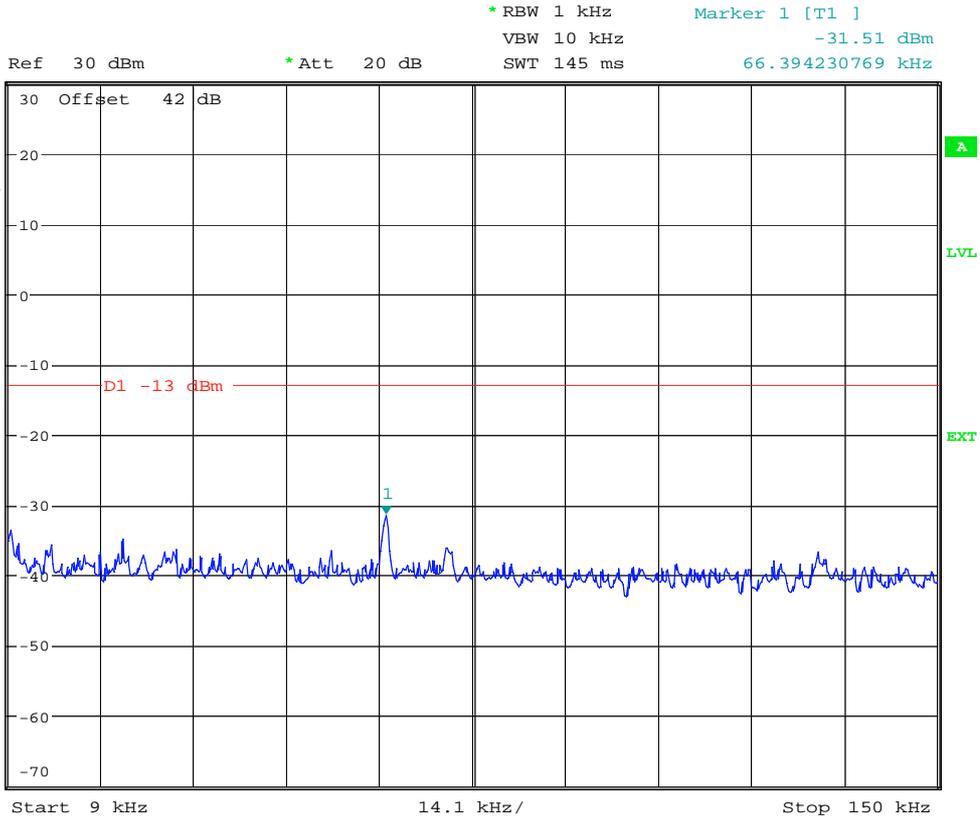
AB

Date: 18.APR.2008 12:09:58



# Channel Number: 875

(9k ~ 150k)

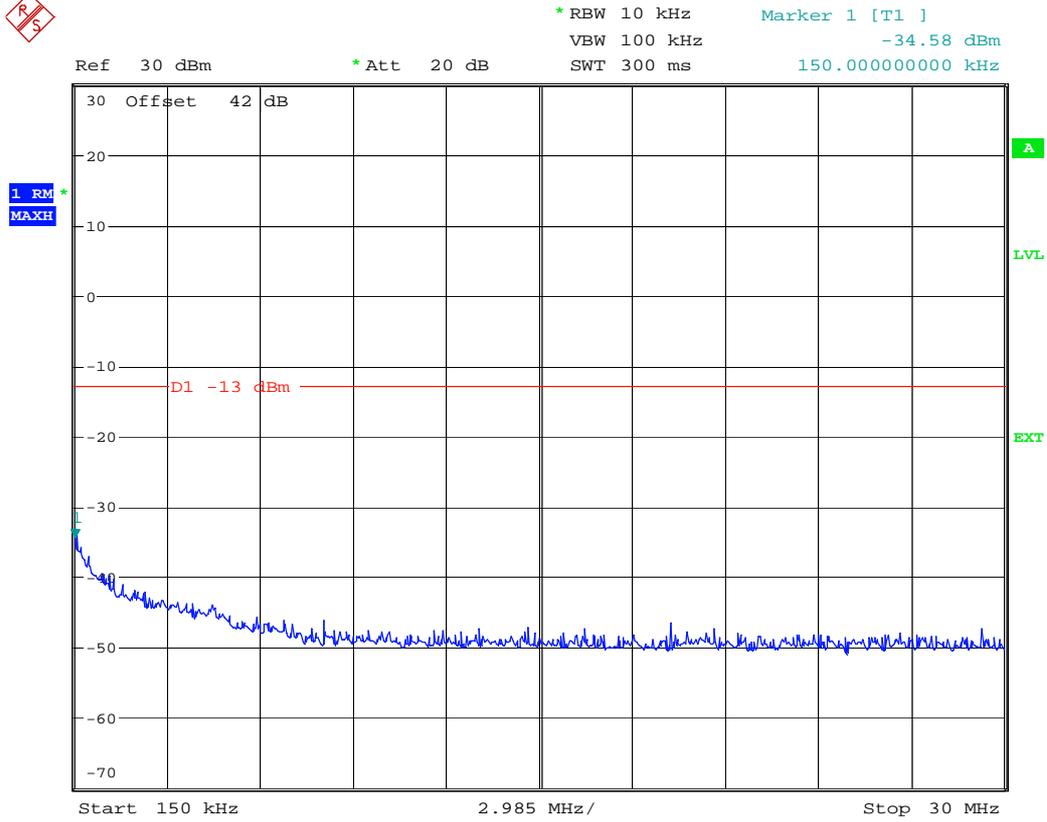


AB

Date: 18.APR.2008 12:28:45



# (150k ~ 30M)

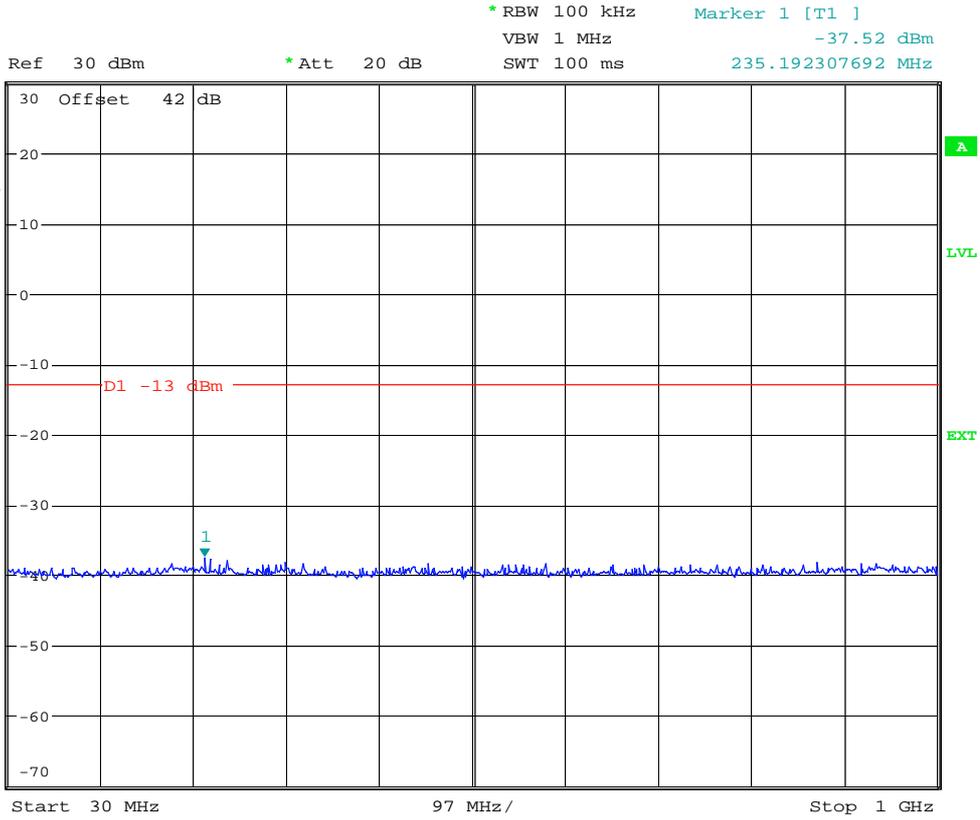


AB

Date: 18.APR.2008 12:29:34



# (30M ~ 1G)

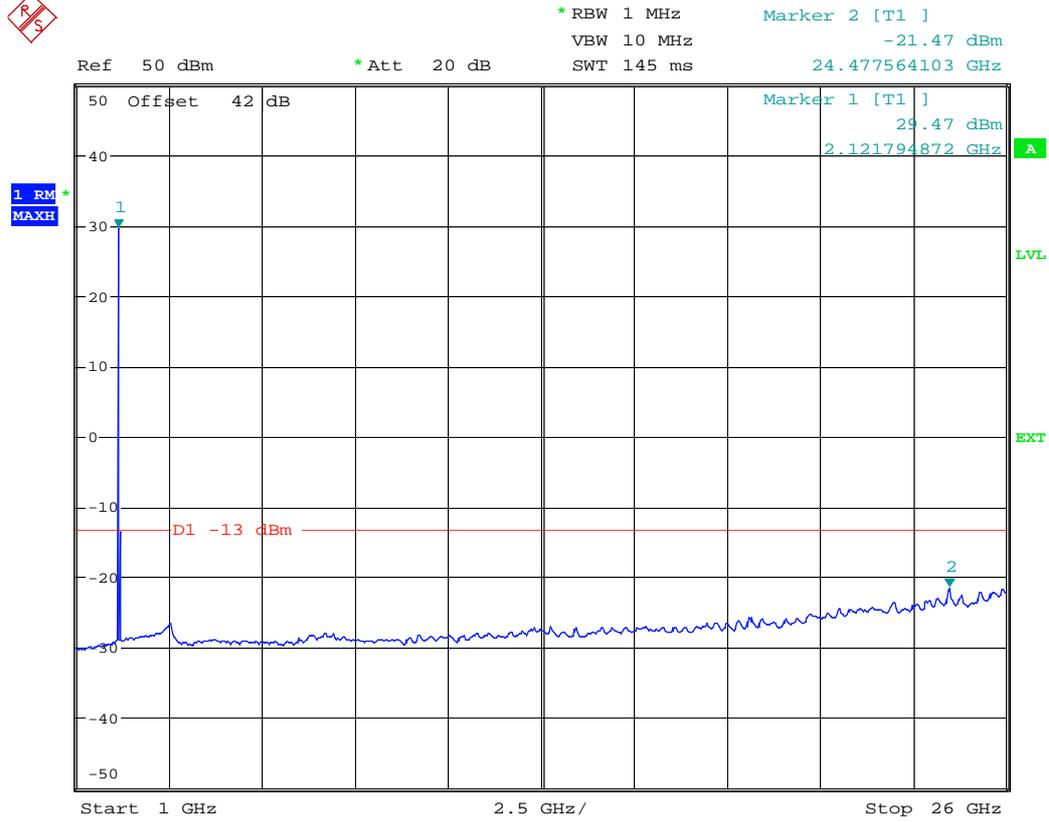


AB

Date: 18.APR.2008 12:30:16



# (1G ~ 26G)



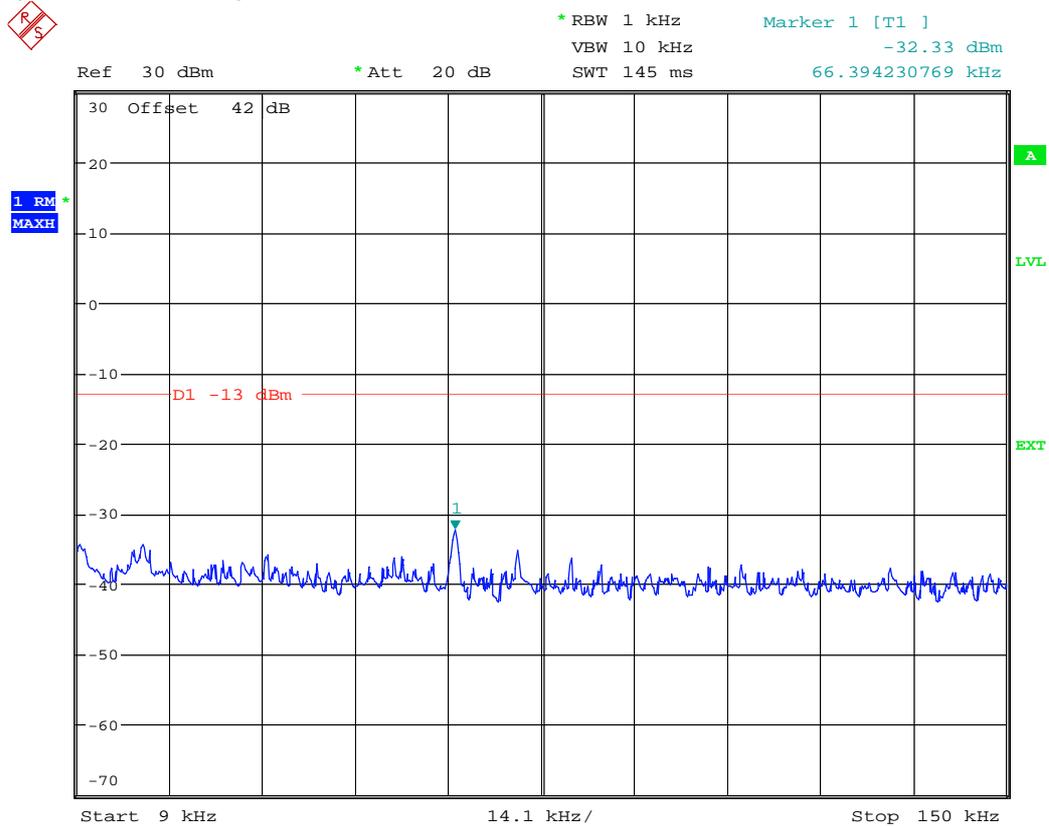
AB

Date: 18.APR.2008 12:31:30



## B. Multiple Carriers:

### Channel Number: 25/50/75/100 (9k ~ 150k)

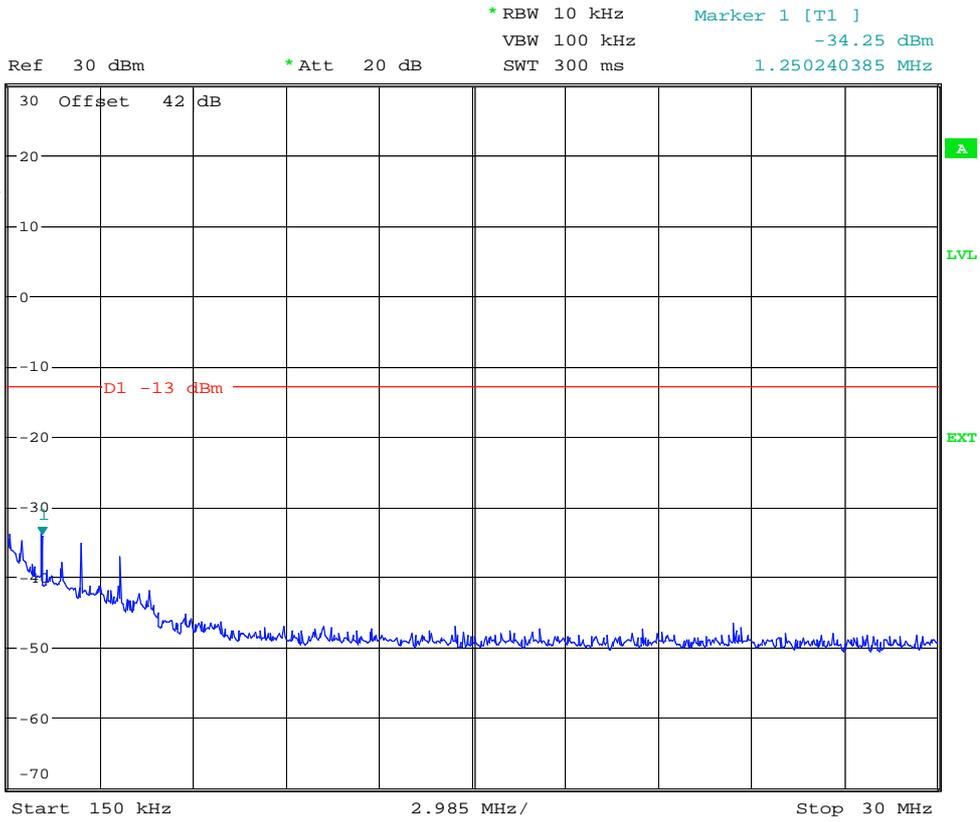


AB

Date: 18.APR.2008 14:52:06



# (150k ~ 30M)



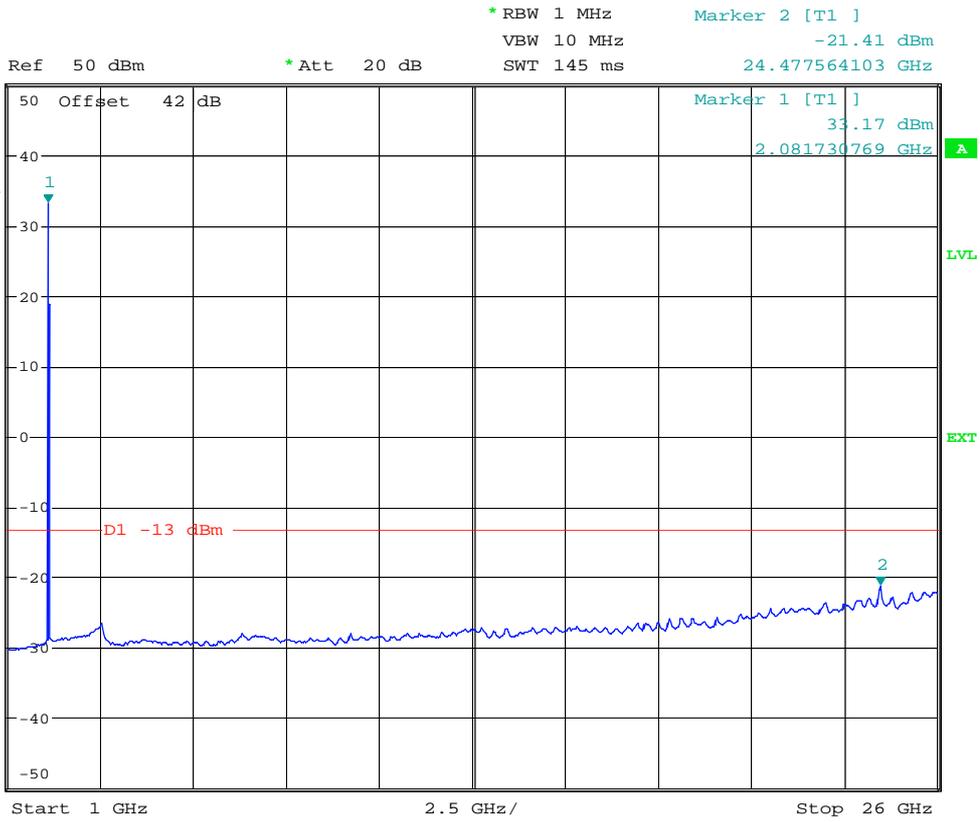
AB

Date: 18.APR.2008 14:51:34





# (1G ~ 26G)



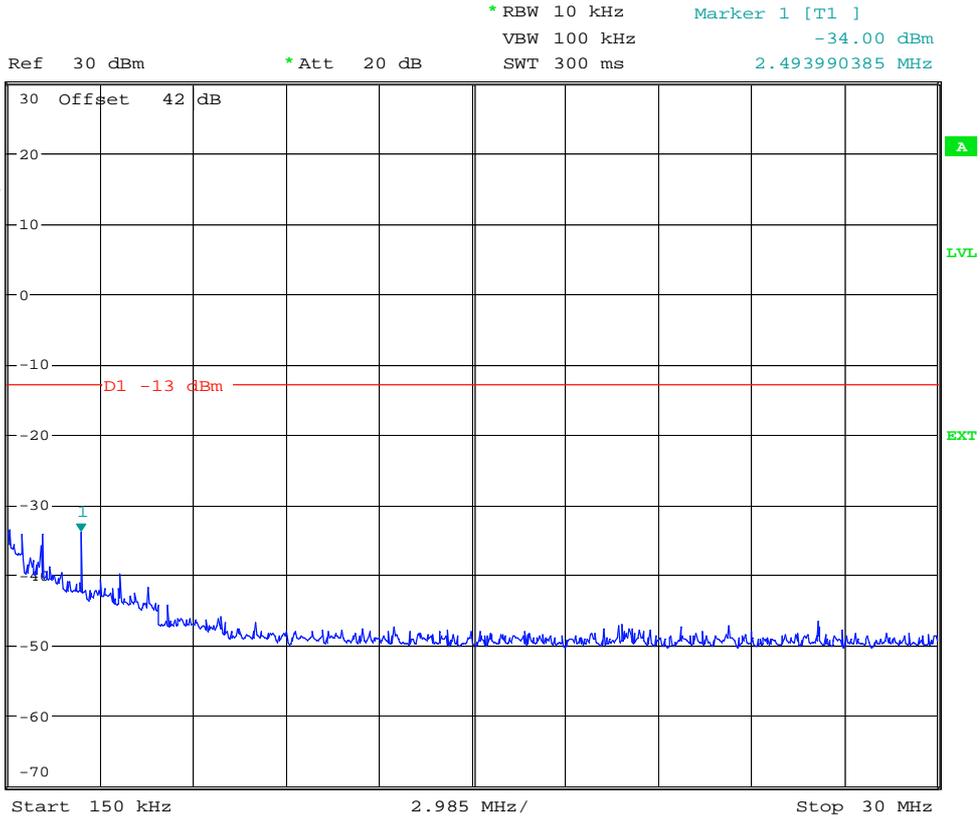
AB

Date: 18.APR.2008 14:53:48





# (150k ~ 30M)

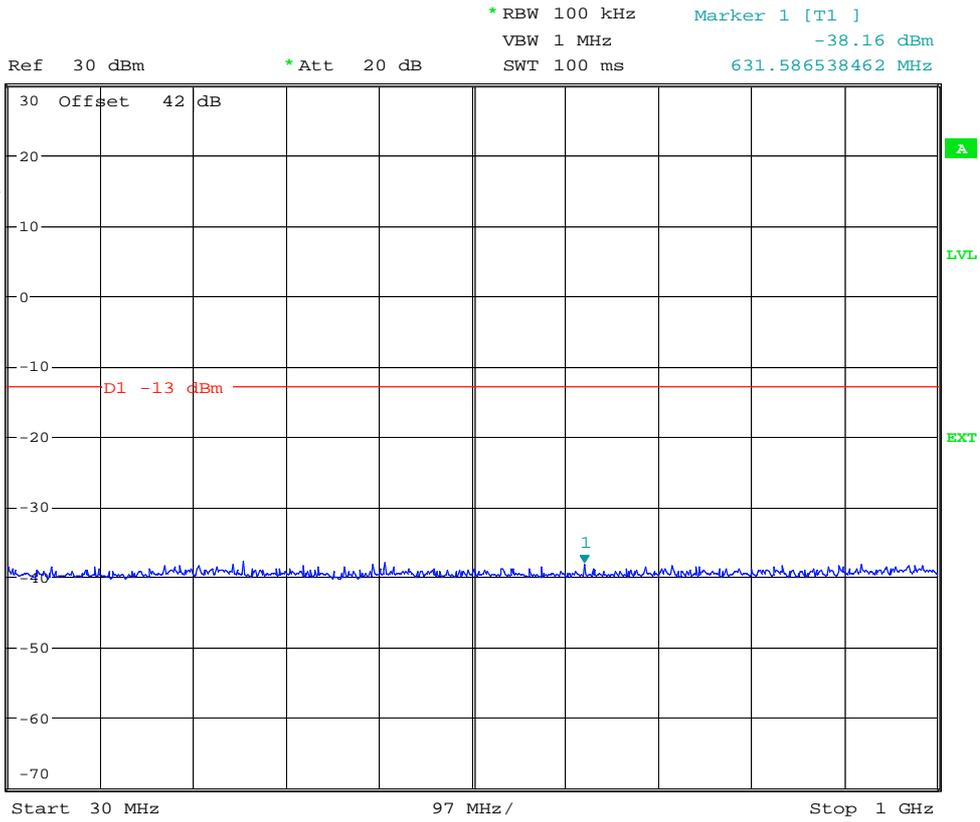


AB

Date: 18.APR.2008 15:06:11



# (30M ~ 1G)

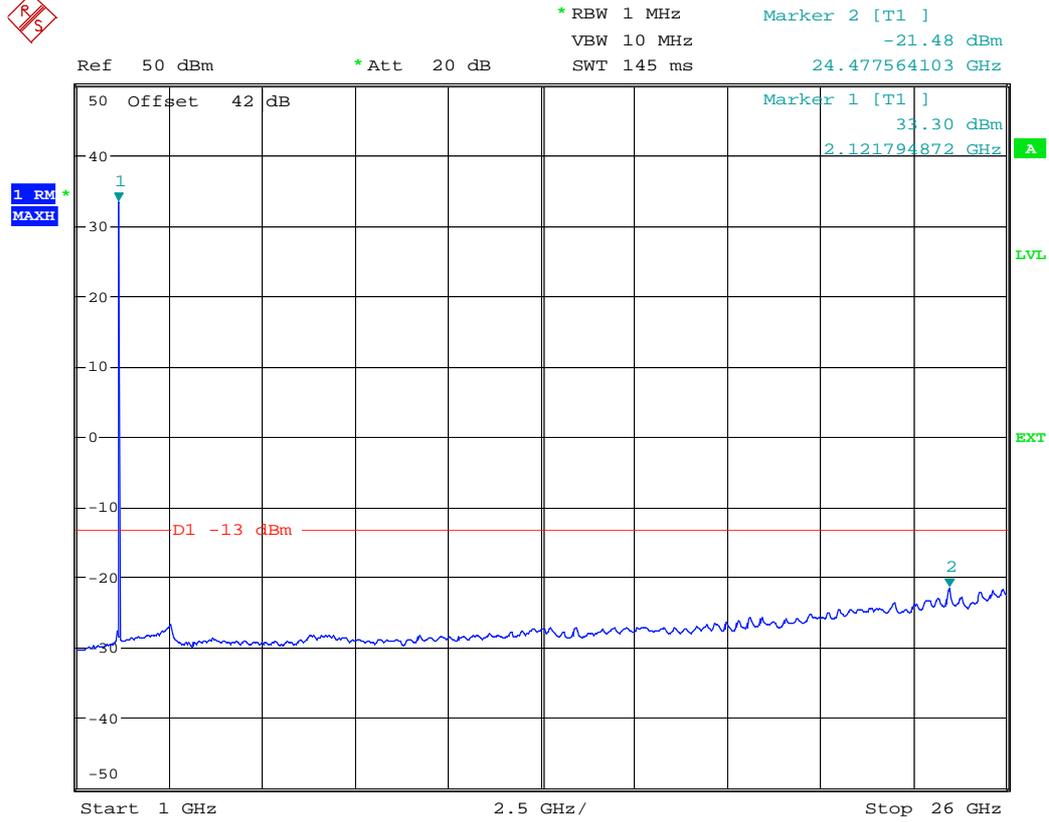


AB

Date: 18.APR.2008 15:07:13



# (1G ~ 26G)



AB

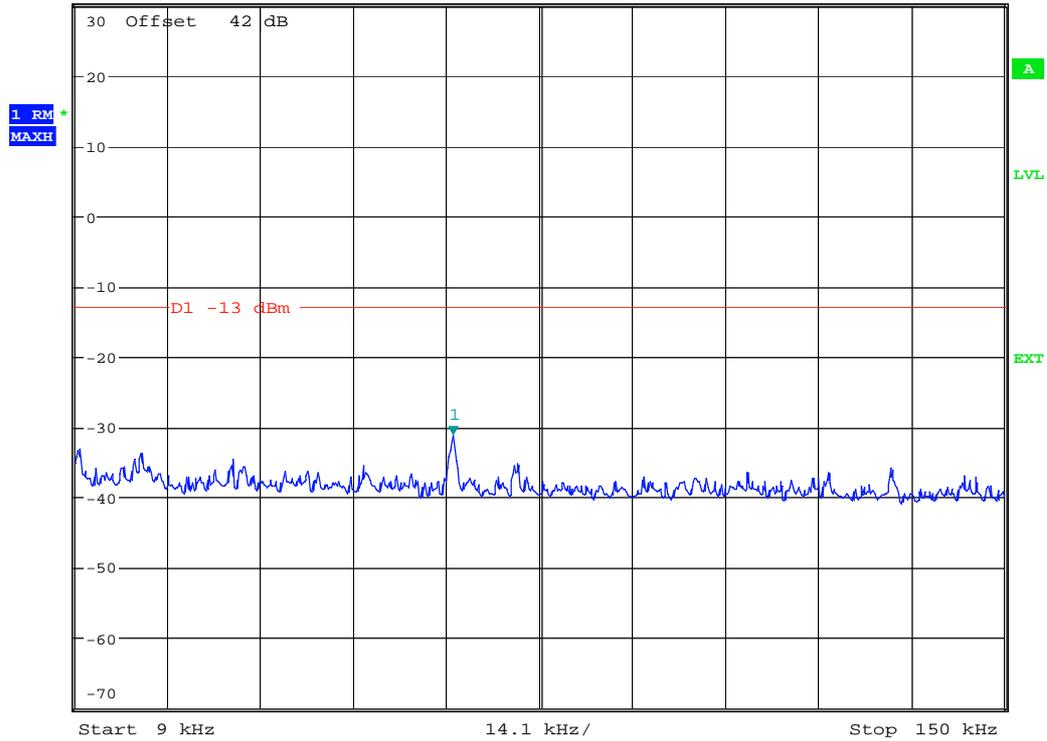
Date: 18.APR.2008 15:08:03



# Channel Number: 800/825/850/875 (9k ~ 150k)



Ref 30 dBm      \* Att 20 dB      \* RBW 1 kHz      Marker 1 [T1]      -31.14 dBm  
 VBW 10 kHz      SWT 145 ms      66.394230769 kHz

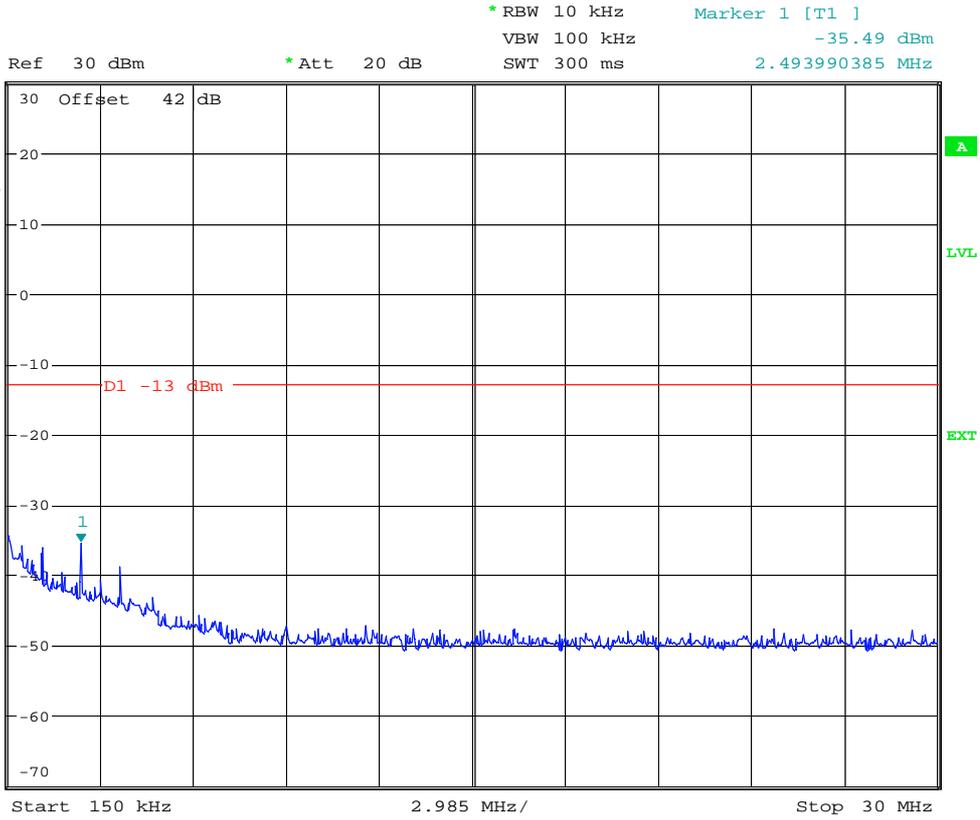


AB

Date: 18.APR.2008 15:22:59



# (150k ~ 30M)

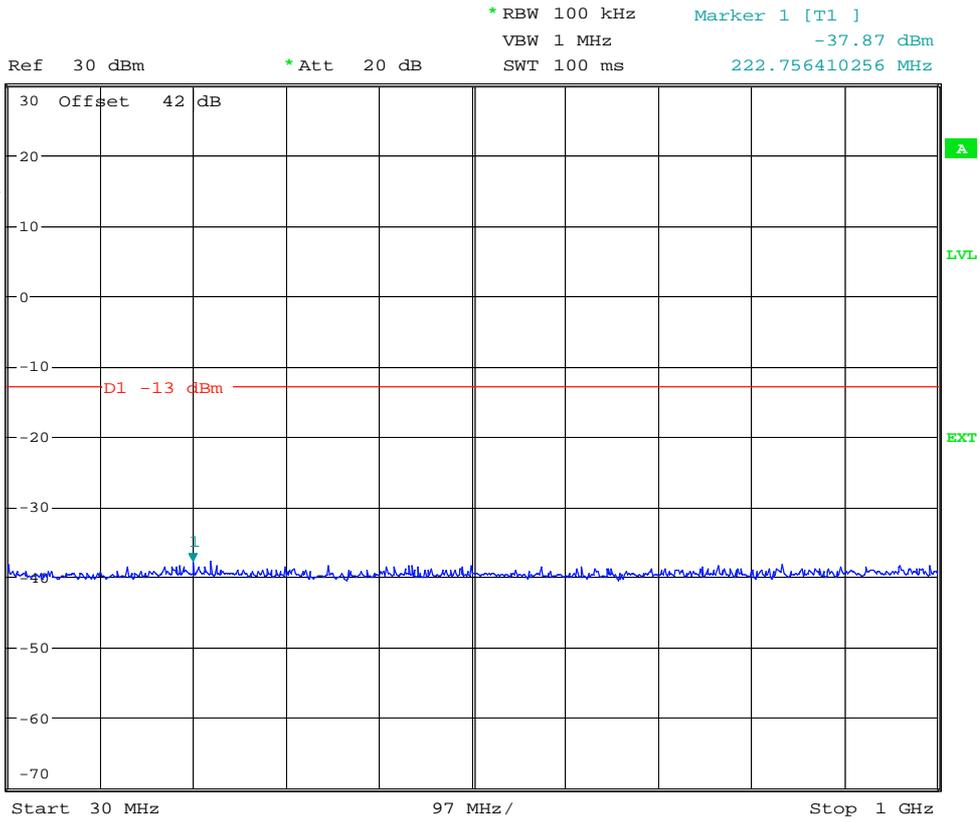


AB

Date: 18.APR.2008 15:23:53



# (30M ~ 1G)

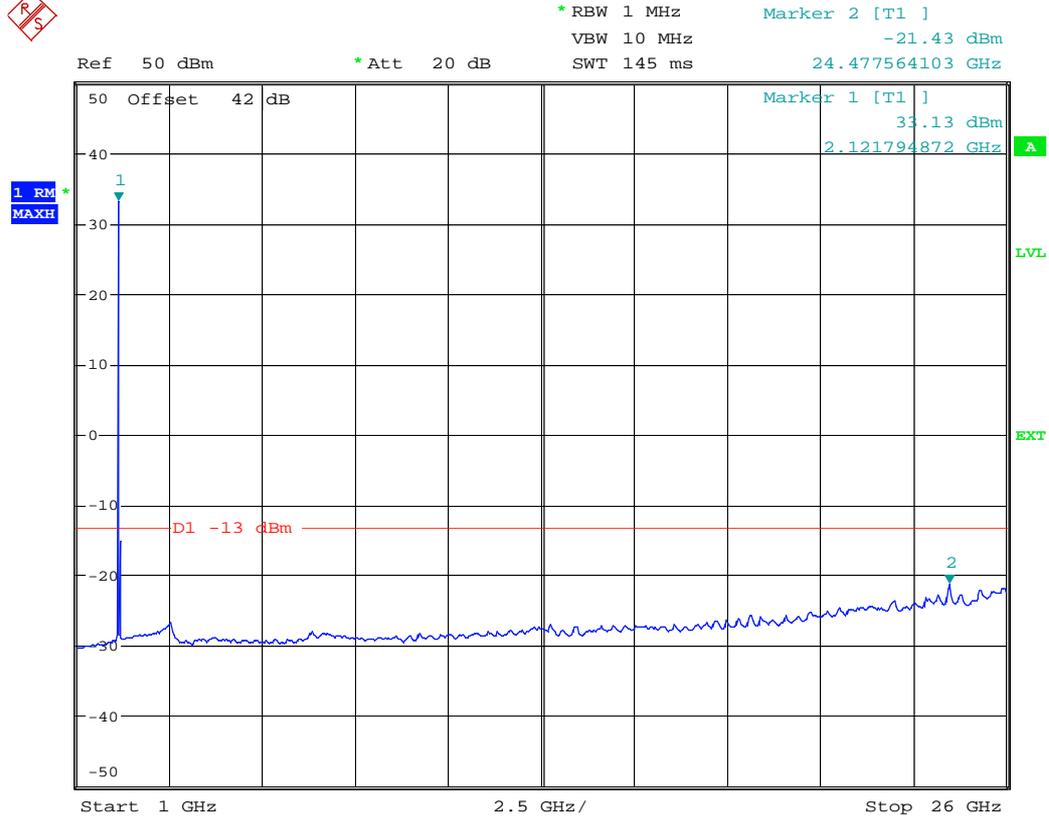


AB

Date: 18.APR.2008 15:24:30



# (1G ~ 26G)



AB

Date: 18.APR.2008 15:25:19

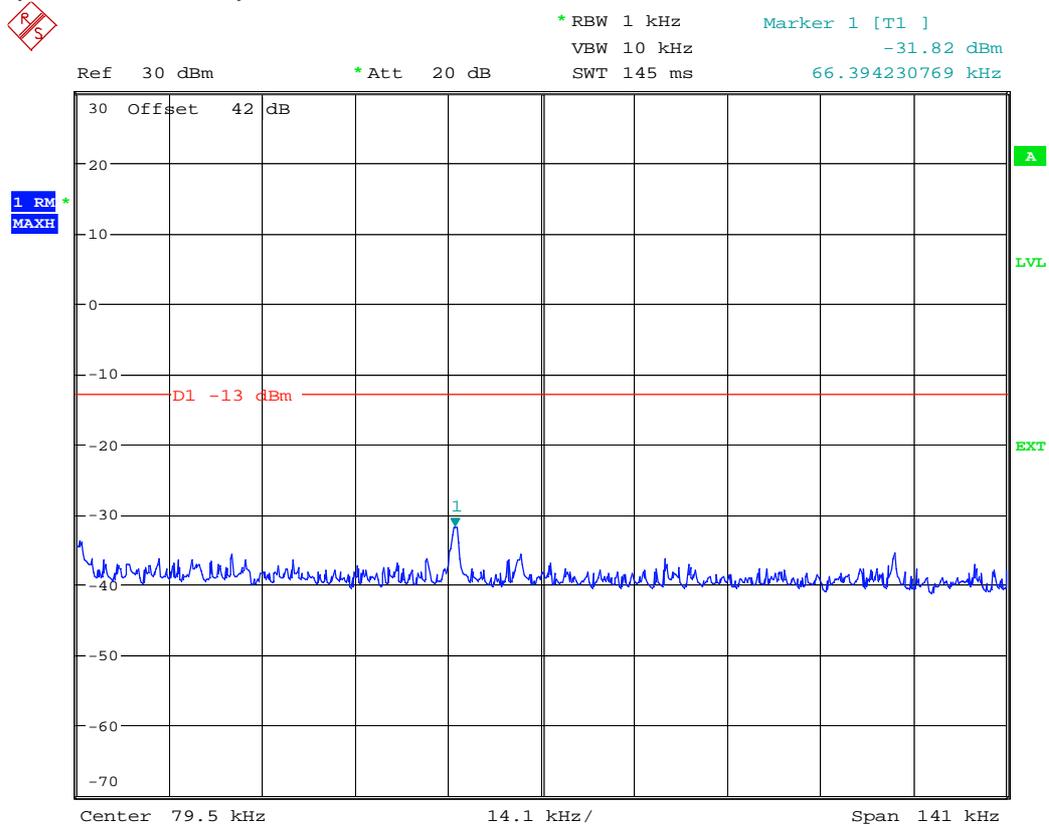


# CDMA2000 1X EV-DO

## A. Single Carrier

### Channel Number: 25

### (9k ~ 150k)

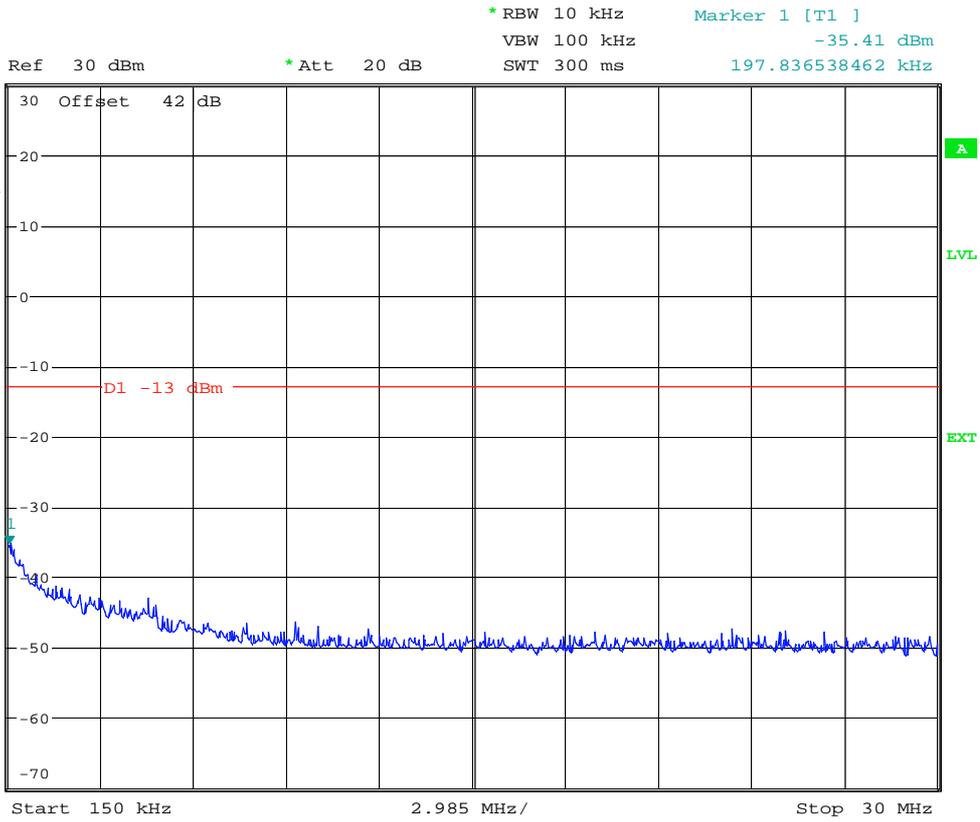


AB

Date: 17.APR.2008 17:59:44



# (150k ~ 30M)

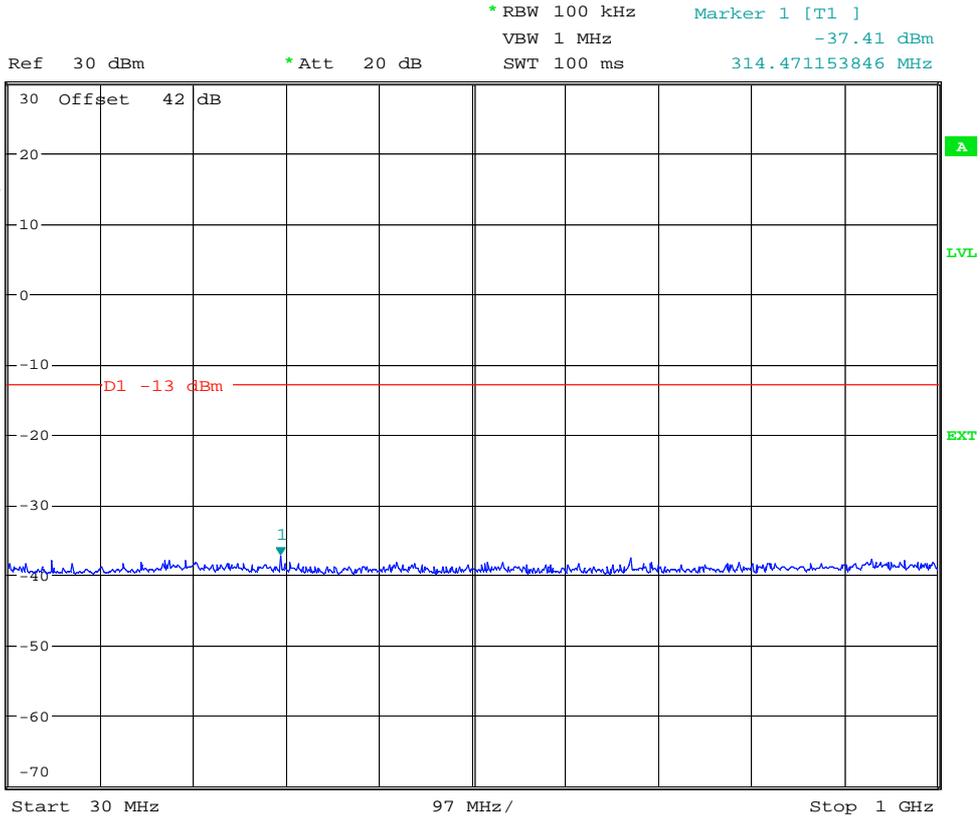


AB

Date: 17.APR.2008 18:01:04



# (30M ~ 1G)

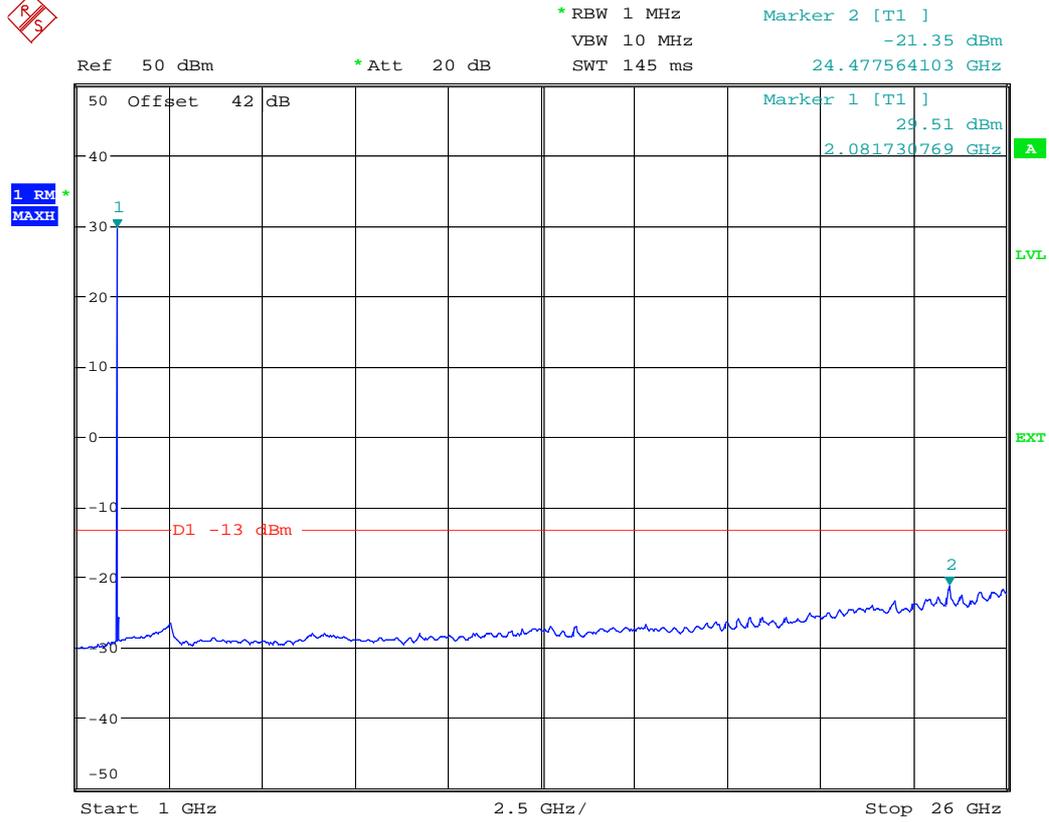


AB

Date: 17.APR.2008 18:03:34



# (1G ~ 26G)



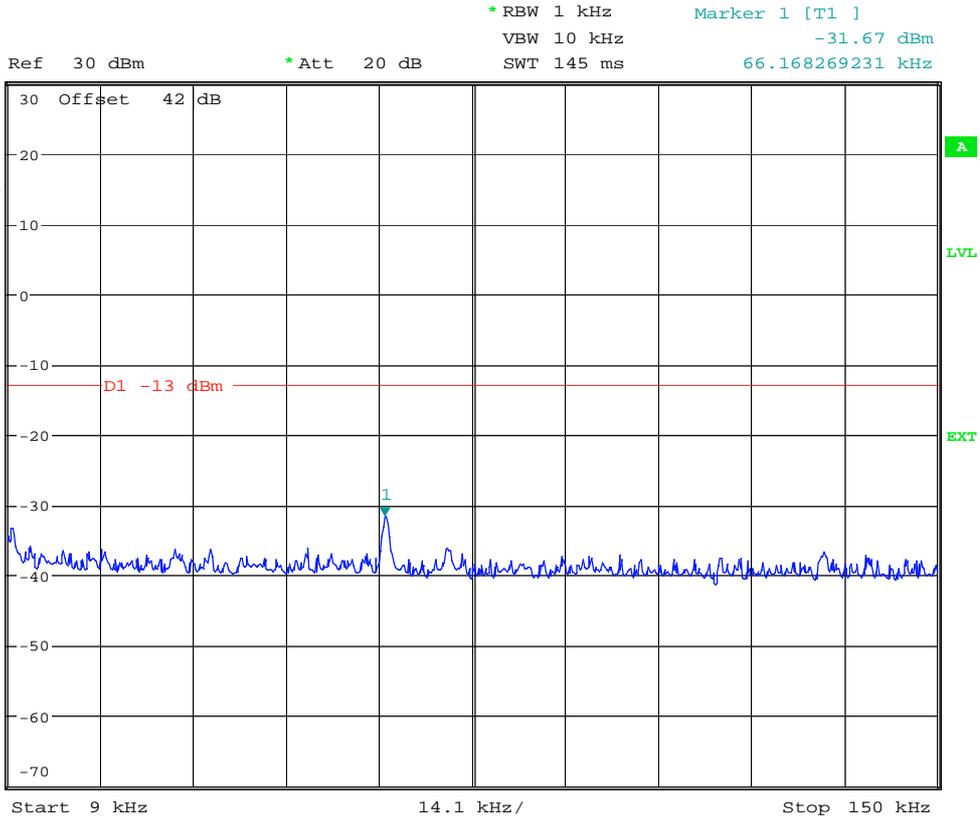
AB

Date: 17.APR.2008 18:06:00



# Channel Number: 450

## (9k ~ 150k)

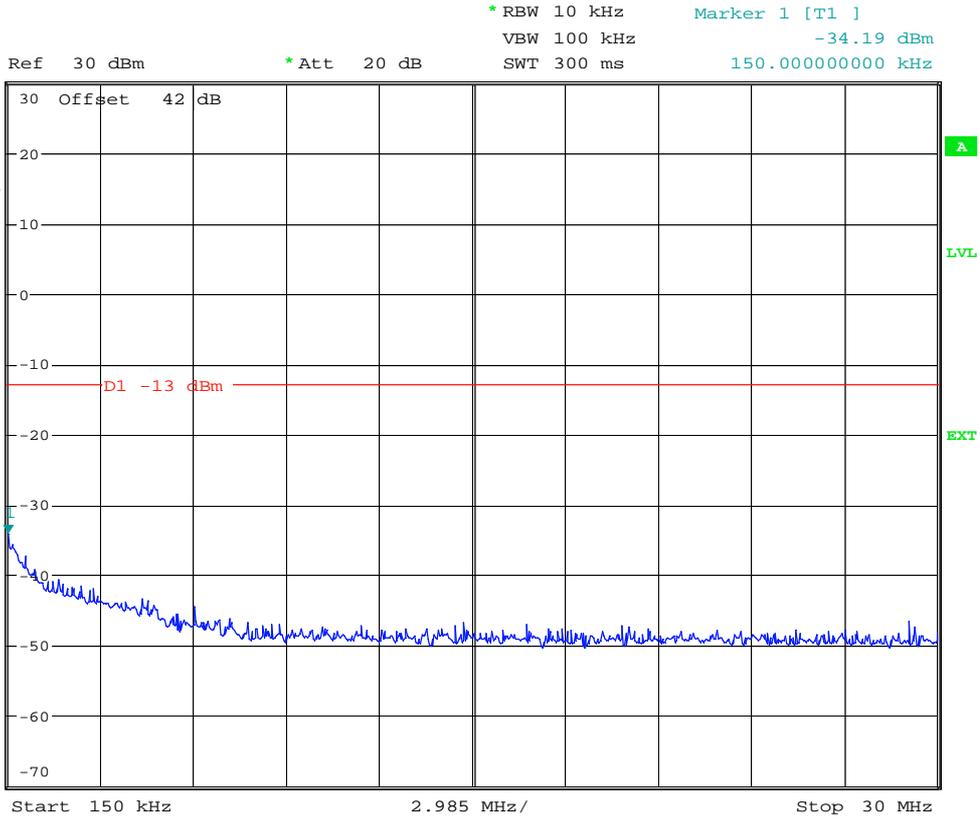


AB

Date: 17.APR.2008 18:26:07



# (150k ~ 30M)



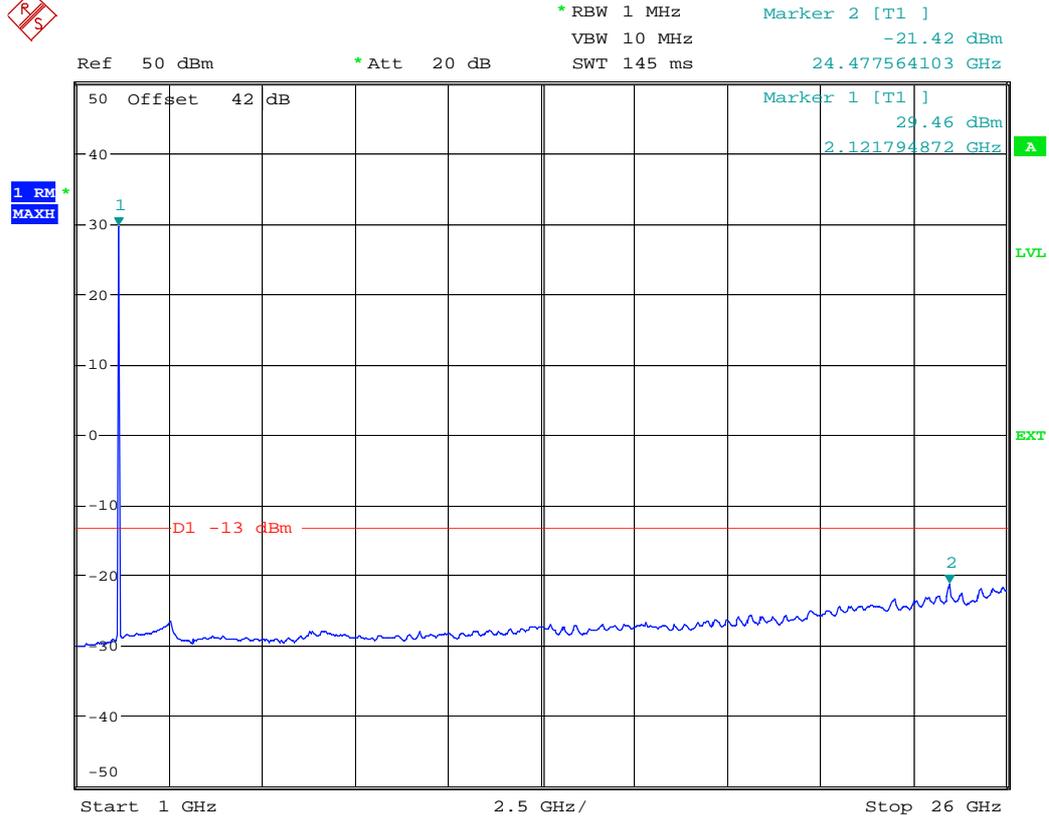
AB

Date: 17.APR.2008 18:27:20





# (1G ~26G)



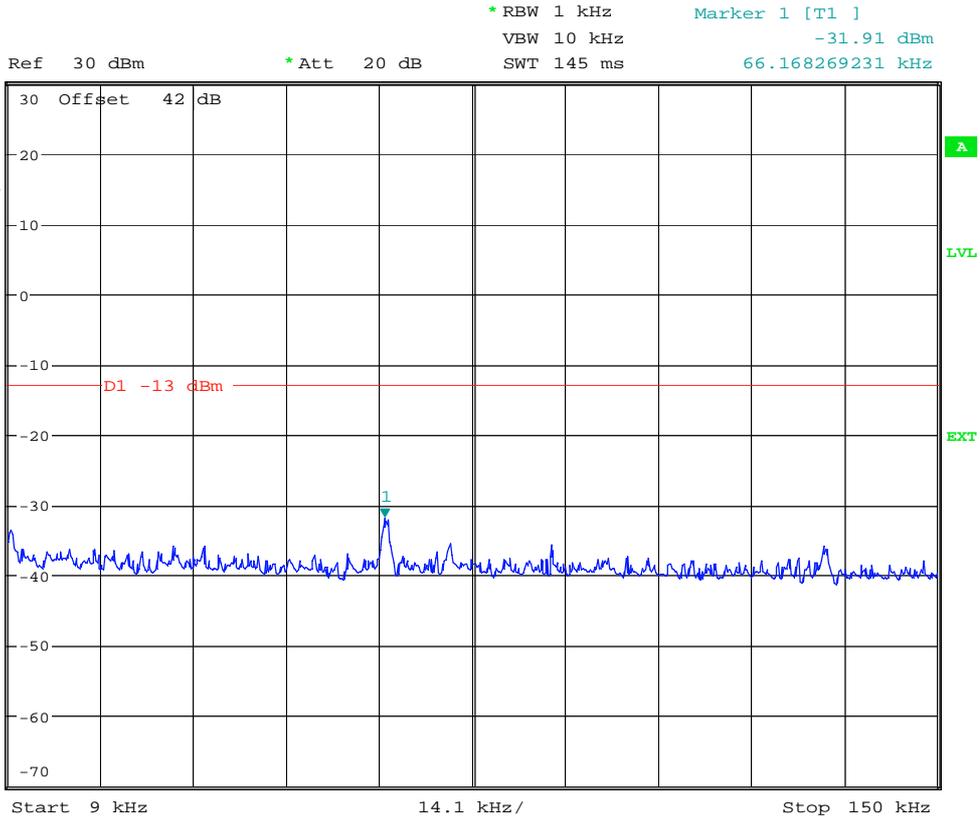
AB

Date: 17.APR.2008 18:30:39



# Channel Number: 875

## (9k ~ 150k)

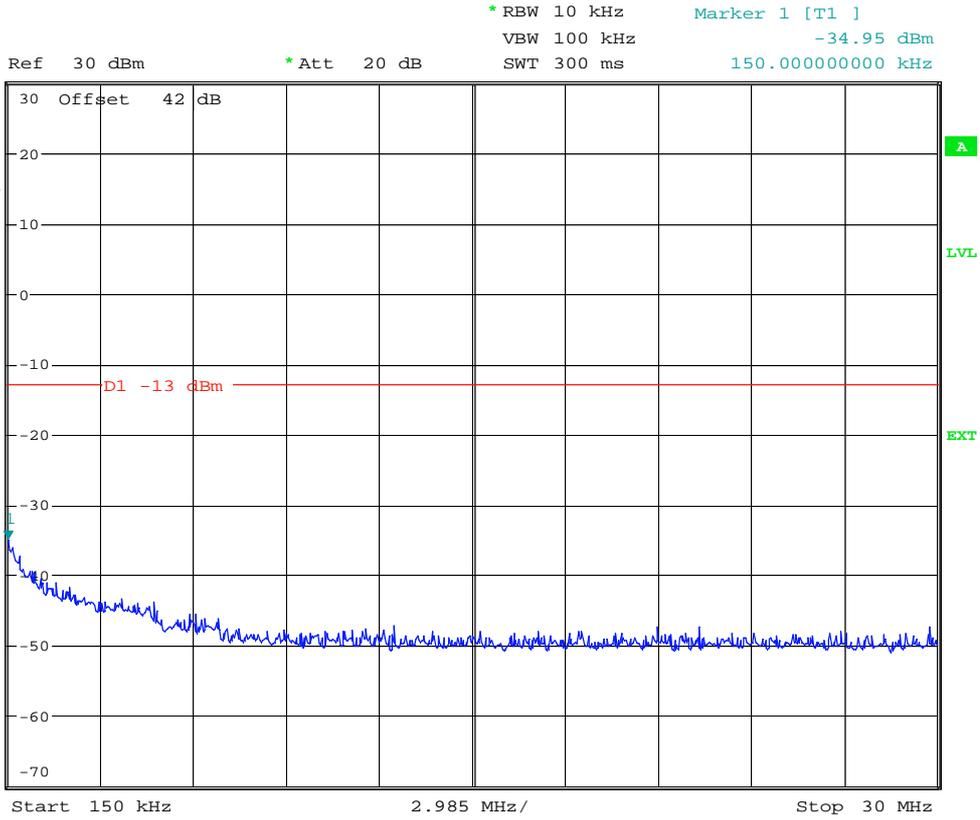


AB

Date: 17.APR.2008 18:43:36



# (150k ~ 30M)

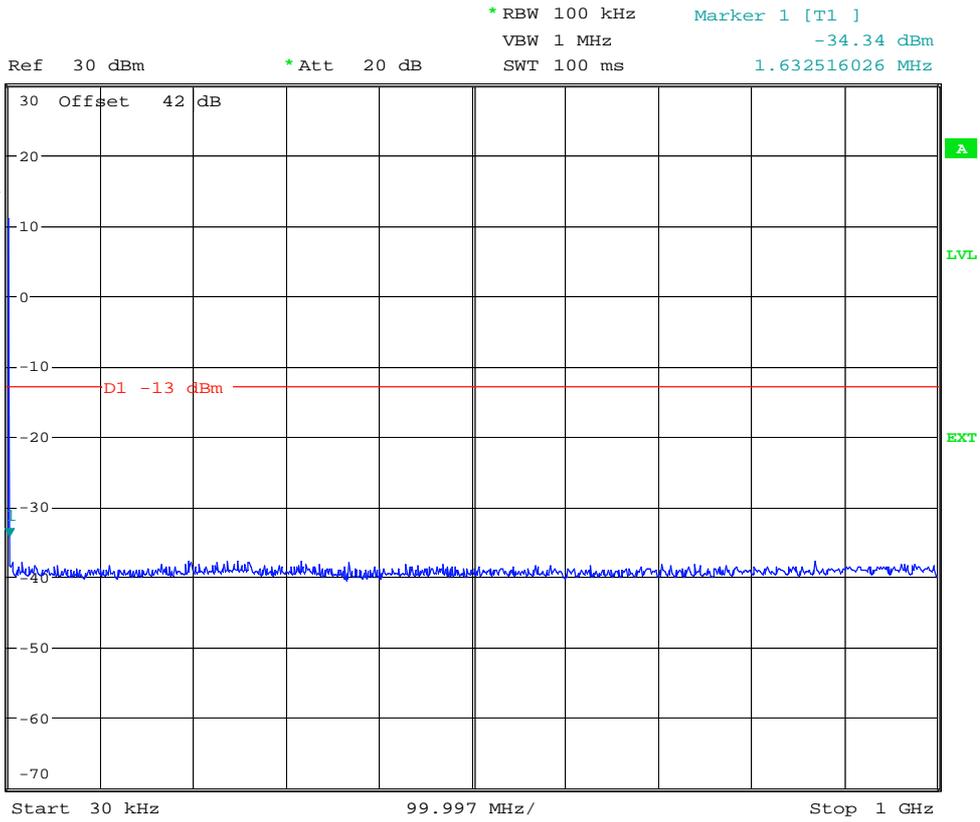


AB

Date: 17.APR.2008 18:44:23



# (30M ~ 1G)

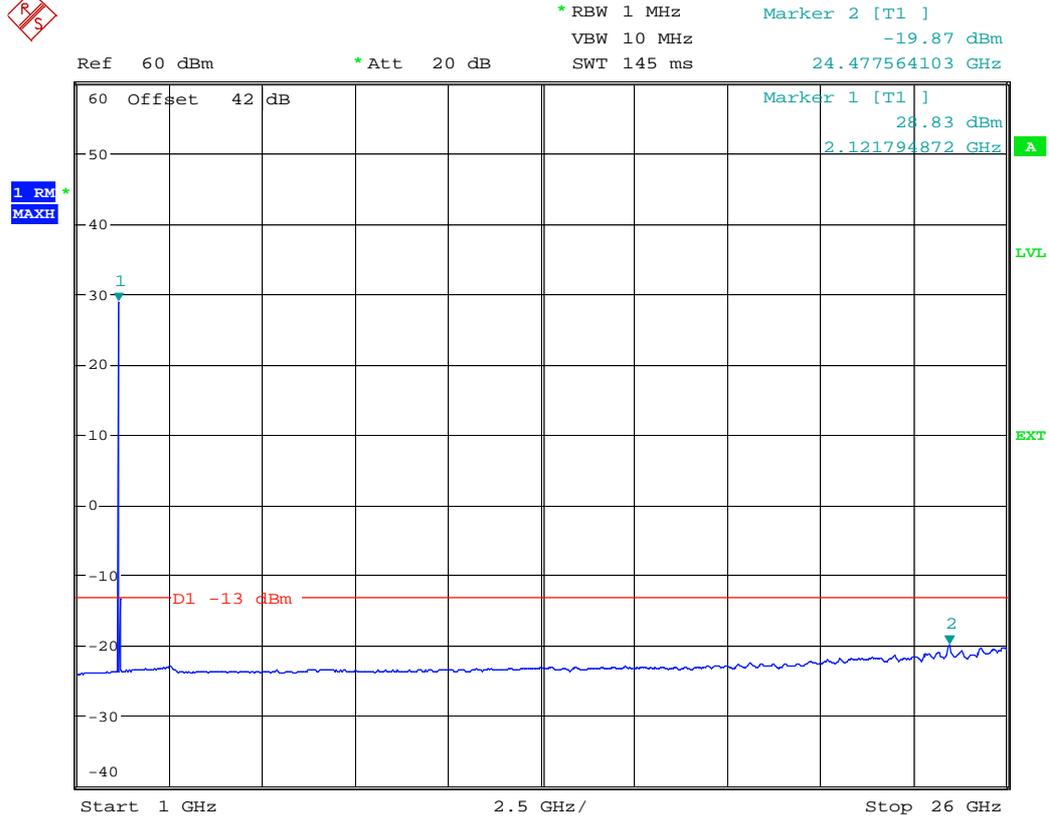


AB

Date: 17.APR.2008 18:46:15



# (1G ~ 26G)



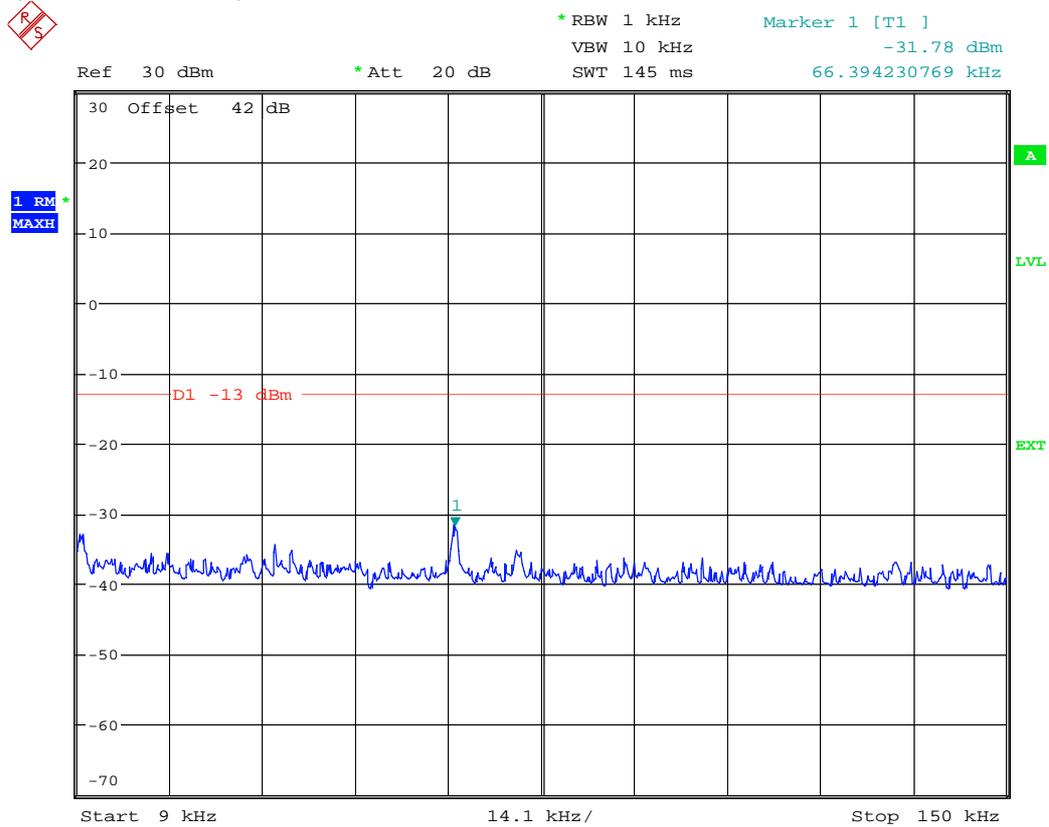
AB

Date: 17.APR.2008 18:48:37



## B. Multiple Carriers:

### Channel Number: 25/50/75/100 (9k ~ 150k)

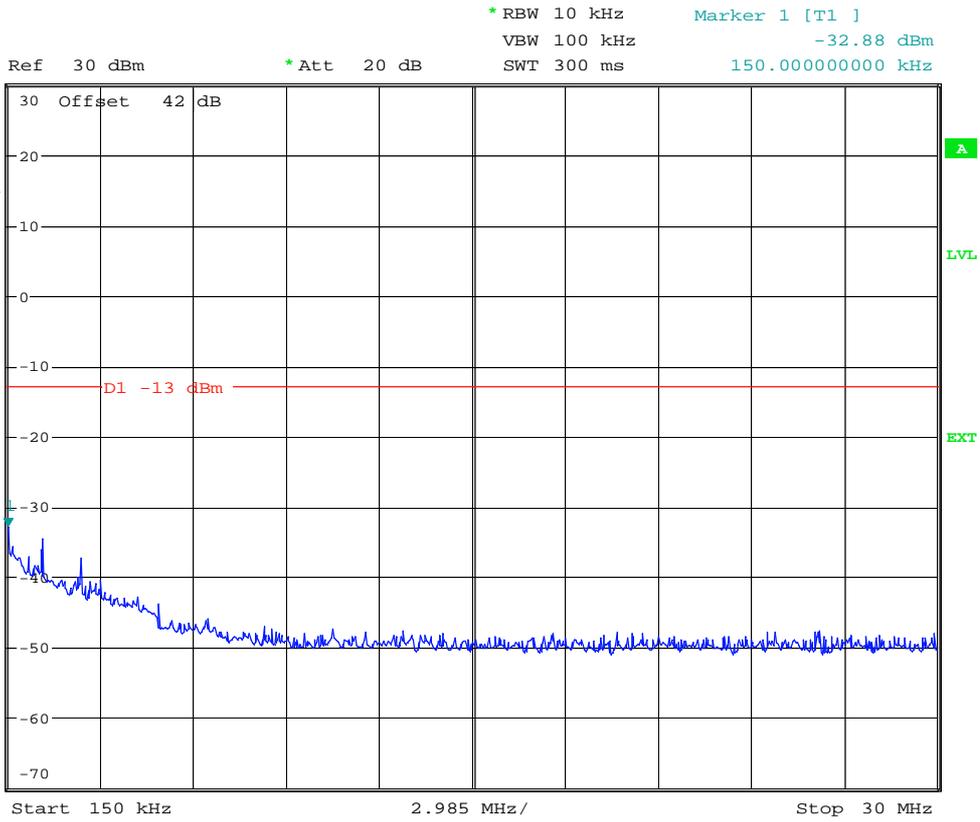


AB

Date: 18.APR.2008 10:43:20



# (150k ~ 30M)

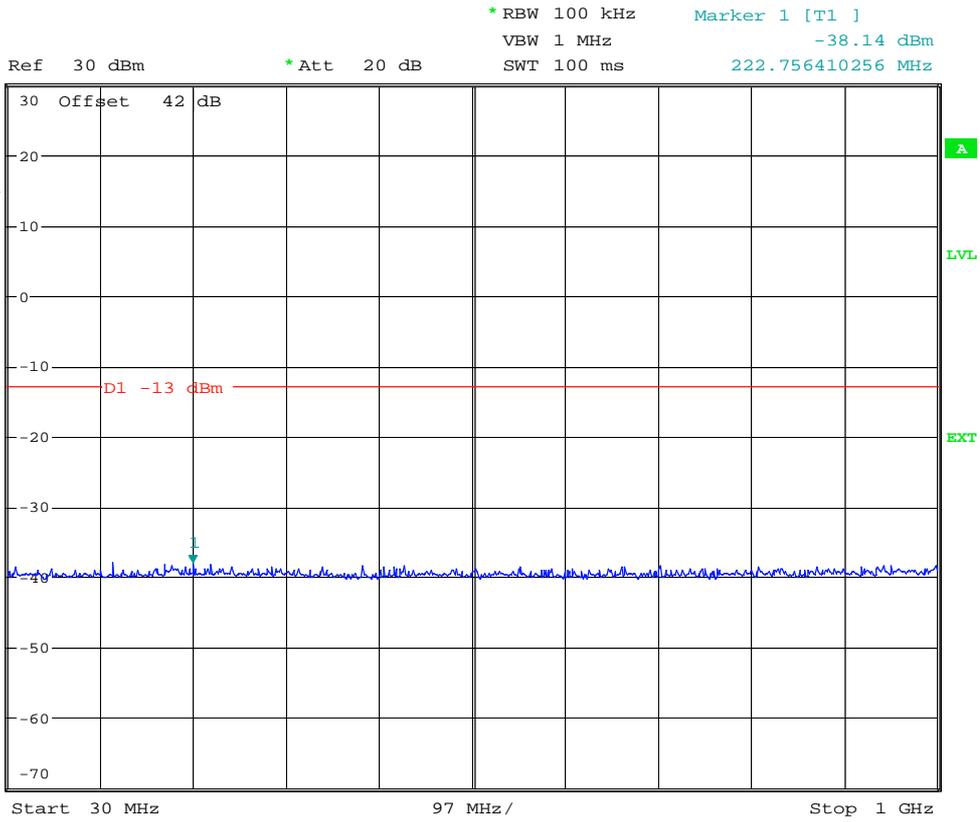


AB

Date: 18.APR.2008 10:43:59



# (30M ~ 1G)

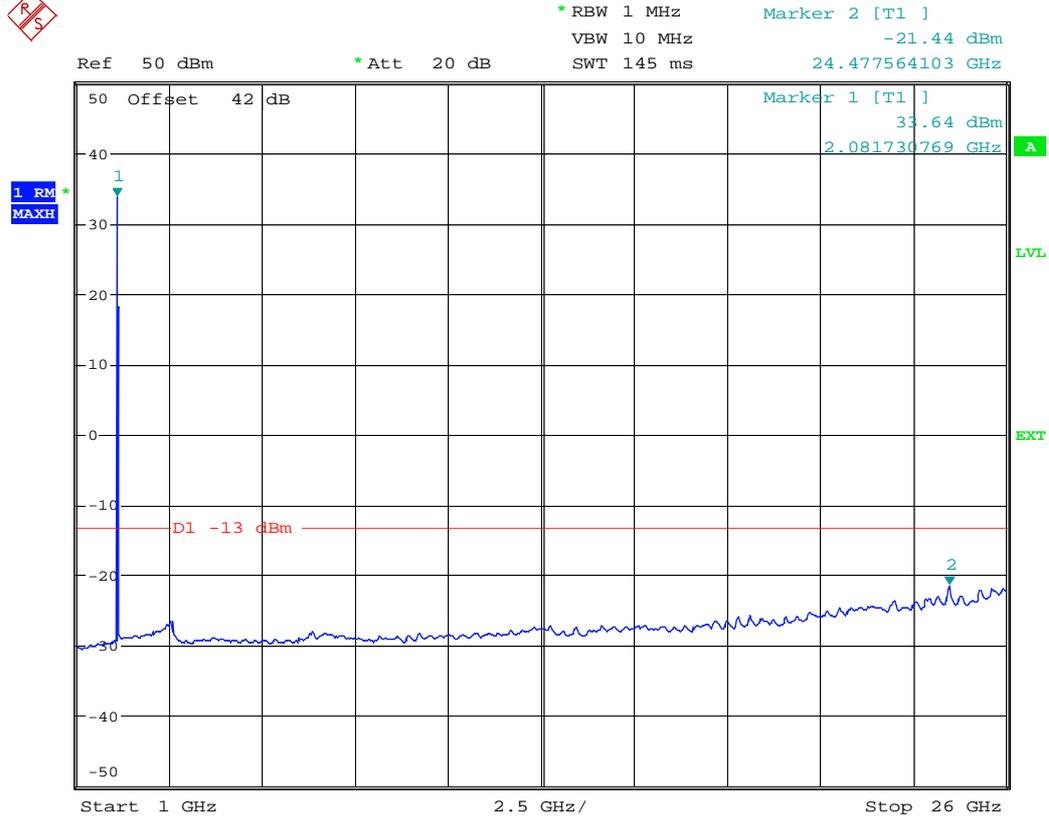


AB

Date: 18.APR.2008 10:44:49



# (1G ~ 26G)



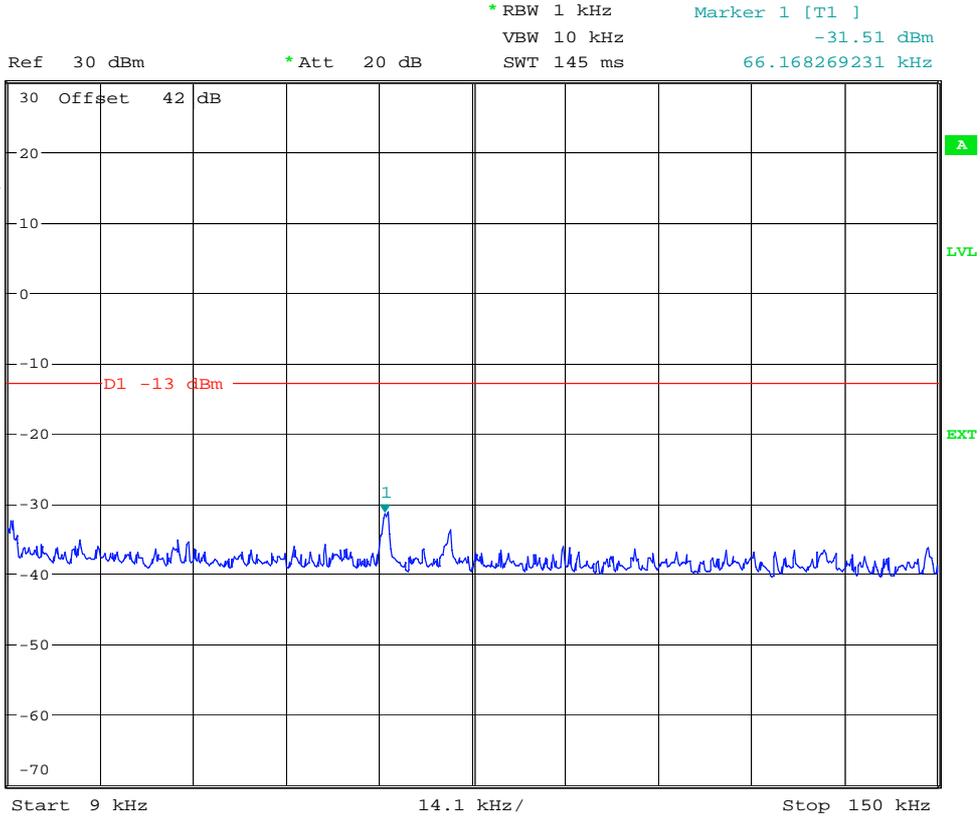
AB

Date: 18.APR.2008 10:46:37



# Channel Number: 400/425/450/475

## (9k ~ 150k)

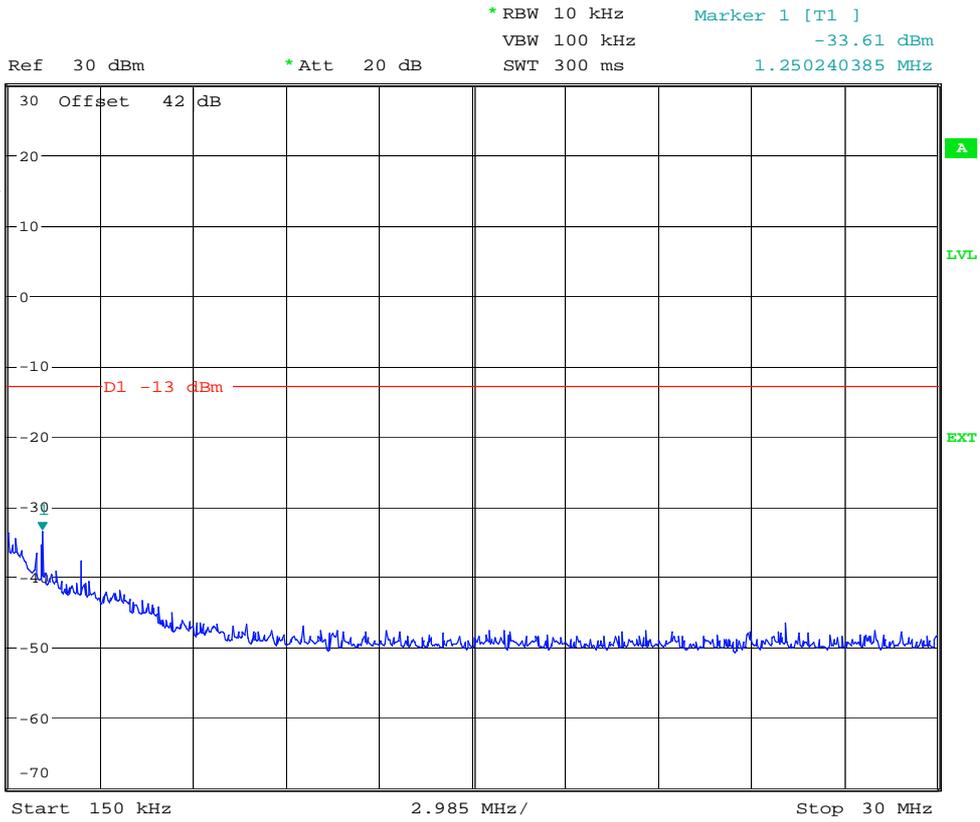


AB

Date: 18.APR.2008 10:53:35



# (150k ~ 30M)

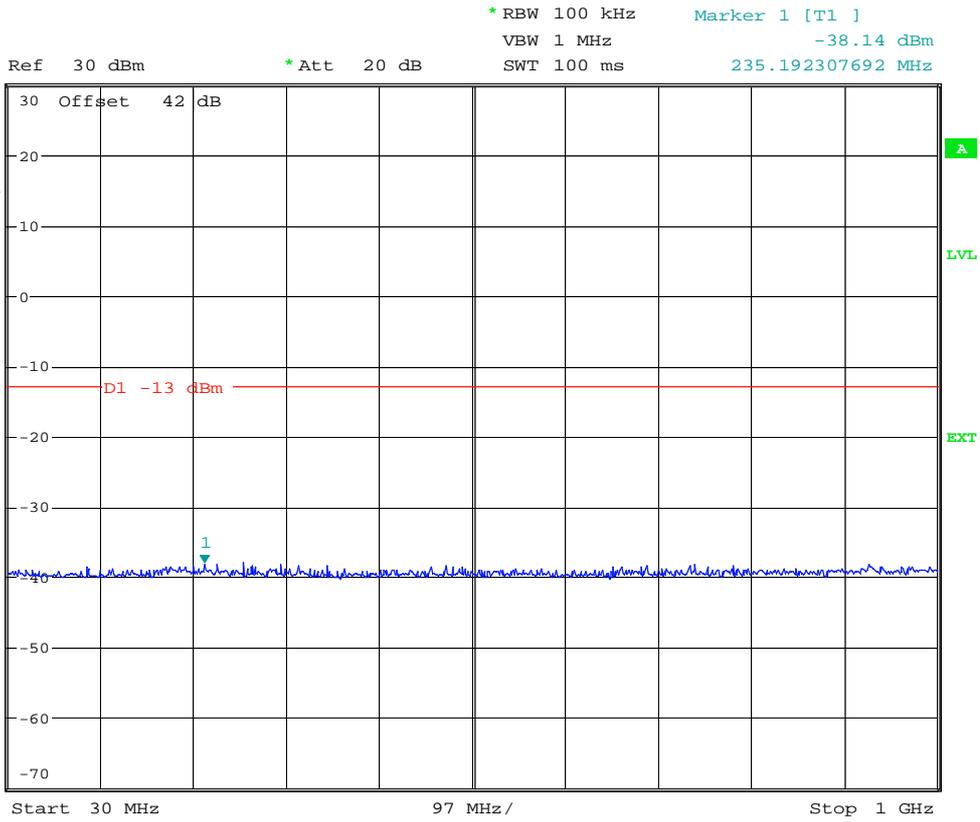


AB

Date: 18.APR.2008 10:54:24



# (30M ~ 1G)

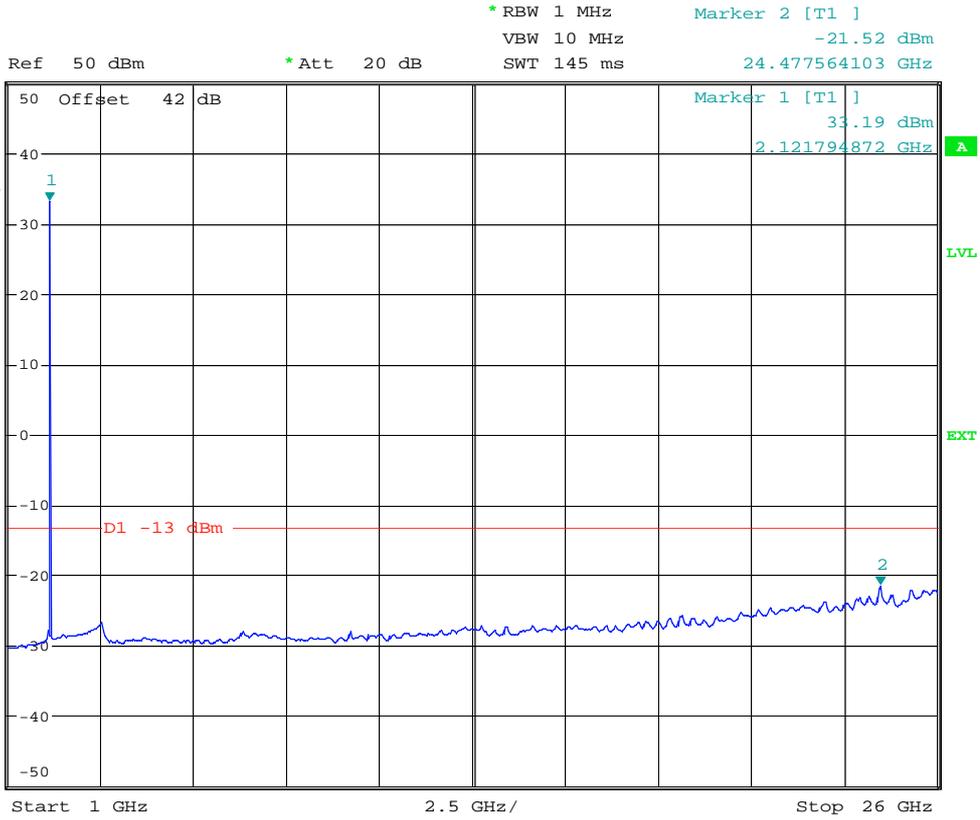


AB

Date: 18.APR.2008 10:55:27



# (1G ~ 26G)



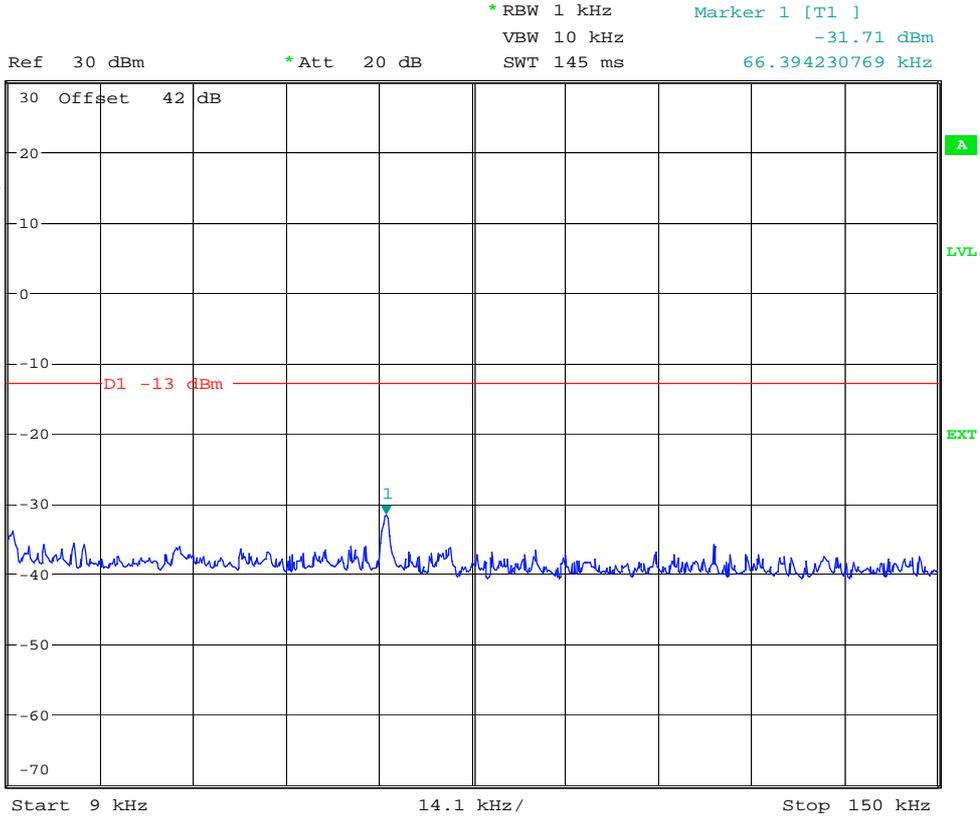
AB

Date: 18.APR.2008 10:56:31



# Channel Number: 800/825/850/875

## (9k ~ 150k)

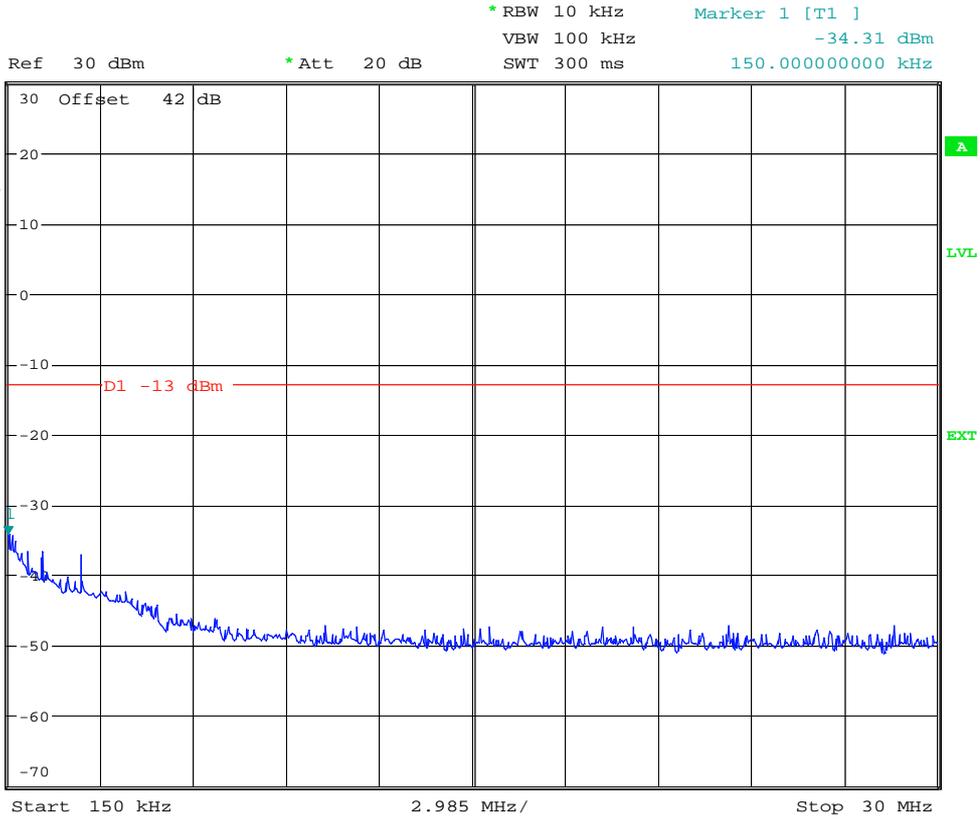


AB

Date: 18.APR.2008 11:07:20



# (150k ~ 30M)

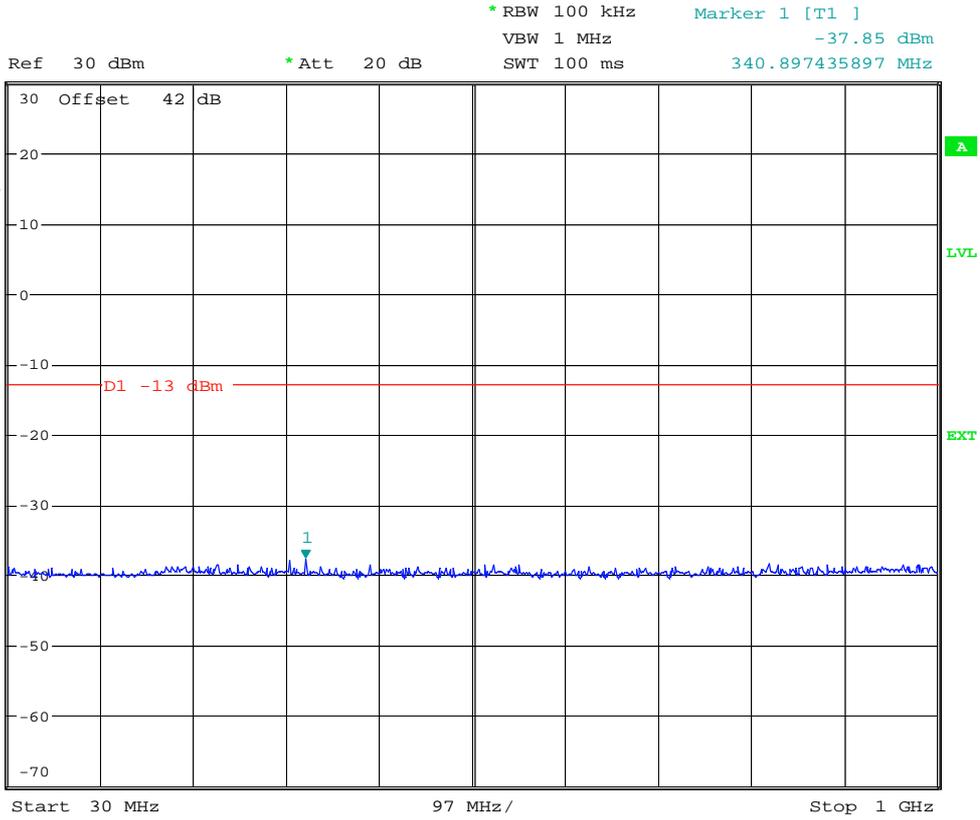


AB

Date: 18.APR.2008 11:08:04



# (30M ~ 1G)

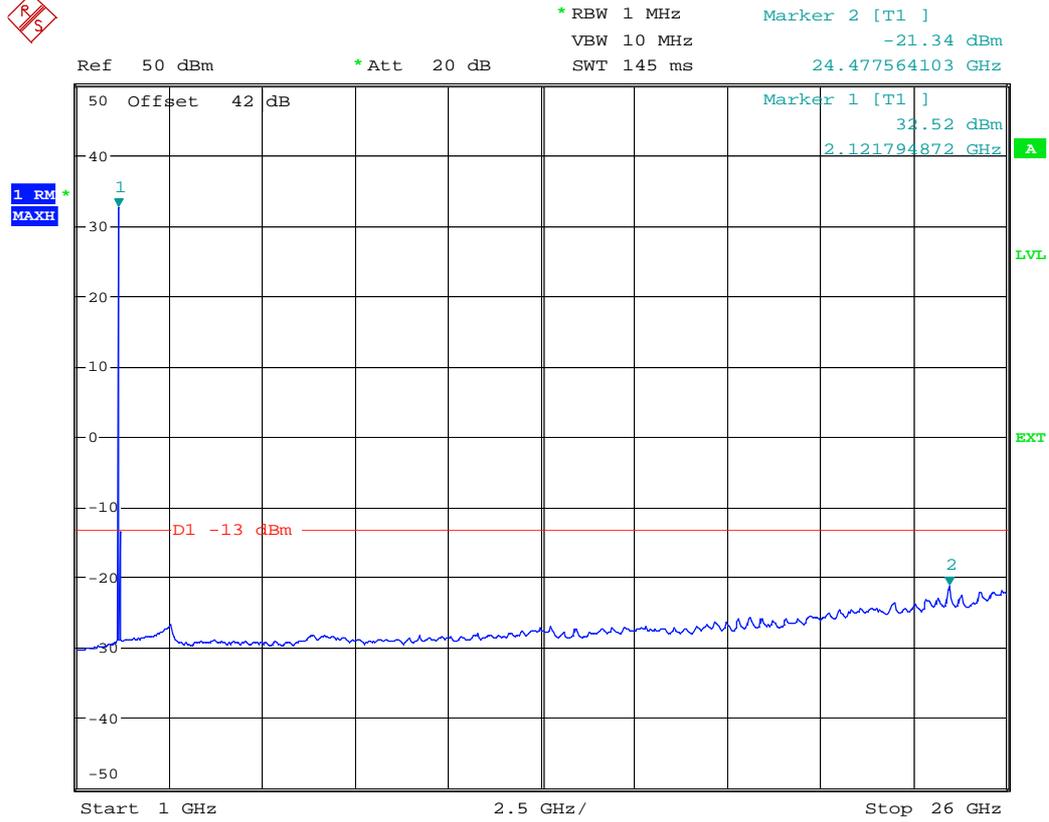


AB

Date: 18.APR.2008 11:08:38



# (1G ~ 26G)



AB

Date: 18.APR.2008 11:09:37

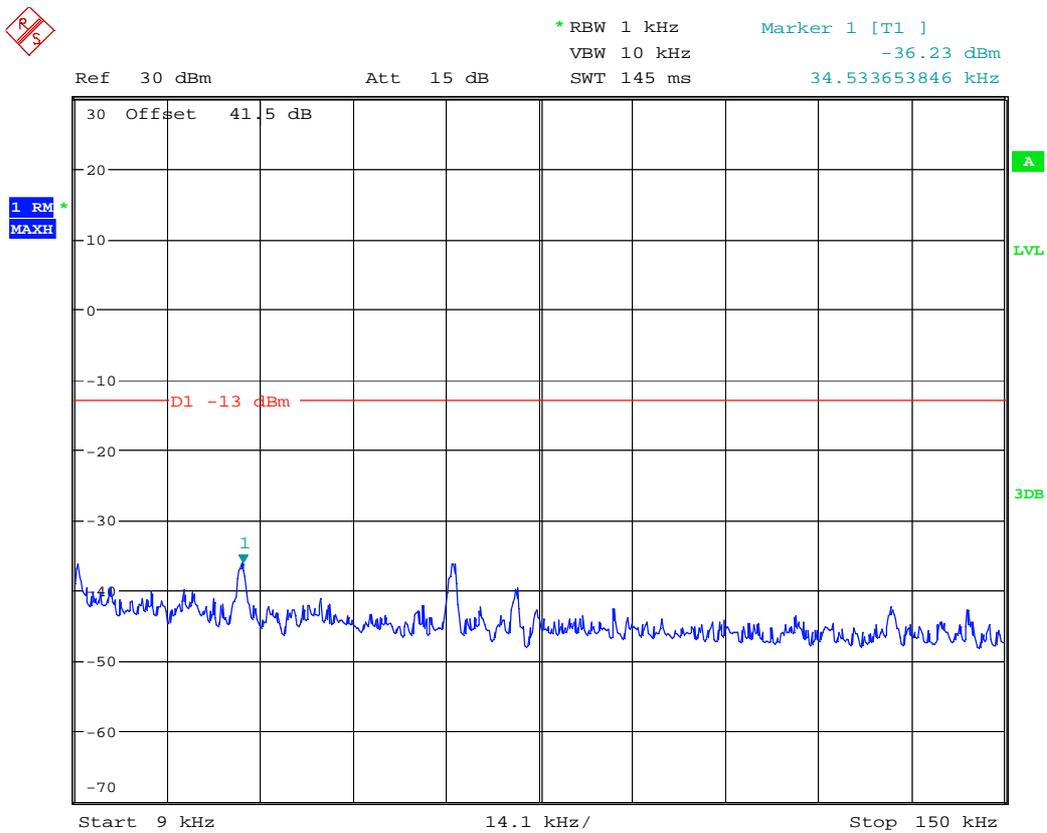


# LTE 5MHz bandwidth

## E-TM1.1

Channel Number: 1975

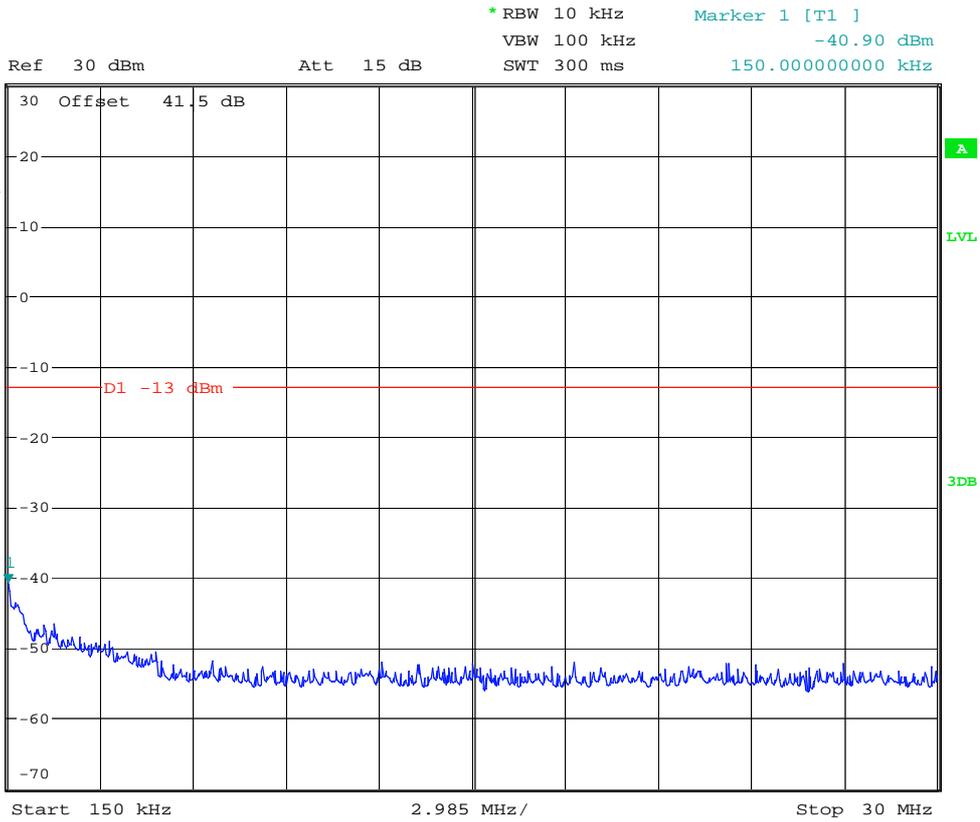
(9k ~ 150k)



Date: 2.MAY.2010 18:05:27



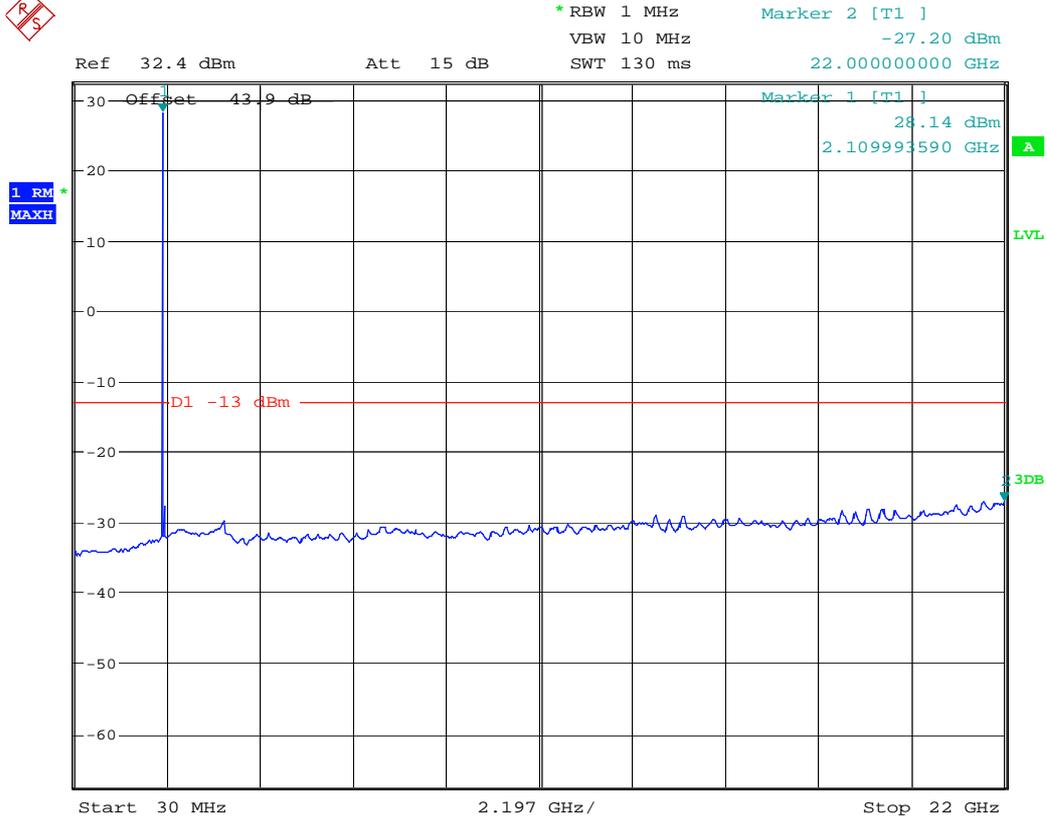
# (150k ~ 30M)



Date: 2.MAY.2010 18:04:55



# (30M~ 22G)

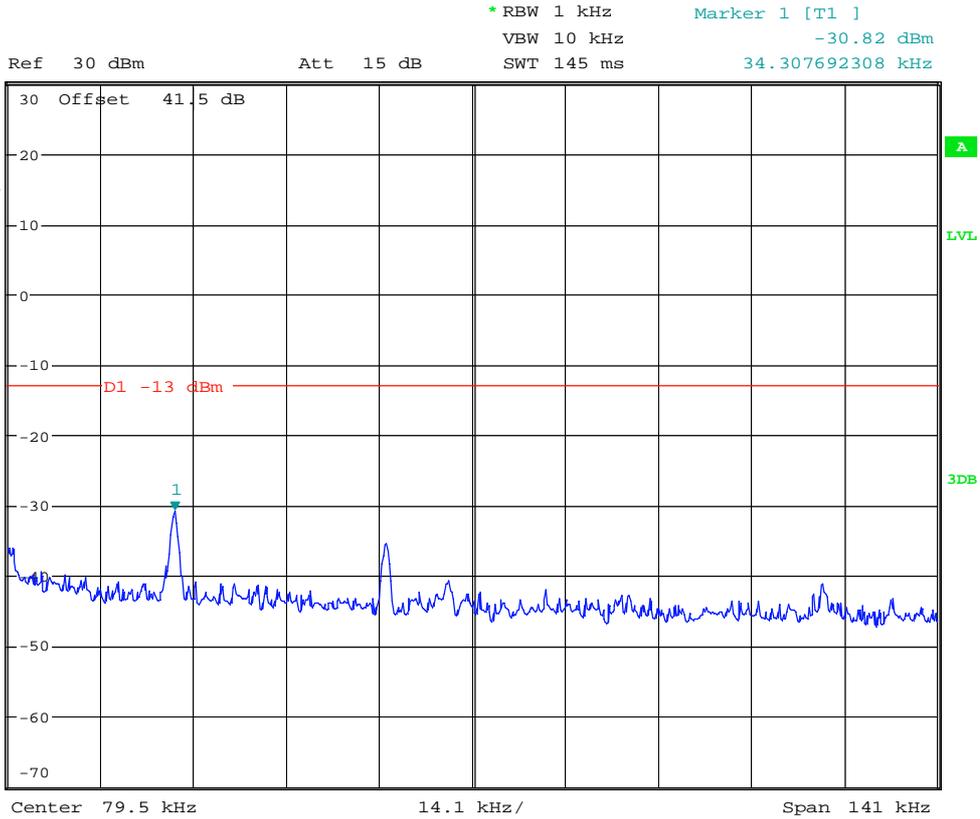


Date: 2.MAY.2010 18:03:30



# Channel Number: 2175

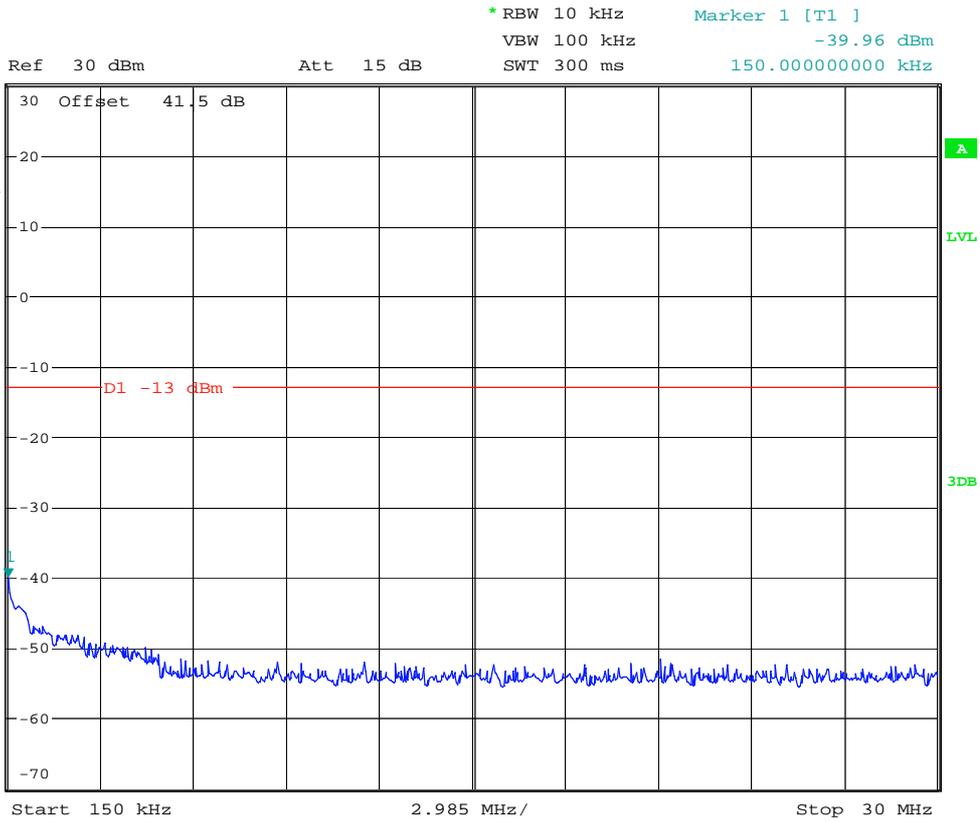
(9k ~ 150k)



Date: 2.MAY.2010 12:47:56



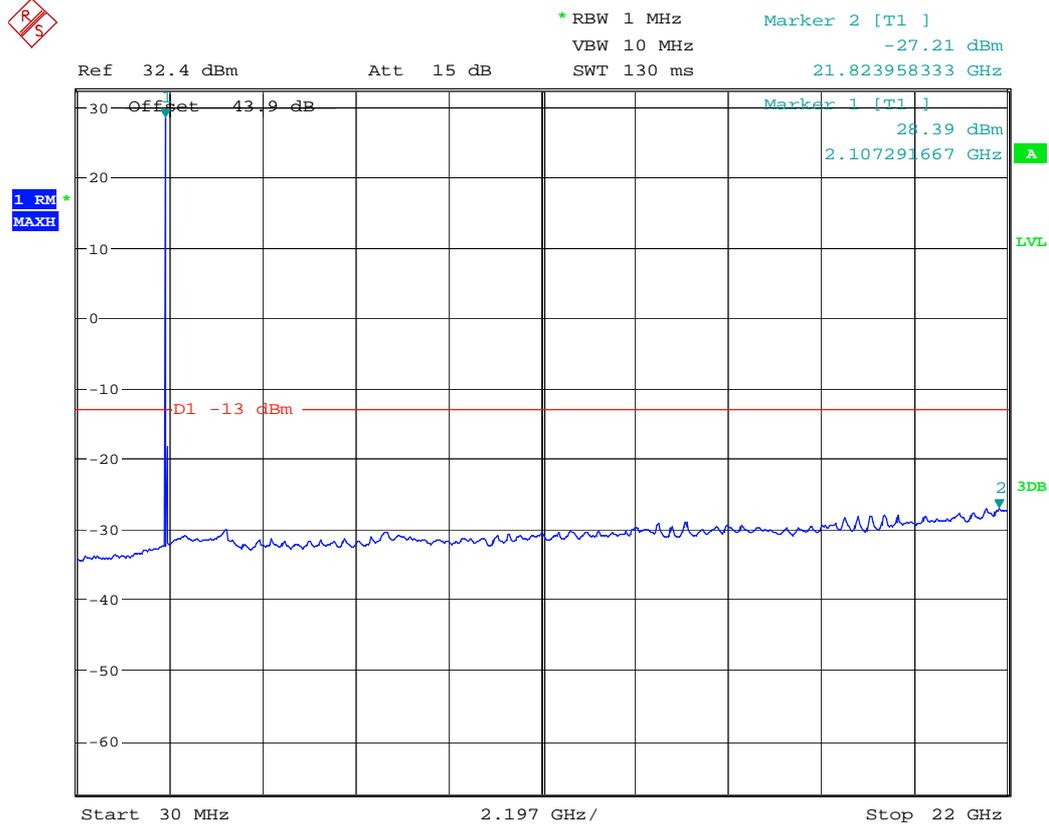
# (150k ~ 30M)



Date: 2.MAY.2010 12:49:06



# (30M~ 22G)



Date: 2.MAY.2010 12:51:27



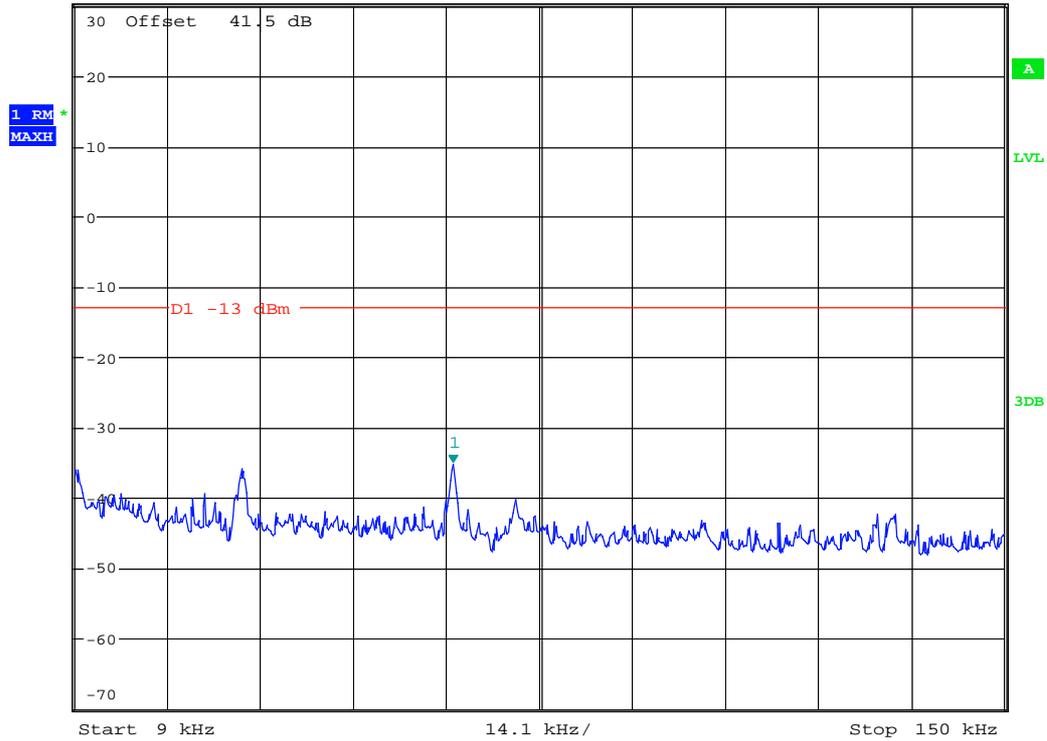
# Channel Number: 2375

## (9k ~ 150k)



\* RBW 1 kHz      Marker 1 [T1 ]  
 VBW 10 kHz      -35.22 dBm  
 SWT 145 ms      66.394230769 kHz

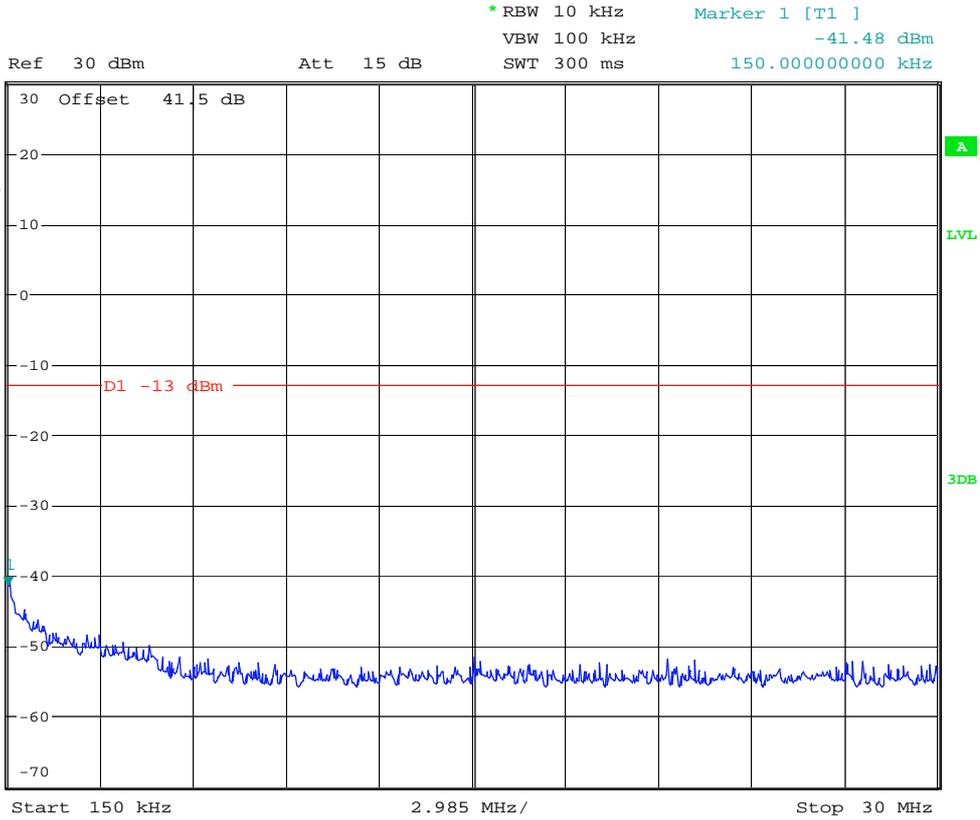
Ref 30 dBm      Att 15 dB



Date: 2.MAY.2010 18:18:44



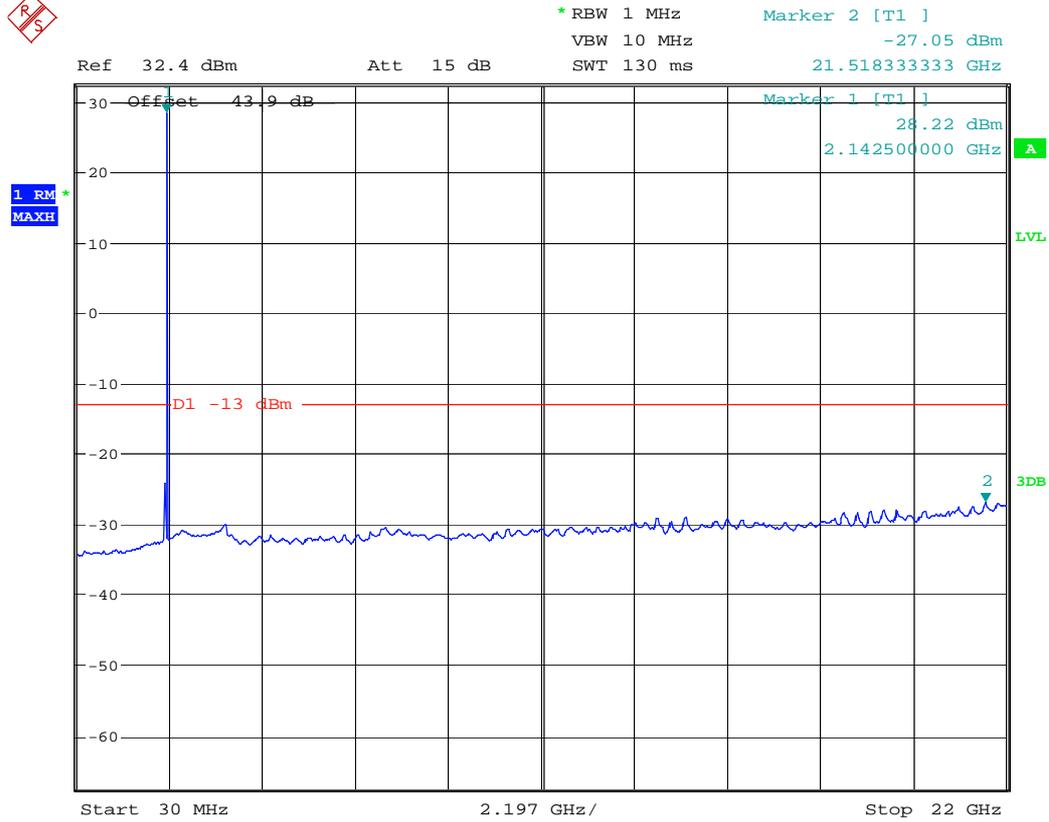
# (150k ~ 30M)



Date: 2.MAY.2010 18:18:11



# (30M~ 22G)



Date: 2.MAY.2010 18:17:11



## Appendix E

# Field Strength of Spurious Radiation

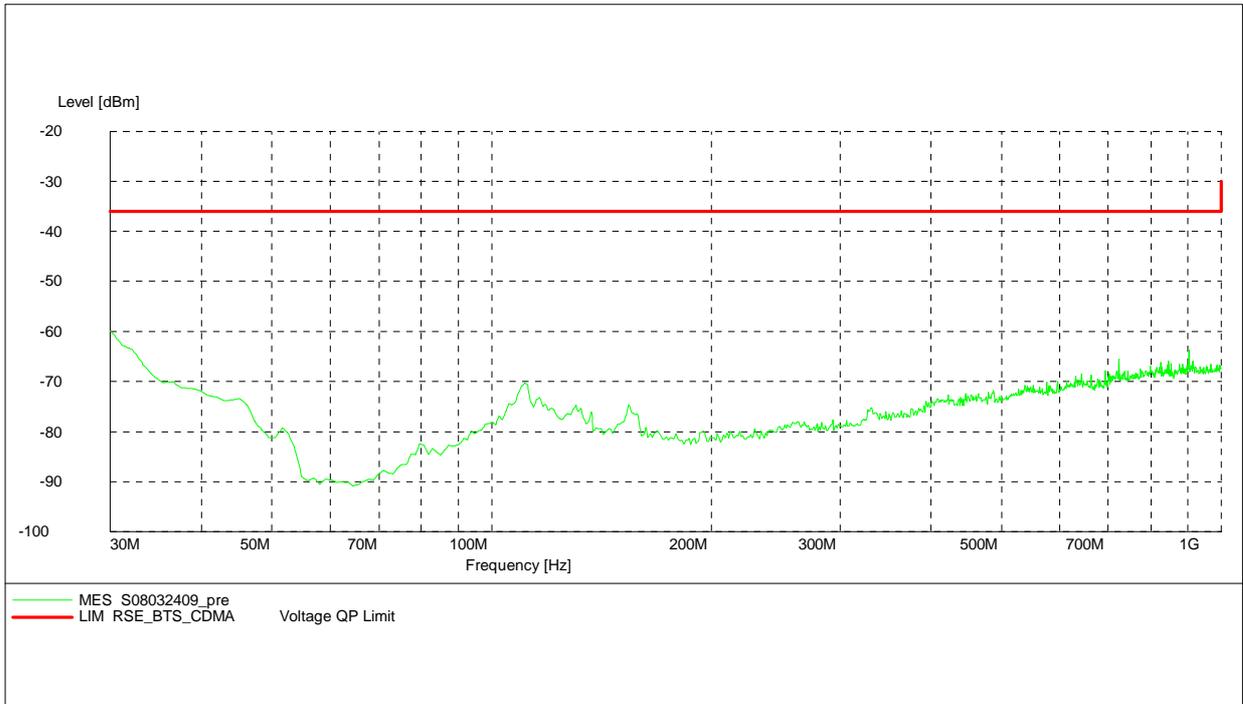
According to FCC Part 2.1053 & 27.53(g)



# CDMA Measurement Result

Note: more strict limit was employed by this test.

## 30MHz-1GHz





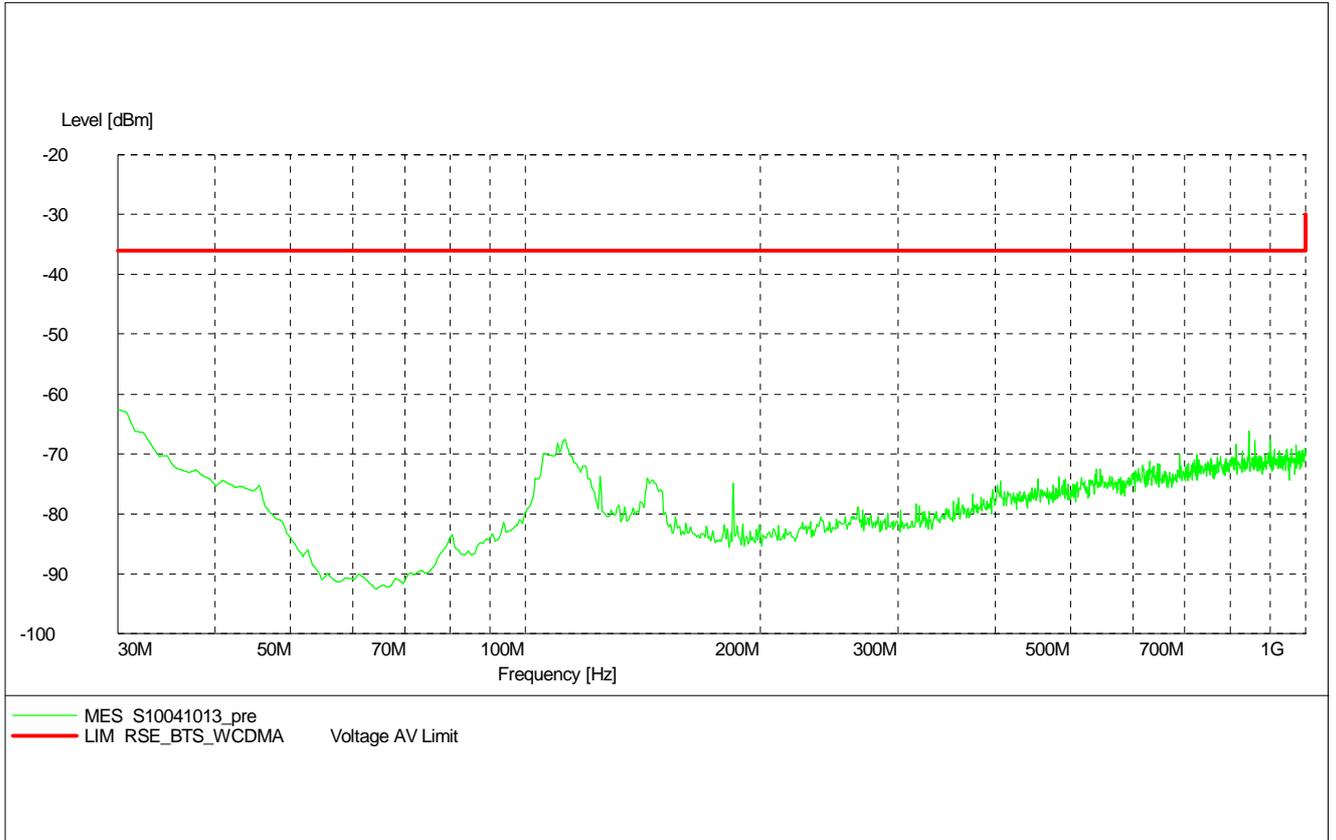
## Above 1GHz





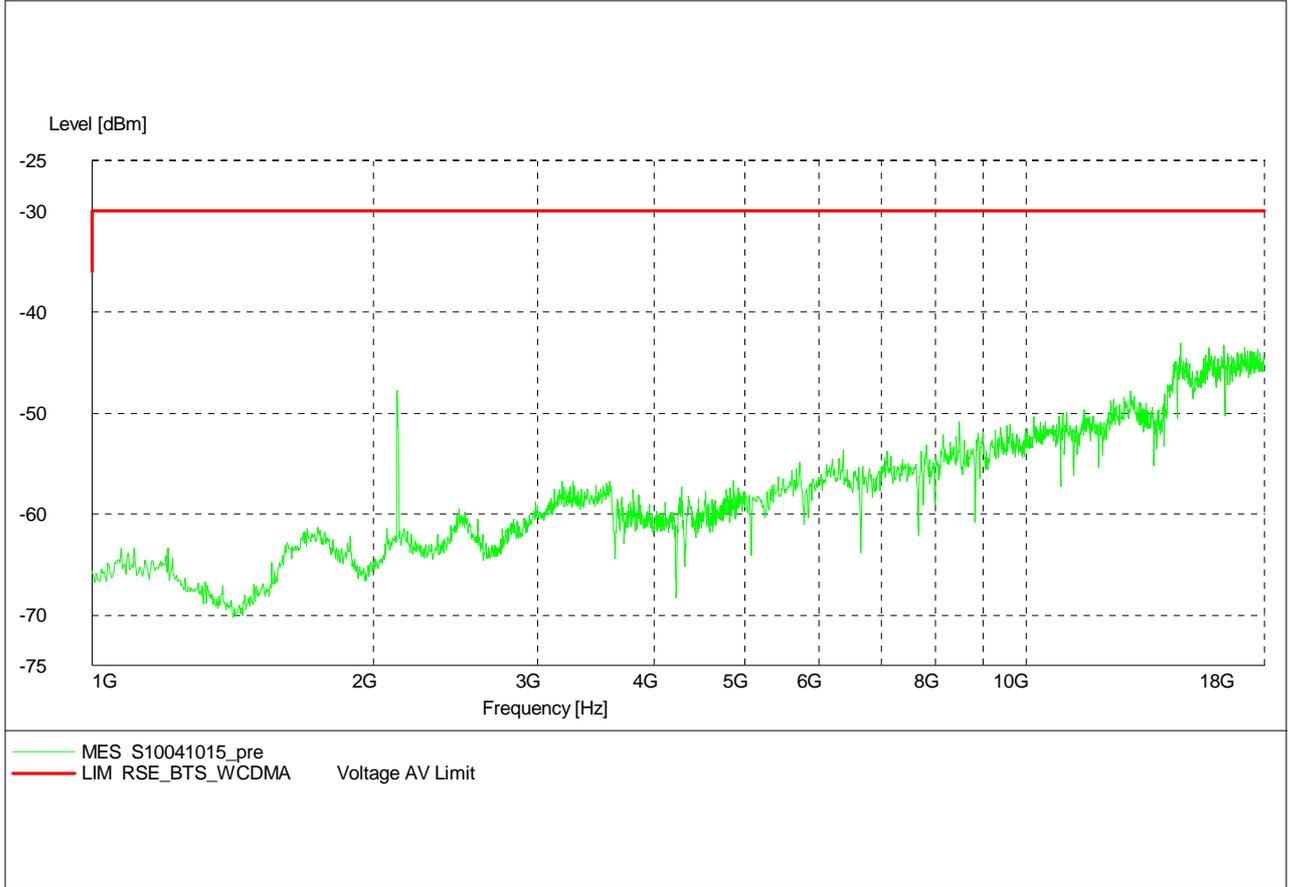
# LTE Measurement Result

## 30MHz-1GHz





## Above 1GHz

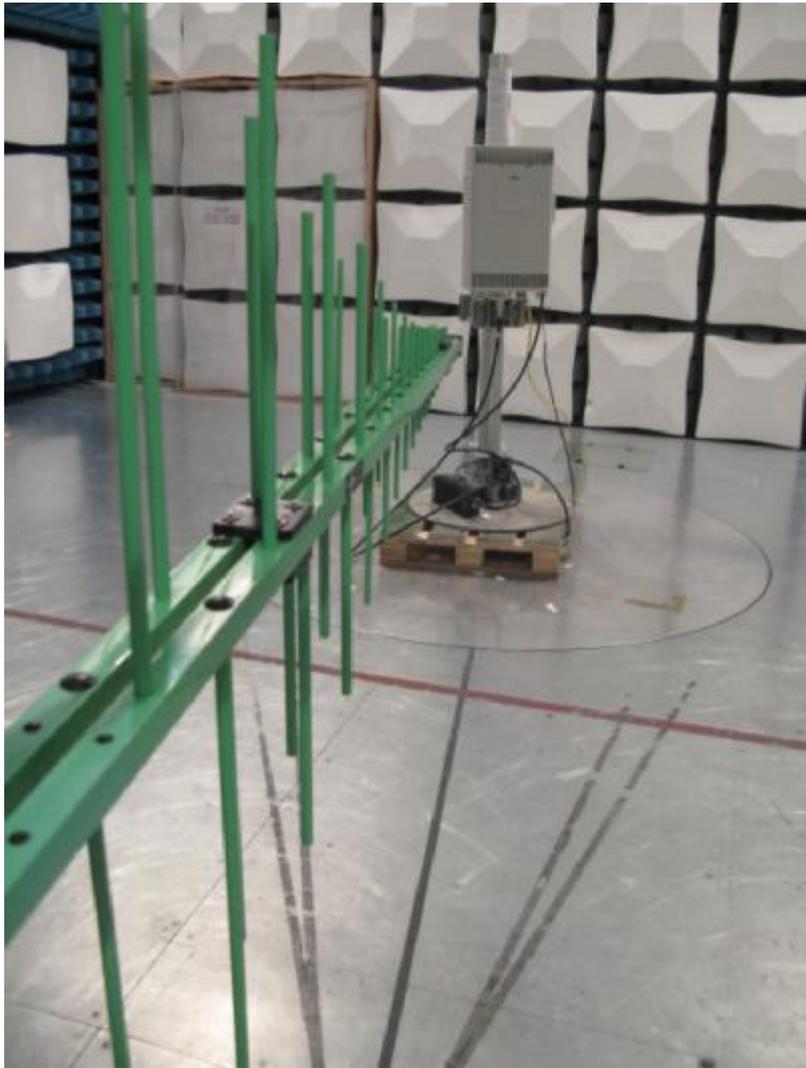




# Appendix F

## Photos of Test Setup

(Below 1GHz)



(Above 1GHz)

