



EXHIBIT 2A

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Applicant: Nortel Networks

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Revision History

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00/0.01	14/04/2004	Draft release of test Report	Tuan Tran
00/0.02	13/05/2004	Update Frequency Errors Data	Tuan Tran
00/0.03	16/06/2004	Correction Fig 9, 30, 32. Table 23. Update Frequency Errors.	Tuan Tran
00/04	15/07/2004	Approval Release of Test Report	Tuan Tran

Change bars will not be used in this document.

Acronyms and Abbreviations

BPF	Bandpass Filter
BTS	Base Station Transceiver Subsystem
BW	Bandwidth
CDMA	Code Division Multiple Access
CEM	Channel Enhancement Module
CM	Control Module
CR	Cost Reduced
DE	Digital Encloser
DPM	Duplexer Preselector Module
FAM	Fan and Alarm Module
GPSTM	Global Position System Timing Module
LO	Local Oscillator
MFRM	Multi-Carrier Flexible Radio Module
MPAM	Multi-Carrier Power Amplifier Module
MTRM	Multi-Carrier Transmitter and Receiver Module
PA	Power Amplifier
RBW	Resolution BandWidth
RM	Radio Module
RMS	Root Mean Square
RF	Radio Frequency
SA	Spectrum Analyzer
TBD	To Be Determined

1 Introduction

This test report supports FCC filing for the MFRM 800 MHz Radio. This test report will be used as a filing for FCC part 22. This filing includes single, two and three carrier modes for the 800MHz cellular band. The following test results include; RF Power Output, Occupied Bandwidth, Spurious Emissions at Antenna Terminals, and Transmitter Test (CDMA Mode Transmitter). Frequency stability over voltage and temperature test results are included. Emissions testing was conducted at -48VDC at room temperature. The IS95 and IS856 modulation schemes will be included in this report.

This test report is submitted in accordance with the FCC Rules and Regulations, Part 2, Subpart J, Sections 2.1046 through 2.1057 for equipment authorization of Nortel Networks' MFRM 800 MHz Radio .

The MFRM 800 MHz Radio is intended for use in the Domestic Public Cellular Radio Telecommunications Service and is designed in accordance with the following standards:

- *CFR 47, Part 22, Subpart H, Cellular Radiotelephone Service [1]*
- *CFR 47, Part 2, Subpart J, Equipment Authorization Procedures - Equipment Authorization[2]*
- *IC RSS-129, Issue 2, 800 MHz Dual-Mode CDMA Cellular Telephones [3]*
- *TIA/EIA-97-D, Recommended Minimum Performance Standards for Base Stations Supporting Dual Mode Spread Spectrum Systems [4]*

1.1 Required Tests

Table 1 summarizes the required tests for the MFRM 800 MHz Radio.

Table 1 : Required Tests

FCC Measurement Specification	FCC Limit Specification	Description	Test to be Performed?
2.1046	22.913	RF Power Output	Yes
2.1049	22.917	Occupied Bandwidth	Yes
2.1051, 2.1057	22.917	Spurious Emissions at Antenna Terminals	Yes
2.1053, 2.1057	22.917	Field Strength of Spurious Emissions	Yes ^a
2.1055	22.355	Frequency Stability	Yes


a. Field strength of spurious emissions testing will be performed by Sanmina-SCI Canada, Calgary.

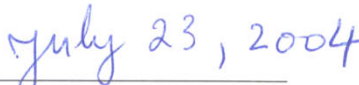
2 Engineering Declaration

The CDMA 800MHz MFRM 800 MHz Radio has been tested in accordance with the requirements contained in the Federal Communications Commission Rules and Regulations Part 2 and 22.

To the best of my knowledge, these tests were performed in accordance with good engineering practices using measurement procedures consistent with industry or commission standards or previous Commission correspondence or guidance and demonstrate that this equipment complies with the appropriate standards. All tests were conducted on a representative sample of the equipment for which equipment authorization is sought.

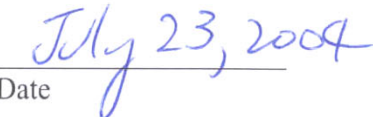
Tested by:
Tuan Tran
Systems Test Prime
Nortel Networks
Calgary Canada


Signature


Date

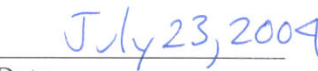
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Signature


Date

Approved by:
Tom Danshin
BTS System Manager
Nortel Networks
Calgary Canada


Signature


Date

3 Equipment Authorization Application Requirements

3.1 Standard Test Conditions and Test Equipment

The MFRM 800 MHz Radio will be tested under the following standard test conditions unless otherwise noted:

- Ambient Temperature: 20 to 35 degrees C
- Ambient Humidity: 20 to 40%
- DC Supply Voltage: -48 Vdc and +24 Vdc (nominal)
- Input modulation IS-95 and IS-856 (16 QAM)

3.2 EUT Identification List

Table 2 shows the identification of the components required for testing.

Table 2 : EUT Identification List

Equipment Description	Model / Part Number	Release Number	Serial Number
MTRM803 +24V	NPGY10DA	P4	NNTM535XDDFF
MPAM +24V	NPGY70AA	R1	NNTM534XMVPX
MTRM803 -48V	NTGY10CA	MP	NNTM538FG3L1
MPAM -48V	NTGY70AB	69	NNTM532RXP84
800 DPM - Diplexer	NTGS89DB	15	ALLG74000C02
800 FAM - Fan	NTGS60AD	01	NNTM5389TVJ2
DC Power Cable	NTGS8082	N/A	N/A
Fiber Cable	NTGY5520	N/A	N/A
DPM Power/Data Cable	NTGS5503	N/A	N/A
DPM to RX0 Cable	NTGS8069	N/A	N/A
DPM to RX1 Cable	NTGS8069	N/A	N/A

3.3 Test Equipment List

Table 3 shows the identification of the test equipment required.

Table 3 : Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal. Due Date
9kHz to 40 GHz Spectrum Analyzer	Rohde&Schwarz	FSEK-30	DE25178	19 MAY 2005
VSA Series Transmitter Tester	Agilent	E4406A	US40061527	12 NOV 2004
RF Power Meter	Agilent	E4419B	US38260822	6 DEC 2005
RF Power Sensor Head	Agilent	E9300A	US39210633	09 DEC 2004
30dB Attenuator (>100W)	Weinschel	40-30-43	KL694	n/a
RF Cable 1 24"	Nortel	A0734233	n/a	n/a
RF Cable 2 8m Heliac	Nortel	A0803065	n/a	n/a

4 Transmitter Tests

4.1 RF Power Output

4.1.1 RF Power Output Requirements

FCC Part 2.1046 Measurements required: RF power output

§(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in §2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

(c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

4.1.2 Test Method

Setup the DE via the BTS controller to enable the MFRM 800 MHz Radio to transmit at the rated power for each of the carrier configurations one, two and three carrier in the Baseband modulation formats IS-95 and IS-856 (16 QAM). Measurements will be made on channels at the bottom and top of the operator bands with the MFRM 800 MHz Radio operating with -48Vdc. The RF output power will be measured using the power meter.

4.1.3 Test Setup

The set-up required for the MFRM 800 MHz Radio RF output power test is illustrated in Figure 1. RF output power measurements will be referenced to the antenna port of the DPM

4.1.4 IS-95

The conducted spurious emissions of the MFRM 800 MHz Radio, with IS-95 waveforms were tested at maximum power. Transmitters operating with IS95 are tested at +47.3 dBm.

4.1.5 DOM

The conducted spurious emissions of the MFRM 800 MHz Radio, with IS-856 (1xEV DO) waveforms were tested at maximum power. Transmitters operating with IS856 are tested at +47.3 dBm.

4.1.6 Noise Floor

Table 4 lists the noise floor of the measurement system with no signal present.

Table 4 : Spectrum Analyzer Noise Floor

Start (MHz)	Stop (MHz)	Peak (dBm)	RBW kHz
0.01	400	-42.19	100
400	1000	-39.73	100
1000	2000	-37.82	100
2000	3000	-37.04	100
3000	4000	-36.06	100
4000	5000	-36.13	100
5000	6000	-33.52	100
6000	7000	-29.81	100
7000	8000	-31.88	100
8000	9000	-32.18	100
9000	10000	-32.77	100

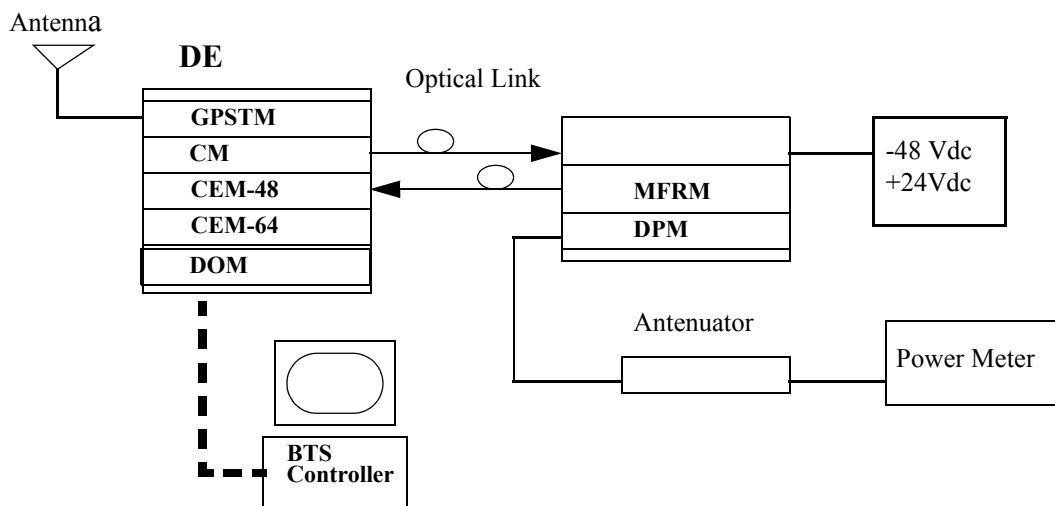


Figure 1 : Test Setup for RF Power Output Measurement

4.1.7 RF Output Power Test Results

Table 5 : RF Output Power MFRM 800 MHz Radio Module 1-Carrier IS95

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)
1015 (A')	869.76	47.41	47.3
308 (A)	879.24	47.31	47.3
358 (B)	880.74	47.32	47.3
642 (B)	889.26	47.4	47.3
692 (A')	890.76	47.36	47.3
742 (B')	892.26	47.4	47.3
775 (B')	893.25	47.4	47.3

Table 6 : RF Output Power MFRM 800 MHz Radio 2-Carriers IS95

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)
358, 399 (B)	880.74, 881.97,	47.35	47.3
601, 642 (B)	886.8, 888.03	47.5	47.3

Table 7 : RF Output Power of MFRM 800 MHz Radio 3-Carriers IS95

Channel Number (Band)	Frequencies (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)
1015, 33, 74 (A''&A)	869.76, 870.99, 872.22	47.38	47.3
226, 267, 308 (A)	876.78, 878.01, 879.24	47.34	47.3
358, 399, 440 (B)	880.74, 881.97, 883.20	47.37	47.3
560, 601, 642 (B)	886.8, 888.03, 889.26	47.35	47.3

Table 8 : RF Output Power MFRM 800 MHz Radio 1-Carrier IS856 16QAM

Channel Number (Band)	Frequencies (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)
358 (B)	880.74	47.4	47.3
642 (B)	889.26	47.29	47.3

Table 9 : RF Output Power of MFRM 800 MHz Radio 3-Carriers IS856 16QAM

Channel Number (Band)	Frequencies (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)
358, 399, 440 (B)	880.74, 881.97, 883.20	47.38	47.3
560, 601, 642 (B)	886.8, 888.03, 889.26	47.36	47.3

Table 10 : RF Output Power of MFRM 800 MHz Radio 3-Carriers 2-IS856 16QAM, 1-IS95

Channel Number (Band)	Frequencies (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)
358, 399, 440 (B)	880.74, 881.97, 883.20	47.32	47.3
560, 601, 642 (B)	886.8, 888.03, 889.26	47.39	47.3

4.2 Occupied Bandwidth

4.2.1 Occupied Bandwidth Requirements

FCC Part 2.1049

The OBW, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

(g) Transmitter in which the modulating baseband comprises not more than three independent channels - when modulated by the full complement of signals for which the transmitter is rated. The level of modulation for each channel should be set to that prescribed in rule parts applicable to the services for which the transmitter is intended. If specific modulation levels are not set forth in the rules, the tests should provide the manufacturer's maximum rated condition.

(h) Transmitters employing digital modulation techniques - when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at discretion of the user.

4.2.2 Test Method

Setup the DE via the BTS controller to enable the MFRM 800 MHz Radio to transmit at maximum rated power for each of the carrier configurations one, two and three carrier in the Baseband modulation formats IS-95 and IS-856. Measurements will be made on channels at the bottom and top of each of the operator bands.

A reference level is established by first using a resolution bandwidth that exceeds the signal bandwidth. RBW is then set to 1% of the estimated emission bandwidth and the video bandwidth is set to 3 times the resolution bandwidth. The markers are now moved to the -20 dB points (from the previously established reference level) on either side of centre frequency.

4.2.3 Test Setup

The set-up required for the MFRM 800 MHz Radio Occupied bandwidth test is illustrated in Figure 2.

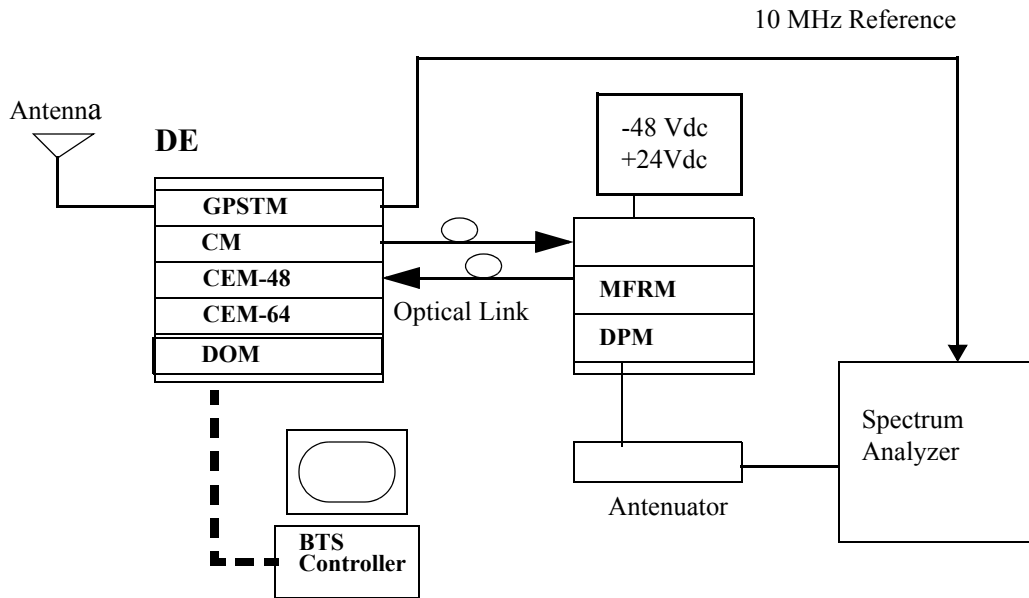


Figure 2 : Test Setup for Occupied Bandwidth Measurement

4.2.4 Test Result

Table 11 : Measured Occupied Bandwidth MFRM 800 MHz Radio 1-Carrier IS95

Channel Number (Band)	Frequency (MHz)	Measured Occupied Bandwidth (MHz) (1-Carrier)
1015 (A'')	869.76	1.259
308 (A)	879.24	1.255
358 (B)	880.74	1.25
642 (B)	889.26	1.259
692 (A')	890.76	1.259
742 (B')	892.26	1.255
775 (B')	893.25	1.255

Table 12 : Measured Occupied Bandwidth MFRM 800 MHz Radio 2-Carrier IS95

Channel Number (Band)	Frequency (MHz)	Measured Occupied Bandwidth (MHz)
358, 399(B)	880.74, 881.97,	2.46
601, 642 (B)	888.03, 889.26	2.45

Table 13 : Measured Occupied Bandwidth of MFRM 800 MHz Radio 3-Carriers IS95

Channel Number (Band)	Frequencies (MHz)	Measured Occupied Bandwidth (MHz)
1015, 33, 74 (A' & A)	869.76, 870.99, 872.22	3.67
226, 267, 308 (A)	876.78, 878.01, 879.24	3.67
358, 399, 440 (B)	880.74, 881.97, 883.20	3.67
560, 601, 642 (B)	886.8, 888.03, 889.26	3.67

**Table 14 : Measured Occupied Bandwidth of MFRM 800 MHz Radio 1-Carrier IS856
 16QAM**

Channel Number (Band)	Frequencies (MHz)	Measured Occupied Bandwidth (MHz)
358 (B)	880.74	1.25
642 (B)	889.26	1.254

**Table 15 : Measured Occupied Bandwidth of MFRM 800 MHz Radio 3-Carriers IS856
16QAM**

Channel Number (Band)	Frequencies (MHz)	Measured Occupied Bandwidth (MHz)
358, 399, 440 (B)	880.74, 881.97, 883.20	3.671
560, 601, 642 (B)	886.8, 888.03, 889.26	3.67

**Table 16 : Measured Occupied Bandwidth of MFRM 800 MHz Radio 3-Carriers 2-IS856
16QAM, 1-IS95**

Channel Number (Band)	Frequencies (MHz)	Measured Occupied Bandwidth (MHz)
358, 399, 440 (B)	880.74, 881.97, 883.20	3.67
560, 601, 642 (B)	886.8, 888.03, 889.26	3.655

4.3 Spurious Emissions at Antenna Terminals

4.3.1 Spurious Emissions Requirements

FCC Part 2.1051

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

FCC Part 2.1057 - Frequency Spectrum to be investigated

The spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency or to the highest frequency practicable in the present state of the art of measuring techniques, whichever is lower. Particular attention should be paid to harmonics and subharmonics of the carrier frequency. Radiation at the frequencies of multiplier stages should be checked. The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

FCC Part 22.917 Limit

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

Alternative out of band emission limit. Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.

Interference caused by out of band emissions. If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section

4.3.2 Test Method

Configure the BTS via the BTS controller to enable the MFRM 800 MHz Radio to transmit at maximum rated power for each of the carrier configurations one, two and three carrier in the Baseband modulation formats IS-95 and IS-856. Measurements will be made on channels at the bottom and top of the operator bands. The following spectrum analyzer settings are to be used for the measurement of the antenna port (DPM) spurious emissions:

4.3.2.1 Adjacent 1MHz to indicated cellular band (Upper and Lower)

Table 17 : Adjacent 1MHz Spectrum Analyze Settings

Setting	1 Carrier	2 Carrier	3 Carrier
Resolution Bandwidth ^a :	12.5 kHz	25 kHz	37.5 kHz
Video Bandwidth (3x RBW) ^b	(3x RBW)	(3x RBW)	(3x RBW)
Video Average	10 Averages	10 Averages	10 Averages
Span	Set accordingly	Set accordingly	Set accordingly
Detector	RMS	RMS	RMS
Attenuation ^c	30 dB	30 dB	30 dB
Ref. Level	35 dBm	35 dBm	35 dBm
Ref. Level Offset	31-34.5 dB	31-34.5 dB	31-34.5 dB

- If the spectrum analyze cannot be set to the specified RBW the next highest RBW should be used and all measurements corrected to the specified RBW
- If the spectrum analyze cannot be set to the specified Video Bandwidth the next highest Video Bandwidth should be used.
- The lowest value of attenuator should be used to improve measurement accuracy, without overdriving the Spectrum Analyzer.

All spectrum analyzer settings were coupled as per the manufacturers recommendations to improve measurement time, without compromising data.

4.3.2.2 All other Spurious Emissions up to 10 GHz

Table 18 : All other Emission Spectrum Analyze Settings

Setting	1 Carrier	2 Carrier	3 Carrier
Resolution Bandwidth	100 kHz	100 kHz	100 kHz
Video Bandwidth (3x RBW)	300 kHz	300 kHz	300 kHz
Video Average	10 Averages	10 Averages	10 Averages
Span	Set accordingly	Set accordingly	Set accordingly
Detector	RMS	RMS	RMS
Attenuation ^a	30 dB	30 dB	30 dB
Ref. Level	35 dBm	35 dBm	35 dBm
Ref. Level Offset	31-34.5 dB	31-34.5 dB	31-34.5 dB

a. The lowest value of attenuator should be used to improve measurement accuracy, without overdriving the Spectrum Analyzer.

The emissions will be investigated up to 10 GHz (the 10th harmonic of the fundamental emission) for all carrier configurations (1, 2, 3) as per FCC Part 22.

4.3.3 Test Requirements

Table 19 : Spurious Emissions Requirements

Frequency Offset	1 Carrier	2 Carrier	3 Carrier
+/- 740 kHz	< -13 dBm/12.5KHz	< -13 dBm/25 KHz	< -13 dBm/37.5 KHz

4.3.4 Test Setup

The set-up required for the MFRM 800 MHz Radio Antenna Port (DPM) Spurious Emission test is illustrated in Figure 3.

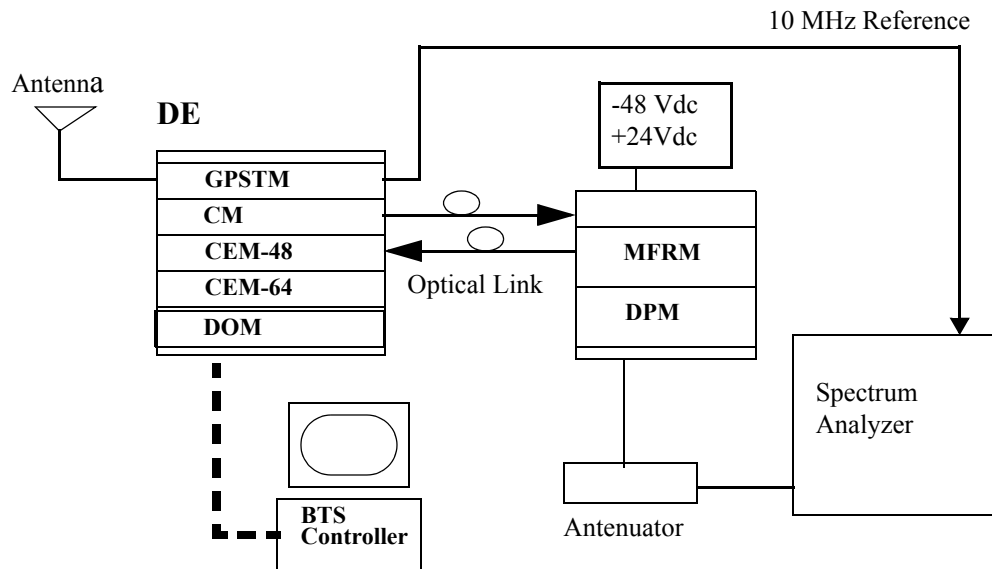


Figure 3 : Test Setup for Spurious Emissions Measurement

4.3.5 Test Results

Table 20 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port one Carrier band A and A'' IS95

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	1Carrier IS-95	1Carrier
869 MHz (Lower edge of band A'') Ch 1015 (RBW=12.5 kHz)	-27.18	14.18
880 MHz (Upper edge of band A) Ch 308 (RBW=12.5 kHz)	-25.28	12.28
0-1000 (RBW=100KHz)	-21.95	8.95
1000-2000 (RBW=100KHz)	-29.32	16.32
2000-3000 (RBW=100KHz)	-37.13	24.13
3000-4000 (RBW=100KHz)	-36.21	23.21
4000-5000 (RBW=100KHz)	-36.38	23.38
5000-6000 (RBW=100KHz)	-33.97	20.97
6000-7000 (RBW=100KHz)	-29.94	16.94
7000-8000 (RBW=100KHz)	-32.35	19.35
8000-9000 (RBW=100KHz)	-32.77	19.77
9000-10000 (RBW=100KHz)	-33	20

a. See Appendix A - Single Carrier IS-95 Spurious Emission

Table 21 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port Three Carrier band A and A'' IS-95 *

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	3Carrier IS-95	3Carrier
869 MHz (Lower edge of band A'') Ch 1015, 33, 74 (RBW=37.5 kHz)	-27.54	14.54
880 MHz (Upper edge of band A) Ch 226, 267, 308 (RBW=37.5 kHz)	-26.34	13.34
0-1000 (RBW=100KHz)	-25.64	12.64
1000-2000 (RBW=100KHz)	-33.23	20.23
2000-3000 (RBW=100KHz)	-38.12	25.12
3000-4000 (RBW=100KHz)	-37.08	24.08
4000-5000 (RBW=100KHz)	-37.34	24.34
5000-6000 (RBW=100KHz)	-34.89	21.89
6000-7000 (RBW=100KHz)	-30.82	17.82
7000-8000 (RBW=100KHz)	-33.07	20.07
8000-9000 (RBW=100KHz)	-33.29	20.29
9000-10000 (RBW=100KHz)	-34.14	21.14

*. See Appendix C - Three Carriers IS-95 Spurious Emission

Table 22 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port One Carrier band B IS-95

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	1Carrier IS-95	1Carrier
880 MHz (Lower edge of band B) Ch 358 (RBW=12.5kHz)	-23.47	10.47
890 MHz (Upper edge of band B) Ch 642 (RBW=12.5kHz)	-22.05	9.05
0-1000 (RBW=100KHz)	-22.28	9.28
1000-2000 (RBW=100KHz)	-30.17	17.17
2000-3000 (RBW=100KHz)	-37.6	24.6
3000-4000 (RBW=100KHz)	-36.43	23.43
4000-5000 (RBW=100KHz)	-36.57	23.57
5000-6000 (RBW=100KHz)	-34.06	21.06
6000-7000 (RBW=100KHz)	-30.17	17.17
7000-8000 (RBW=100KHz)	-32.35	19.35
8000-9000 (RBW=100KHz)	-32.7	19.7
9000-10000 (RBW=100KHz)	-33.39	20.39

**Table 23 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port Two Carriers band
 B IS-95 ***

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	2Carrier IS-95	2Carrier
880 MHz (Lower edge of band B) Ch 358, 399 (RBW=25 kHz)	-22.96	9.96
890 MHz (Upper edge of band B) Ch 601, 642 (RBW=25 kHz)	-22.83	9.83
0-1000 (RBW=100KHz)	-19.89	6.89
1000-2000 (RBW=100KHz)	-32.08	19.08
2000-3000 (RBW=100KHz)	-37.51	24.51
3000-4000 (RBW=100KHz)	-36.59	23.59
4000-5000 (RBW=100KHz)	-36.82	23.82
5000-6000 (RBW=100KHz)	-33.95	20.95
6000-7000 (RBW=100KHz)	-30.25	17.25
7000-8000 (RBW=100KHz)	-32.23	19.23
8000-9000 (RBW=100KHz)	-32.46	19.46
9000-10000 (RBW=100KHz)	-33.2	20.2

*. See Appendix B - Two Carriers IS-95 Spurious Emission

Table 24 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port Three Carriers band B IS-95

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	3Carrier IS-95	3Carrier
880 MHz (Lower edge of band B) Ch 358, 399, 440 (RBW=37.5 kHz)	-26.5	13.51
890 MHz (Upper edge of band B) Ch 560, 601, 642 (RBW=37.5 kHz)	-24.96	11.96
0-1000 (RBW=100KHz)	-24.9	11.9
1000-2000 (RBW=100KHz)	-34.52	21.52
2000-3000 (RBW=100KHz)	-37.86	24.86
3000-4000 (RBW=100KHz)	-37.02	24.02
4000-5000 (RBW=100KHz)	-37.03	24.03
5000-6000 (RBW=100KHz)	-34.57	21.57
6000-7000 (RBW=100KHz)	-30.72	17.72
7000-8000 (RBW=100KHz)	-32.66	19.66
8000-9000 (RBW=100KHz)	-33.12	20.12
9000-10000 (RBW=100KHz)	-33.75	20.75

Table 25 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port One Carrier band A' IS-95

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	1 Carrier IS-95	1 Carrier
890 Mhz (Lower edge of band A') Ch 692(RBW=12.5 kHz)	-25.76	12.76
891.5 MHz (upper edge of band A') Ch 692 (RBW=12.5kHz)	-23.09	10.09
0-1000 (RBW=100KHz)	-21.94	8.94
1000-2000 (RBW=100KHz)	-31.47	18.47
2000-3000 (RBW=100KHz)	-37.16	24.16
3000-4000 (RBW=100KHz)	-36.35	23.35
4000-5000 (RBW=100KHz)	-36.47	23.47
5000-6000 (RBW=100KHz)	-33.79	20.79
6000-7000 (RBW=100KHz)	-29.95	16.95
7000-8000 (RBW=100KHz)	-32.2	19.2
8000-9000 (RBW=100KHz)	-32.5	19.5
9000-10000 (RBW=100KHz)	-32.28	19.28

Table 26 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port One Carrier band B' IS95

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	1 Carrier IS-95	1 Carrier
891.5 MHz (lower edge of band B') Ch 742 (RBW=12.5kHz)	-25.25	12.25
894 MHz (upper edge of band B') Ch 775 (RBW=12.5kHz)	-24.11	11.11
0-1000 (RBW=100KHz)	-20.82	7.82
1000-2000 (RBW=100KHz)	-31.57	18.57
2000-3000 (RBW=100KHz)	-37.47	24.47
3000-4000 (RBW=100KHz)	-36.7	23.7
4000-5000 (RBW=100KHz)	-36.35	23.35
5000-6000 (RBW=100KHz)	-34.07	21.07
6000-7000 (RBW=100KHz)	-29.8	16.8
7000-8000 (RBW=100KHz)	-32.07	19.07
8000-9000 (RBW=100KHz)	-32.45	19.45
9000-10000 (RBW=100KHz)	-33.31	20.31

Table 27 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port One Carrier band B IS-856 16QAM ^a

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	1 Carrier IS-856 16QAM	3Carrier
880 MHz (Lower edge of band B) Ch 358 (RBW=12.5 kHz)	-25.95	12.95
890 MHz (Upper edge of band B) Ch 642 (RBW=12.5 kHz)	-24.87	11.87
0-1000 (RBW=100KHz)	-23.48	10.48
1000-2000 (RBW=100KHz)	-31.43	18.43
2000-3000 (RBW=100KHz)	-37.16	24.16
3000-4000 (RBW=100KHz)	-36.41	23.41
4000-5000 (RBW=100KHz)	-36.32	23.32
5000-6000 (RBW=100KHz)	-33.94	20.94
6000-7000 (RBW=100KHz)	-29.83	16.83
7000-8000 (RBW=100KHz)	-32.24	19.24
8000-9000 (RBW=100KHz)	-32.5	19.5
9000-10000 (RBW=100KHz)	-33.04	20.04

a. See Appendix D - One Carrier IS-856 Spurious Emission

**Table 28 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port Three Carriers
 band B IS-856 16QAM ^a**

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	3Carrier IS-856 16QAM	3Carrier
880 MHz (Lower edge of band B) Ch 358, 399, 440 (RBW=37.5 kHz)	-26.51	13.51
890 MHz (Upper edge of band B) Ch 560, 601, 642 (RBW=37.5 kHz)	-24.96	11.96
0-1000 (RBW=100KHz)	-24.9	11.9
1000-2000 (RBW=100KHz)	-34.52	21.52
2000-3000 (RBW=100KHz)	-37.86	24.86
3000-4000 (RBW=100KHz)	-37.02	24.02
4000-5000 (RBW=100KHz)	-37.03	24.03
5000-6000 (RBW=100KHz)	-34.67	21.67
6000-7000 (RBW=100KHz)	-30.72	17.72
7000-8000 (RBW=100KHz)	-32.66	19.66
8000-9000 (RBW=100KHz)	-33.12	20.12
9000-10000 (RBW=100KHz)	-33.75	20.75

a. See Appendix E - Three Carriers IS-856 Spurious Emission

Table 29 : Spurious Emissions at the MFRM 800 MHz Radio Ant. Port Three Carriers band B Combined IS-856 16QAM (Ch 358, 399) and IS-95 (Ch 440) ^a

Frequency (MHz)	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
	2 Ch IS-856 16QAM 1 Ch IS-95	3 Carriers
880 MHz (Lower edge of band B) Ch 358, 399, 440 (RBW=37.5 kHz)	-24.21	11.21
890 MHz (Upper edge of band B) Ch 560, 601, 642 (RBW=37.5 kHz)	-24.8	11.8
0-1000 (RBW=100KHz)	-22.86	9.86
1000-2000 (RBW=100KHz)	-34.07	21.07
2000-3000 (RBW=100KHz)	-37.85	24.85
3000-4000 (RBW=100KHz)	-37.05	24.05
4000-5000 (RBW=100KHz)	-37.11	24.11
5000-6000 (RBW=100KHz)	-34.48	21.48
6000-7000 (RBW=100KHz)	-30.61	17.61
7000-8000 (RBW=100KHz)	-32.77	19.77
8000-9000 (RBW=100KHz)	-32.98	19.98
9000-10000 (RBW=100KHz)	-33.9	20.9

a. See Appendix F - Combined Three Carriers : 2-IS856 (358,399), 1-IS95 (440) Spurious Emission

4.4 Transmitter Tests (CDMA Mode)

Unwanted Emissions

Unwanted emissions are emissions on a frequency or frequencies outside the necessary bandwidth which result from the modulation process, from spurious emissions and harmonics.

IC RSS-129

(1) Suppression inside cellular band: For all base station transmit frequencies allocated to the same operator system, the total spurious emissions in any 30 kHz band shall be attenuated below the mean output power level in accordance with the following schedule:

(a) for all offset frequencies greater than 750 kHz from the CDMA centre frequency, at least 45 dB. 800 MHz Dual-Mode CDMA Cellular Telephones RSS-129.

(b) for all offset frequencies greater than 1.98 MHz from the CDMA centre frequency, at least 60 dB.

(c) for all offset frequencies not allocated to the same operator system, at least 60 dB or -13 dBm, whichever is less stringent.

(2) In any 30 kHz outside the cellular band, the attenuation shall be at least $43+10 \log_{10}$ (mean output power in watts) or 70, dB, whichever is the less stringent.

4.4.1 Test Method

Configure the BTS via the BTS controller to enable the MFRM 800 MHz Radio to transmit at maximum rated power for each of the carrier configurations one, two and three carrier in the Baseband modulation formats IS-95 and IS-856. Measurements will be made on channels at the bottom and top of the duplexer band. The following spectrum analyzer settings are to be used for the measurement of the antenna port (DPM) spurious emissions:

4.4.1.1 Adjacent 1MHz to indicated cellular band (Upper and Lower)

Table 30 : Adjacent 750 KHz and 1.98 MHz Spectrum Analyze Settings

Setting	1 Carrier	2 Carrier	3 Carrier
Resolution Bandwidth ^a :	30 kHz	30 kHz	30 kHz
Video Bandwidth (3x RBW)	100 kHz	100 kHz	100 kHz
Video Average	10 Averages	10 Averages	10 Averages
Span	Set accordingly	Set accordingly	Set accordingly
Detector	RMS	RMS	RMS
Attenuation	30 dB	30 dB	30 dB
Ref. Level	35 dBm	35 dBm	35 dBm
Ref. Level Offset	31-34.5 dB	31-34.5 dB	31-34.5 dB

- a. If the spectrum analyze can not be set to the specified RBW the next highest RBW should be used and all measurements corrected to the specified RBW

All spectrum analyzer settings were coupled as per the manufacturers recommendations to improve measurement time, without compromising data.

4.4.2 Test Setup

The set-up required for the MFRM 800 MHz Radio Antenna Port (DPM) Spurious Emission test is illustrated in Figure 4.

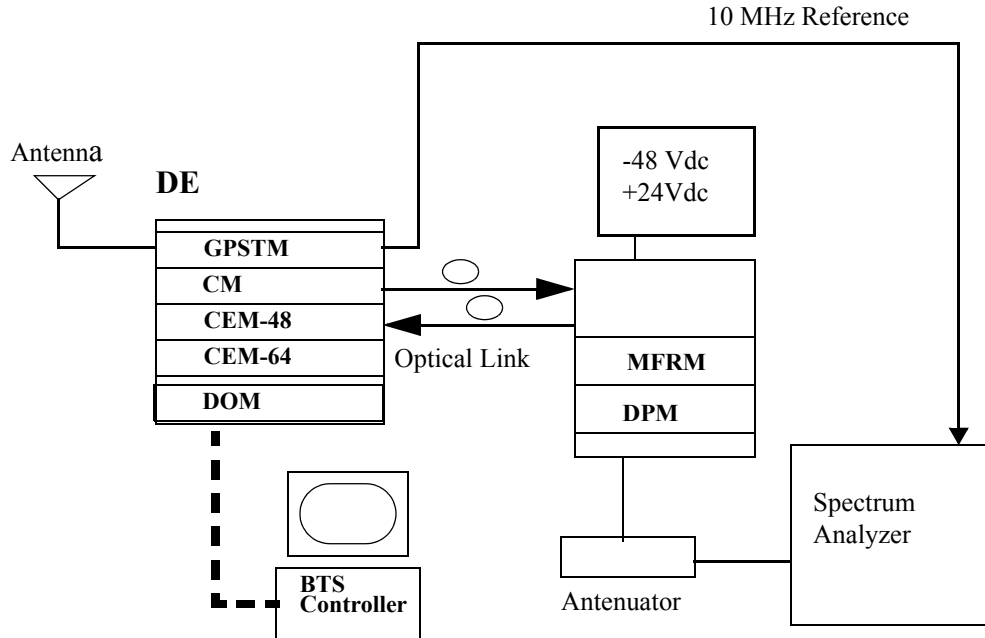


Figure 4 : Test Setup for Spurious Emissions Measurement

4.4.3 Test Results

**Table 31 : Industry Canada Suppression inside cellular band MFRM 800 MHz Radio
Antenna Port IS95, 1 Carrier band A” ***

Frequency (MHz)	Spurious Emissions Level (dBm)	Limit for 45 dBc/ 30KHz (dBm)	Margin to IC Limit of 45 dBc/ 30KHz (dB)
	1Carrier IS-95	1Carrier	1 Carrier
Ch1015 750KHz offset at lower side	-19.64	2.3	21.94
Ch1015 750KHz offset at upper side	-20.38	2.3	22.68
		Limit for 60 dBc/ 30KHz (dBm)	Margin to IC Limit of 60 dBc/ 30KHz (dB)
Ch1015 1.98MHz offset at lower side	-32.66	-12.7	19.96
Ch1015 1.98MHz offset at upper side	-31.21	-12.7	18.51

*. See Appendix A - Single Carrier IS-95 Spurious Emission

**Table 32 : Industry Canada Suppression inside cellular band MFRM 800 MHz Radio
 Antenna Port IS95, 3 Carrier band A'' and A^a**

Frequency (MHz)	Spurious Emissions Level (dBm)	Limit for 45 dBc/ 30KHz (dBm)	Margin to IC Limit of 45 dBc/ 30KHz (dB)
	3 Carriers IS-95	3 Carriers	3 Carriers
Ch1015, 33, 74 750KHz offset at lower side	-25.14	2.3	27.44
Ch1015, 33, 74 750KHz offset at upper side	-24.56	2.3	26.86
		Limit for 60 dBc/ 30KHz (dBm)	Margin to IC Limit of 60 dBc/ 30KHz (dB)
Ch1015, 33, 74 1.98MHz offset at lower side	-36.1	-12.7	23.4
Ch1015, 33, 74 1.98MHz offset at upper side	-34.86	-12.7	22.16

a. See Appendix C - Three Carriers IS-95 Spurious Emission

**Table 33 : Industry Canada Suppression inside cellular band MFRM 800 MHz Radio
Antenna Port IS95, 1 Carrier band B'**

Frequency (MHz)	Spurious Emissions Level (dBm)	Limit for 45 dBc/30KHz (dBm)	Margin to IC Limit of 45 dBc/ 30KHz (dB)
	1 Carrier IS-95	1 Carrier	1 Carrier
Ch 742 750KHz offset at lower side	-18.51	2.3	20.81
Ch 742 750KHz offset at upper side	-19.3	2.3	21.6
		Limit for 60 dBc/30KHz (dBm)	Margin to IC Limit of 60 dBc/ 30KHz (dB)
Ch 742 1.98MHz offset at lower side	-30.85	-12.7	18.15
Ch 742 1.98MHz offset at upper side	-30.12	-12.7	17.42

**Table 34 : Industry Canada Suppression inside cellular band MFRM 800 MHz Radio
 Antenna Port IS856 16QAM, 1Carriers band B ^a**

Frequency (MHz)	Spurious Emissions Level (dBm)	Limit for 45 dBc/30KHz (dBm)	Margin to IC Limit of 45 dBc/30KHz (dB)
	1 Carrier IS-856 16QAM	1 Carrier	1 Carrier
Ch. 358 750KHz offset at lower side	-20	2.3	22.3
Ch. 358 750KHz offset at upper side	-19.92	2.3	22.22
		Limit for 60 dBc/30KHz (dBm)	Margin to IC Limit of 60 dBc/30KHz (dB)
Ch. 358 1.98MHz offset at lower side	-32.68	-12.7	19.98
Ch. 358 1.98MHz offset at upper side	-32.16	-12.7	19.46

a. See Appendix D - One Carrier IS856 16QAM

**Table 35 : Industry Canada Suppression inside cellular band MFRM 800 MHz Radio
 Antenna Port IS856 16QAM, 3 Carriers band B ^a**

Frequency (MHz)	Spurious Emissions Level (dBm)	Limit for 45 dBc/30KHz (dBm)	Margin to IC Limit of 45 dBc/ 30KHz (dB)
	3 Carriers IS-856 16QAM	3 Carriers	3 Carriers
Ch 358, 399, 440 750KHz offset at lower side	-24.37	2.3	26.67
Ch 358, 399, 440 750KHz offset at upper side	-24.79	2.3	27.09
		Limit for 60 dBc/30KHz (dBm)	Margin to IC Limit of 60 dBc/ 30KHz (dB)
Ch 358, 399, 440 1.98MHz offset at lower side	-34.71	-12.7	22.01
Ch 358, 399, 440 1.98MHz offset at upper side	-34.25	-12.7	21.55

a. See Appendix D - Three Carriers IS856 16QAM

4.5 Frequency Stability

4.5.1 Frequency Stability Requirements

FCC Part 2.1055

(a) The frequency stability shall be measured with variation of ambient temperature as follows:

(1) From -30 to +50 centigrade for all equipment except that specified in subparagraphs (2) and (3) of this paragraph.

(b) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10 centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.

(d) The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

(e) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c) and (d) of this section. (For example, measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equipment.)

FCC Part 22.355 Frequency Tolerance

The carrier frequency of each transmitter in the 821-896 MHz Frequency range, must be maintained within 1.5ppm tolerance, according to table C-1 of this section (22.355)

4.5.2 Test Procedure

The test equipment was configured as shown in figure 5.

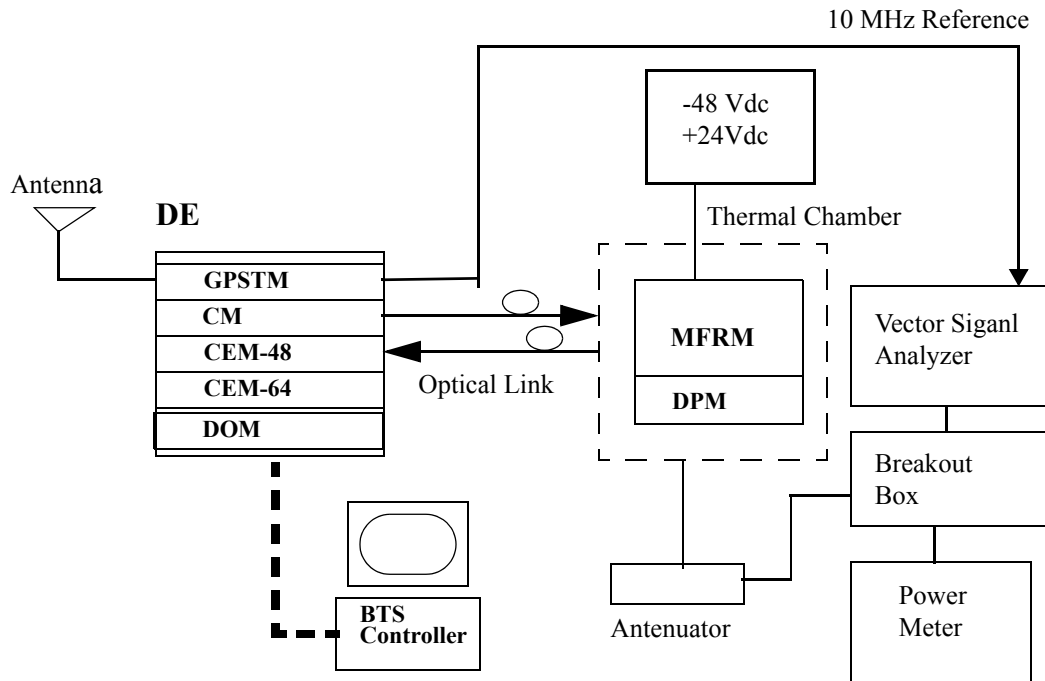


Figure 5 : Test configuration for Frequency Stability

4.5.3 Frequency Results

The frequency measured 881.97 MHz. Operating temperature for the MFRM 800 MHz Radio is from -30°C to +50°C. The VSA set at 10 average, at each temperature 30 samples were collected.

Table 36 : Test results for Frequency Stability versus Power supply Voltage at 25C

Voltage (Vdc)	Maximum Carrier Frequency Deviation (PPM)	Maximum Carrier Frequency Deviation (Hz)
40	0.00379	3.35
48 nominal	0.00317	2.8
56	0.00654	5.77

Table 36 : Test results for Frequency Stability versus Power supply Voltage at 25C

Voltage (Vdc)	Maximum Carrier Frequency Deviation (PPM)	Maximum Carrier Frequency Deviation (Hz)
24 (nominal)	0.00367	3.24
20	0.00398	3.51
28	0.00447	3.95

Table 37 : Test results for Frequency Stability versus Temperature at -48V operation

Temperature (°C)	Maximum Carrier Frequency Deviation (PPM)	Maximum Carrier Frequency Deviation (Hz)
-30	0.00360	3.17
-20	0.00354	3.12
-10	0.00345	3.05
0	0.00305	2.69
10	0.00306	2.70
20	0.00399	3.52
30	0.00342	3.01
40	0.00390	3.44
50	0.00641	5.65

Table 38 : Test results for Frequency Stability versus Temperature at 24V operation

Temperature (°C)	Maximum Carrier Frequency Deviation (PPM)	Maximum Carrier Frequency Deviation (Hz)
-30	0.00454	4.01
-20	0.00310	2.73
-10	0.00578	8.43
0	0.00578	8.43
10	0.00324	2.86
20	0.00389	3.44
30	0.00277	2.45
40	0.00477	4.2
50	0.00341	3.01

5 Appendix A - Single Carrier IS-95 Spurious Emission

Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port one Carrier Band A and A" IS95

Occupied Bandwidth Ch 1015 A''

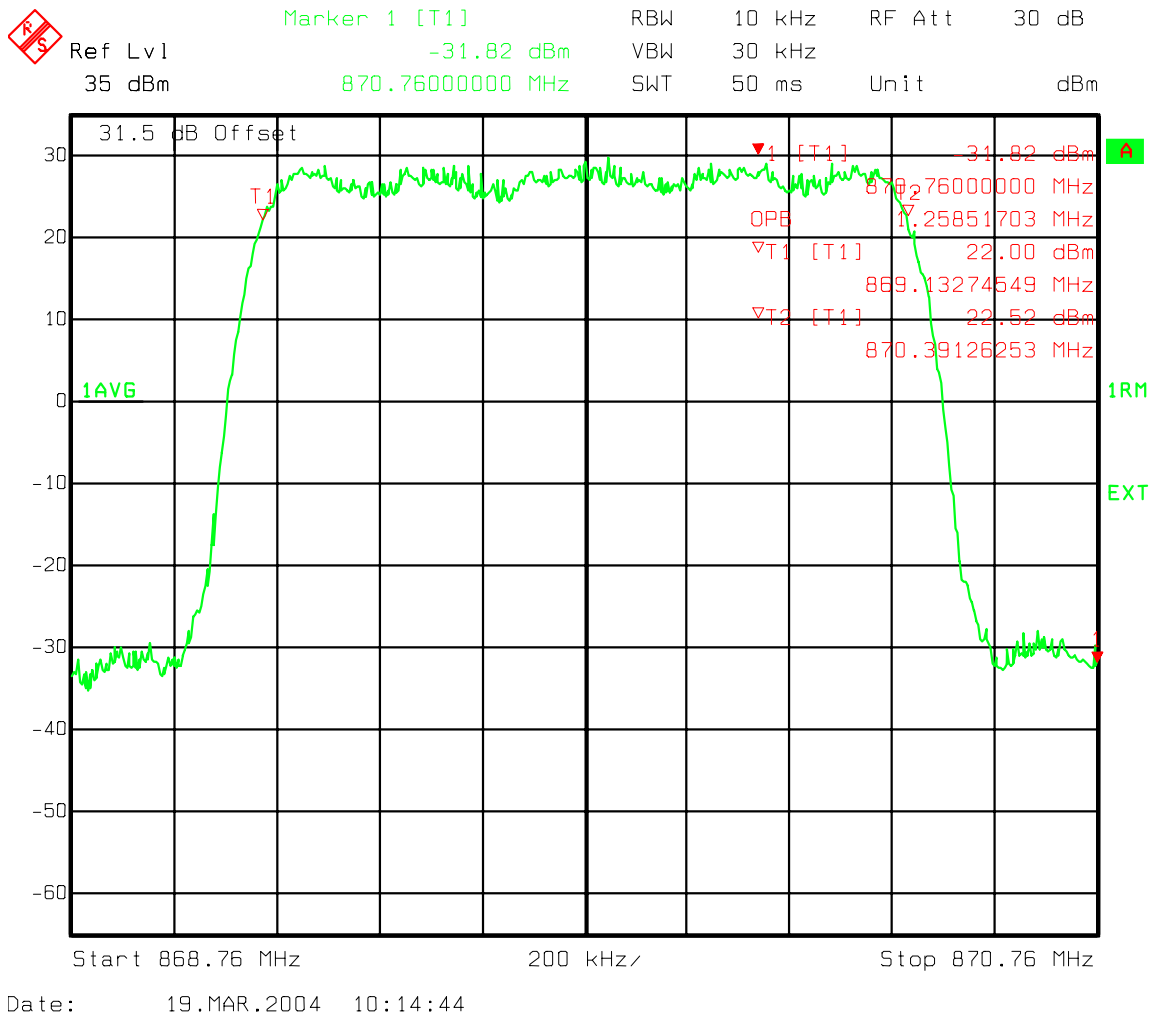


Figure 6 : 1 Carrier - Occupied Bandwidth Channel 1015

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
Port one Carrier band A and A'' IS95**

A'' Band Ch 1015 IS95 Adjacent 1 MHz Lower emissions 868-869 MHz

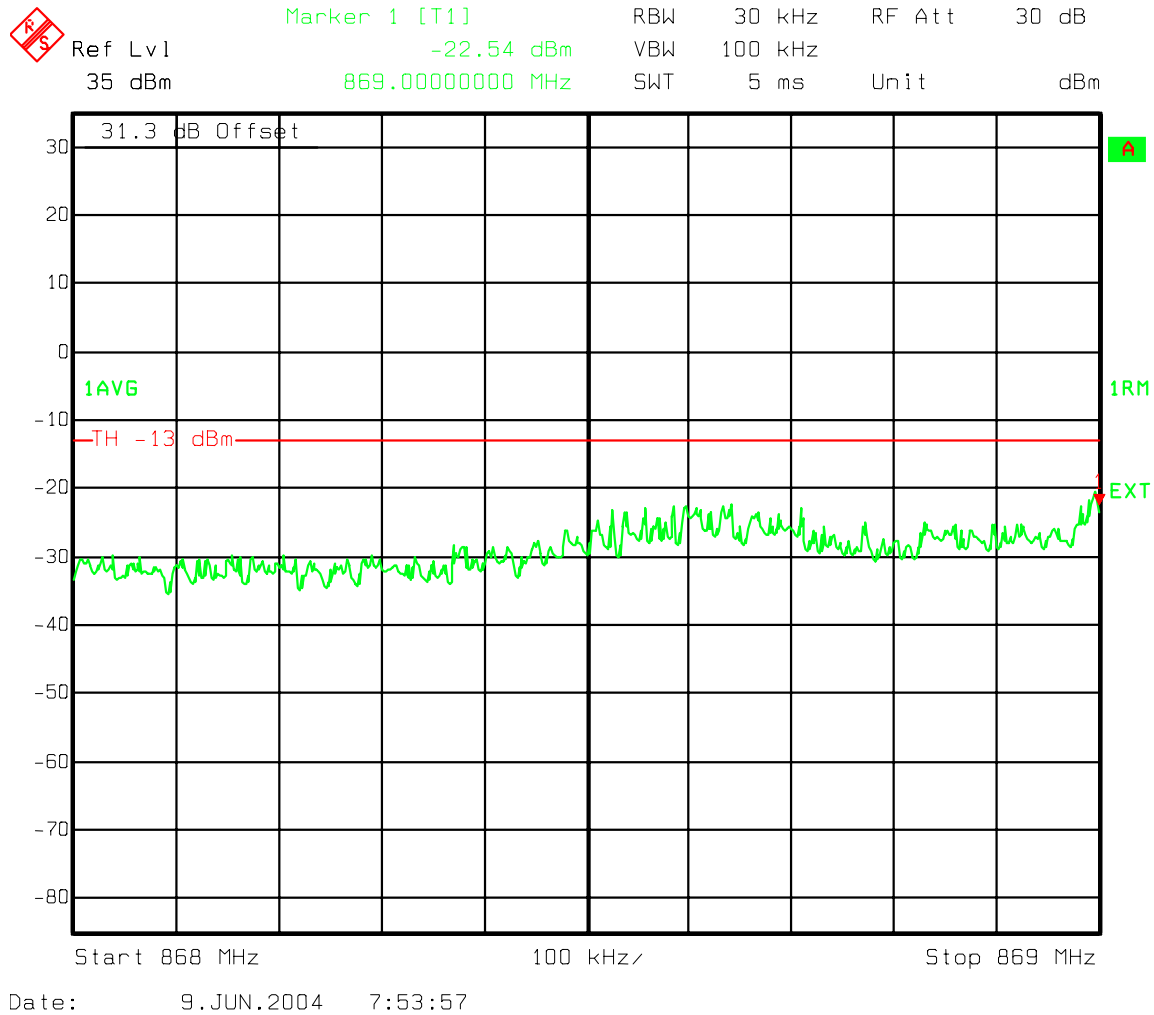
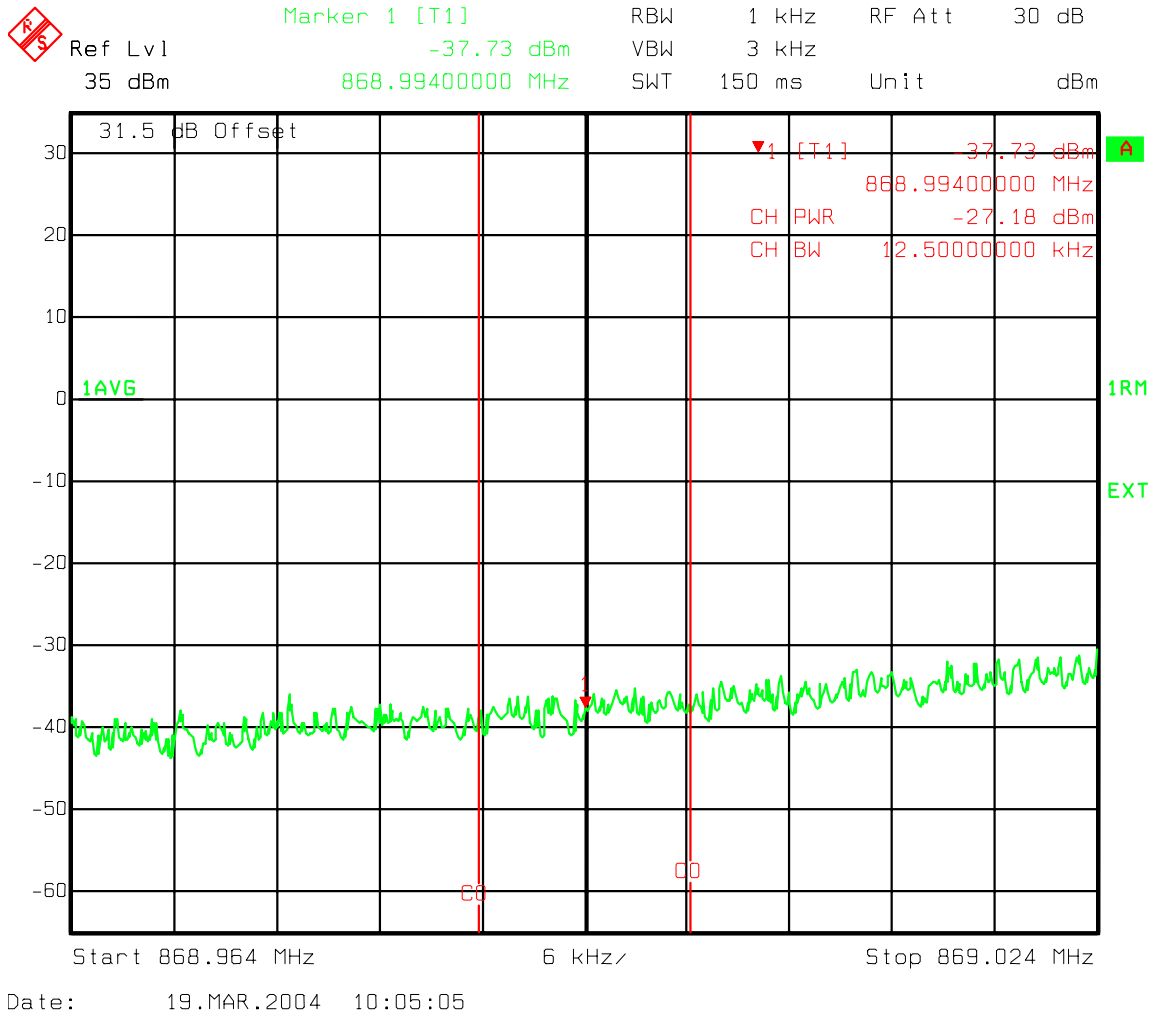


Figure 7 : One Carrier - A'' Band Ch 1015 IS95 Adjacent 1 MHz Lower emissions 868-869 MHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

**Ch1015 IS95 Lower A'' Band Adjacent to outside edge 12.5kHz Band Channel
 Power**



**Figure 8 : One Carrier - Ch1015 IS95 Lower A'' Band Adjacent to outside edge 12.5kHz
 band Channel Power**

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
Port one Carrier band A and A'' IS95**

Ch 308 Upper A Band adjacent 1MHz band emissions

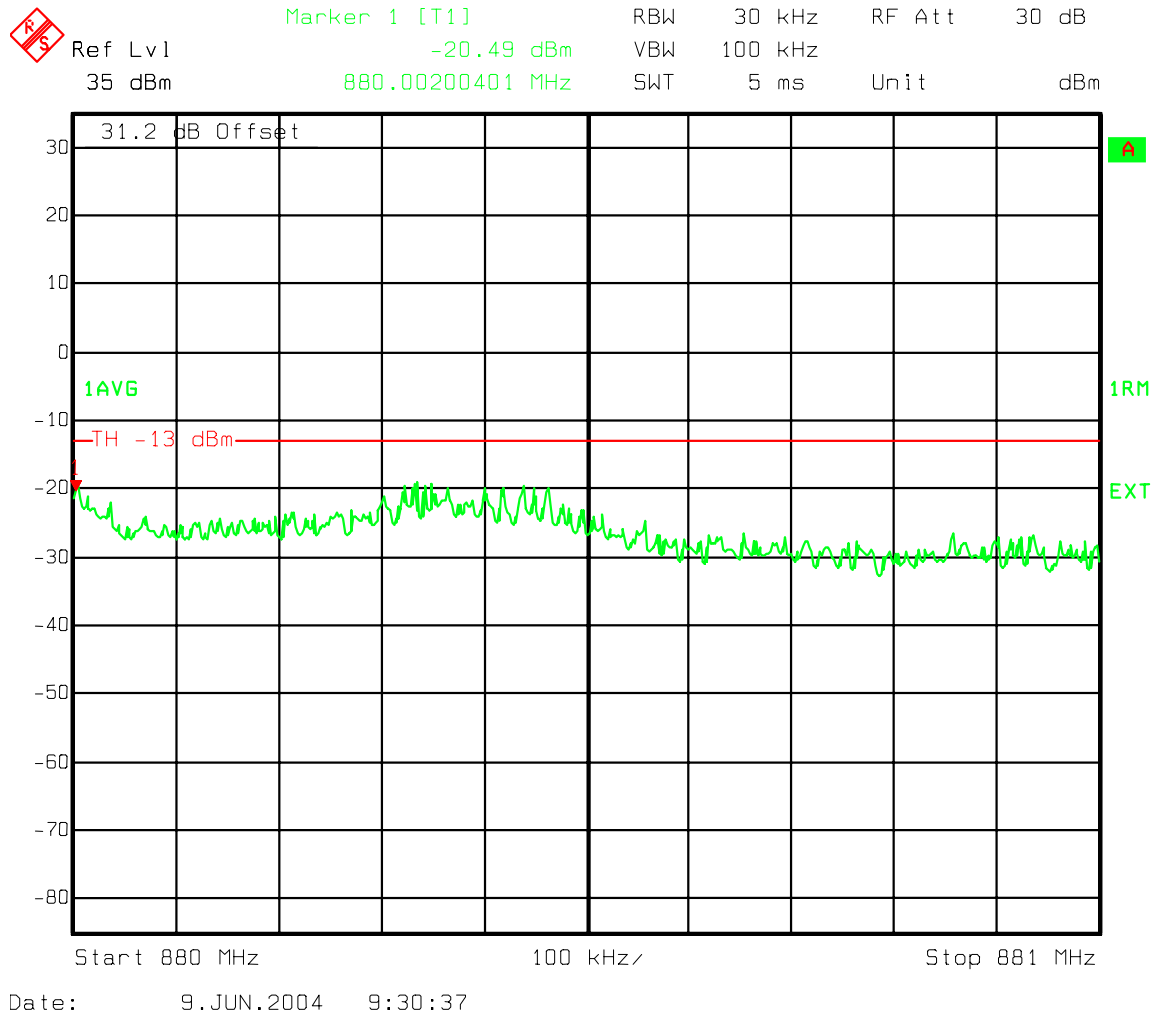


Figure 9 : One Carrier - Ch 308 Upper A Band adjacent 1MHz band emissions

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

Ch 308 Upper A Band adjacent to outside edge 12.5 kHz band Channel power

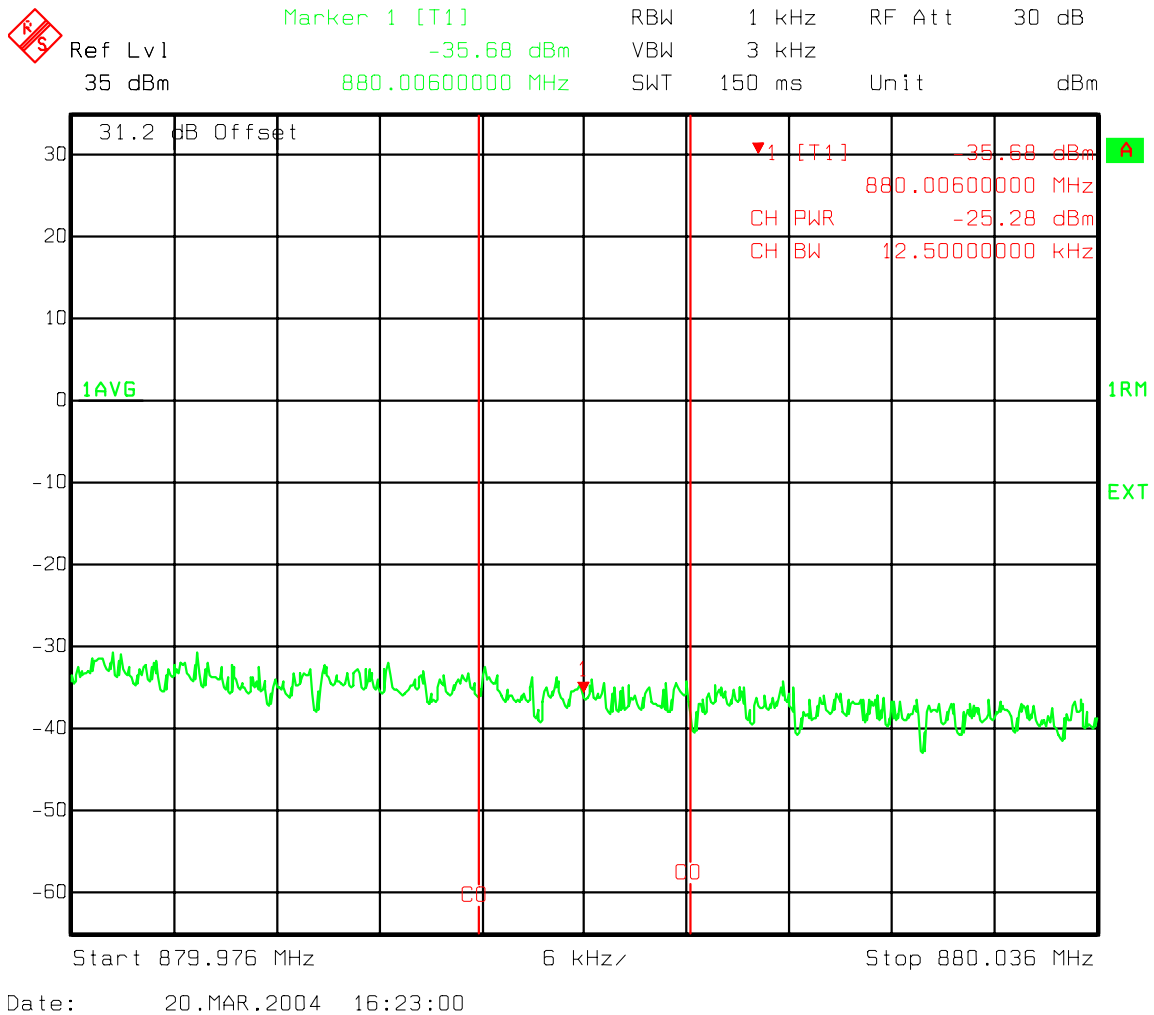


Figure 10 : One Carrier - Ch 308 Upper A Band adjacent to outside edge 12.5 kHz band Channel power

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

Industry Canada Lower 750 kHz offset 30 kHz Chan Power Ch 1015

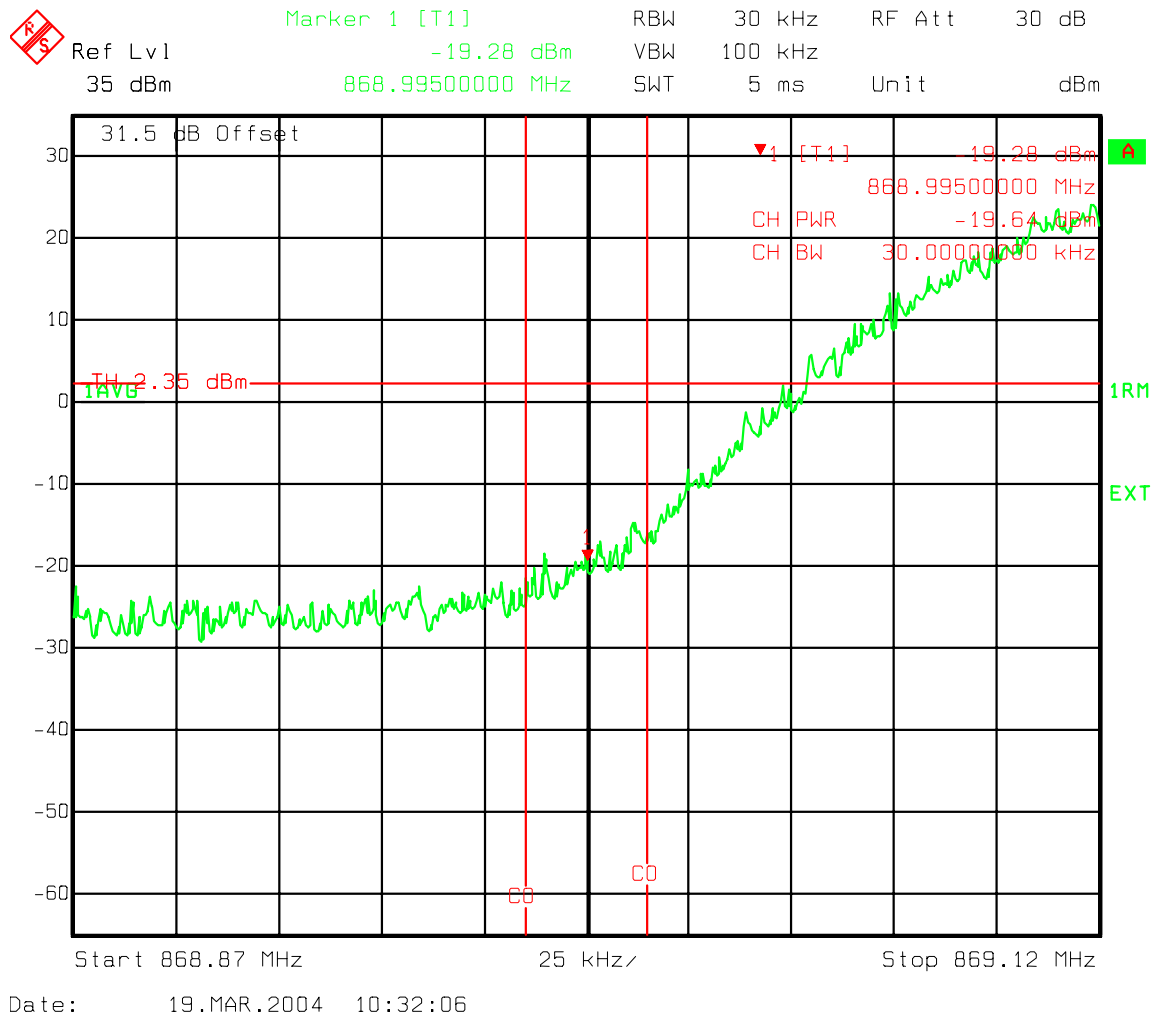


Figure 11 : One Carrier - Industry Canada Lower 750 kHz offset 30 kHz Chan Power Ch 1015

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

Industry Canada Upper 750 kHz offset 30 kHz Chan Power Ch 1015

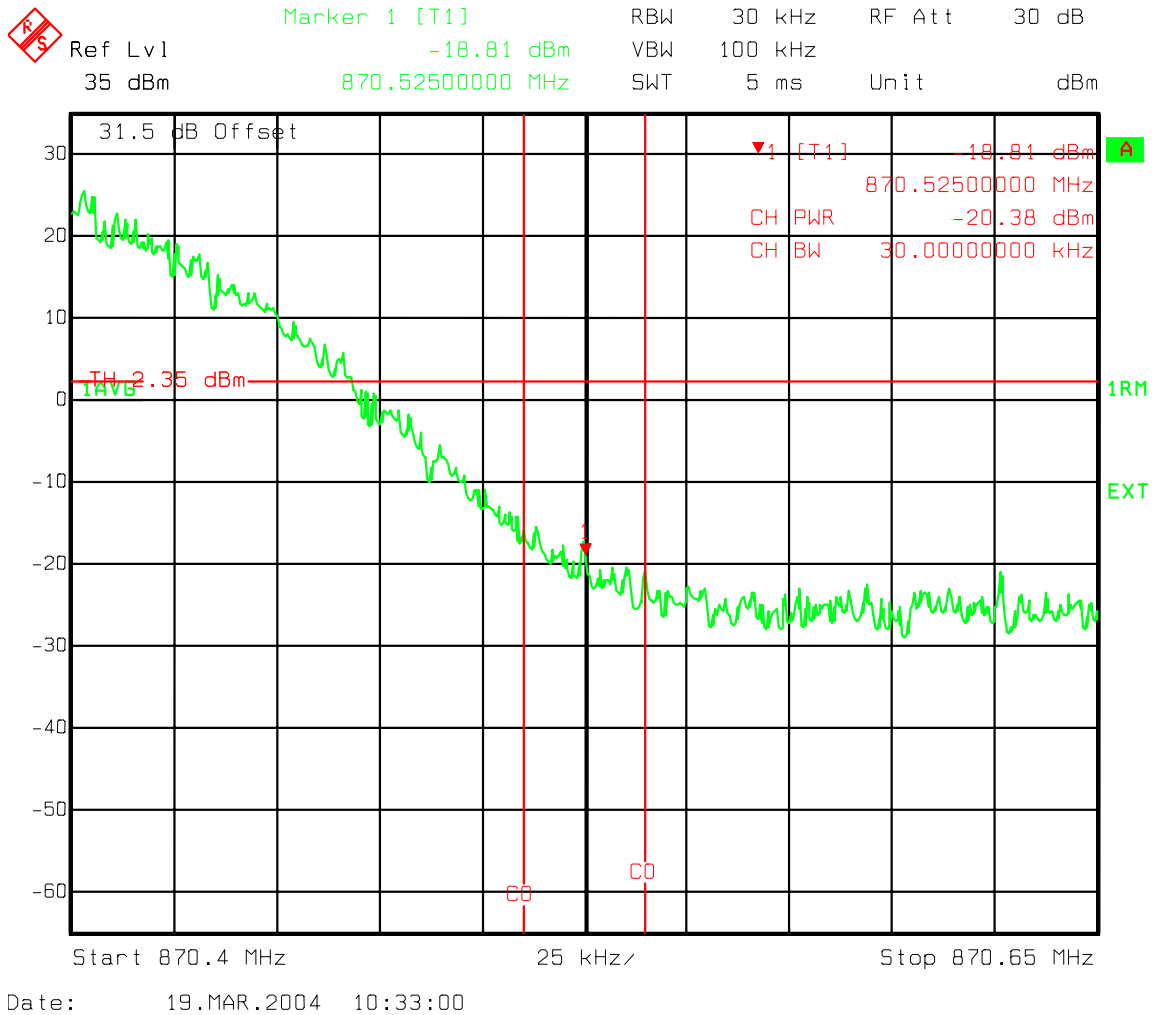


Figure 12 : One Carrier - Industry Canada Upper 750 kHz offset 30 kHz Chan Power Ch 1015

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

Industry Canada 1.98 MHz offset Lower 30 kHz Chan Power Ch 1015

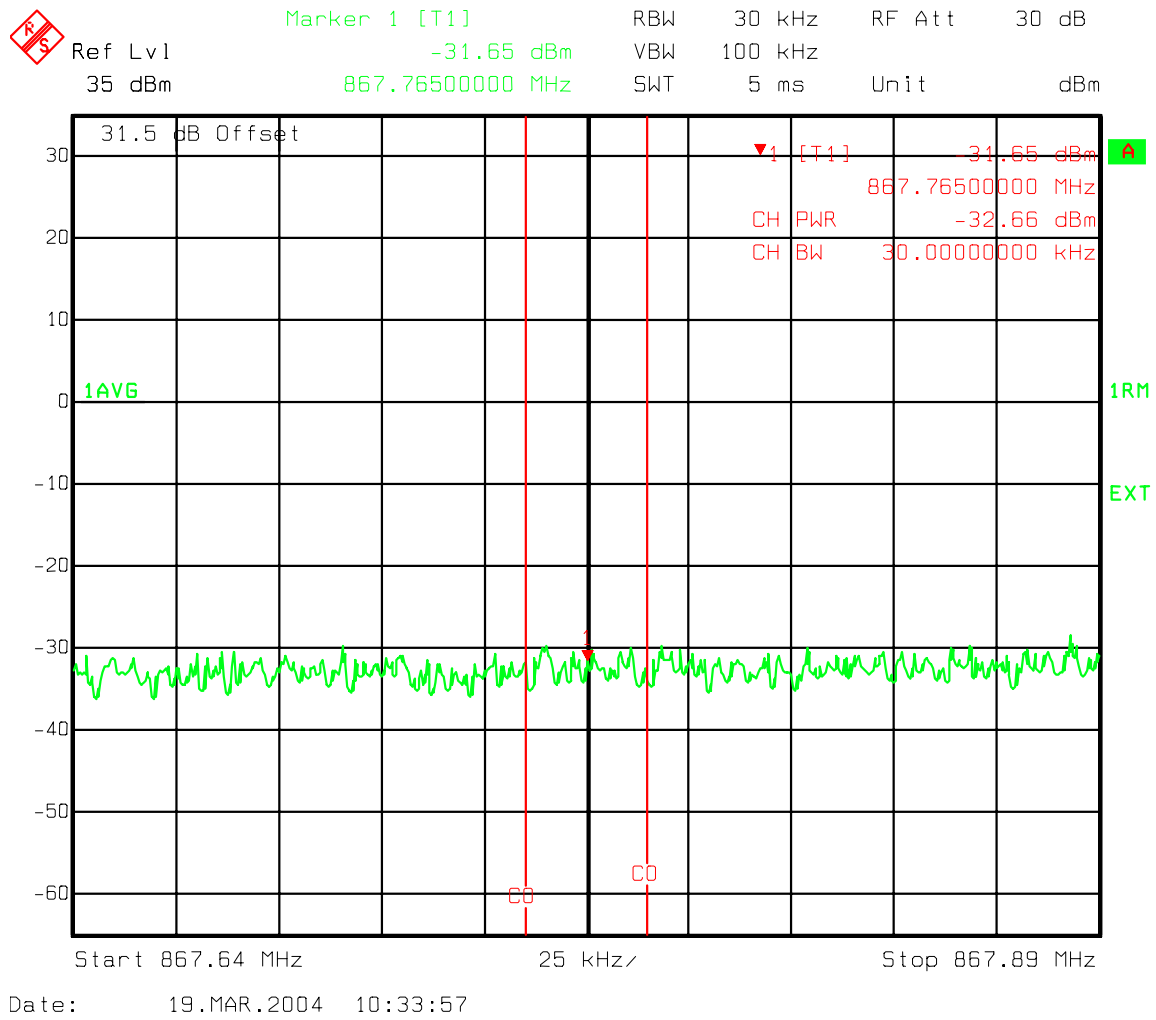


Figure 13 : One Carrier - Industry Canada 1.98 MHz offset Lower 30 kHz Chan Power Ch 1015

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

Industry Canada 1.98 MHz offset Upper 30 kHz Chan Power Ch 1015

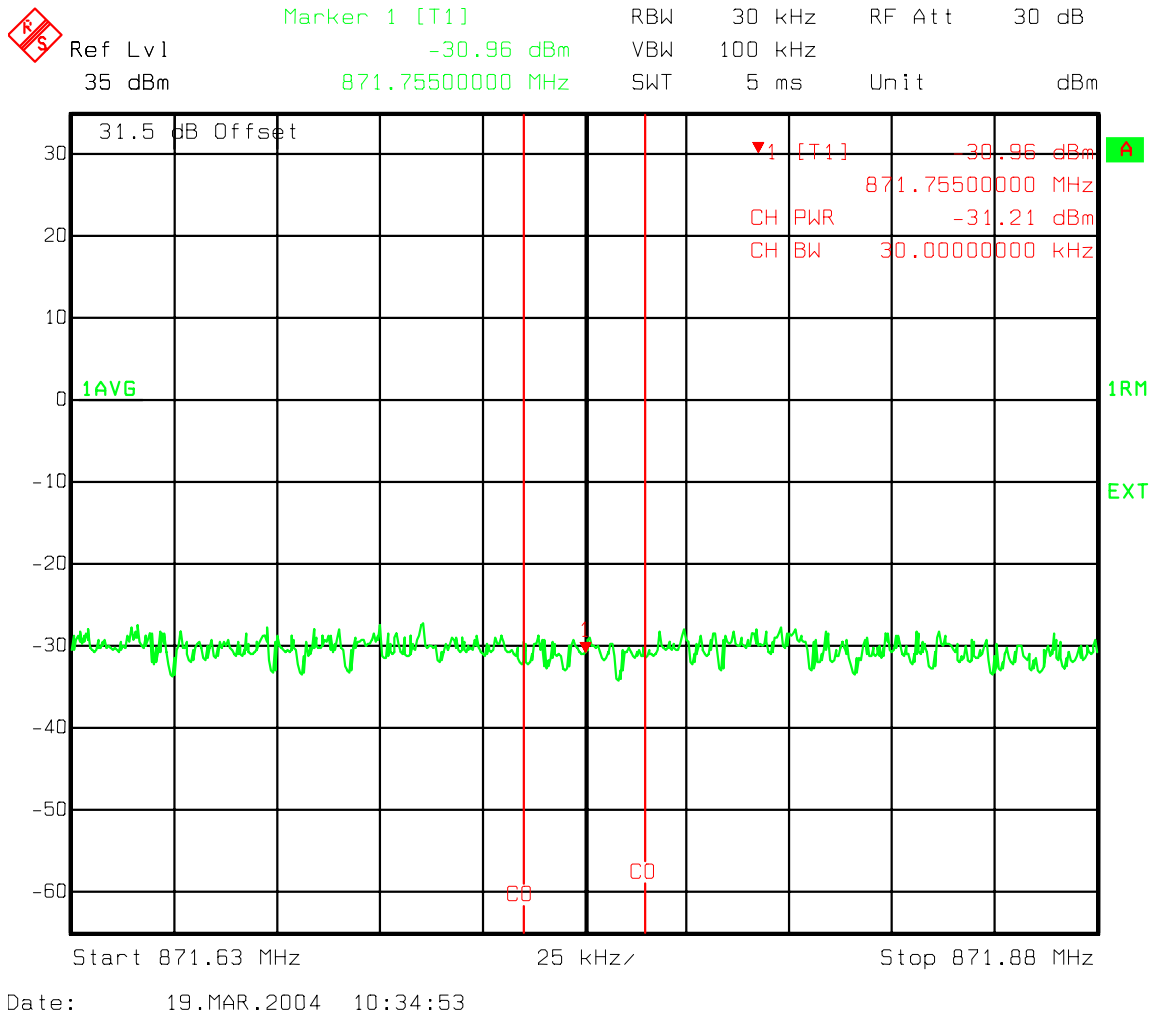


Figure 14 : One Carrier - Industry Canada 1.98 MHz offset Upper 30 kHz Chan Power Ch 1015

Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port one Carrier band A and A'' IS95

A'' and A Band IS95 Spurious emissions 10kHz-400 MHz

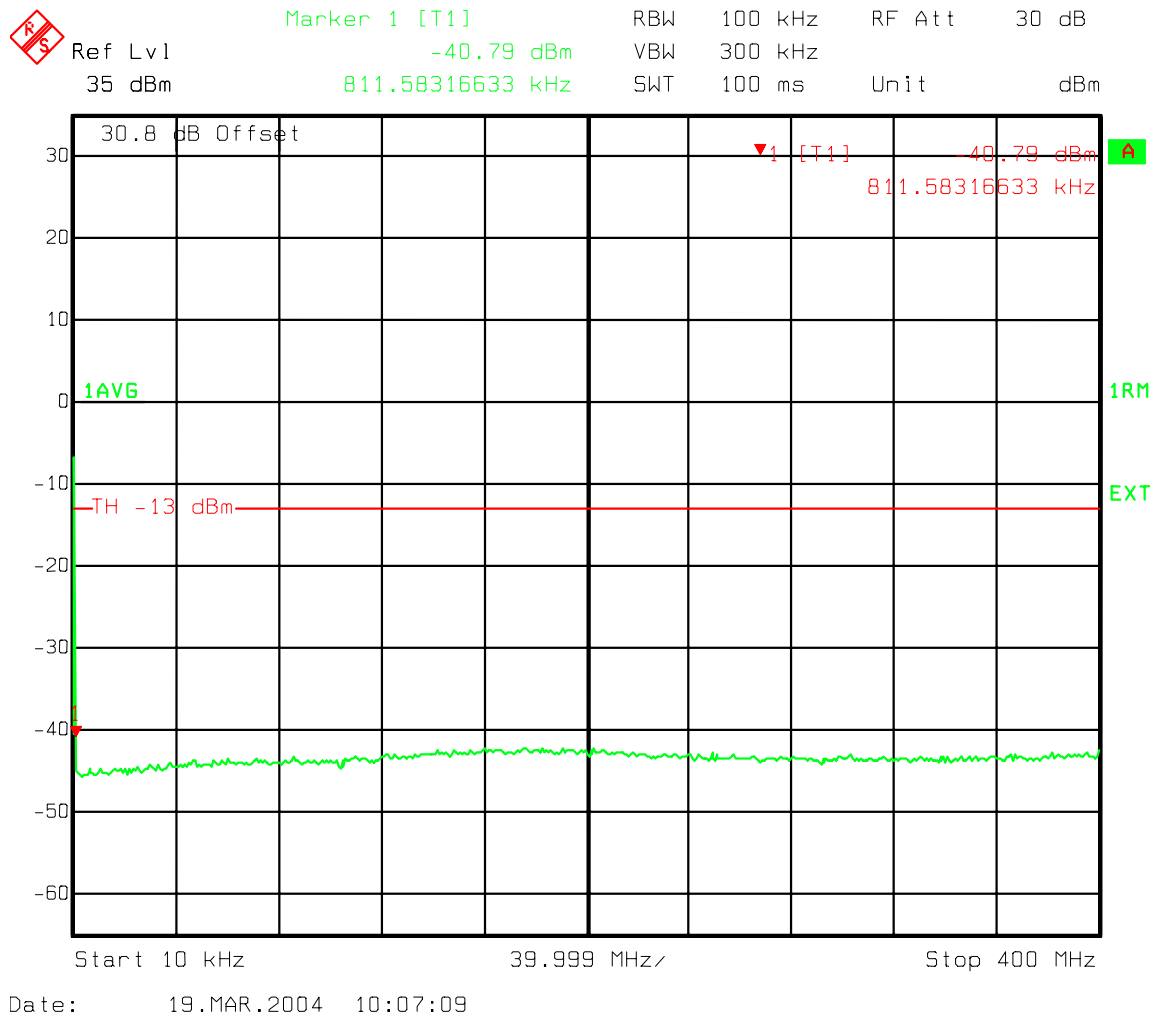


Figure 15 : One Carrier - A'' and A Band IS95 Spurious emissions 10kHz-400 MHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

A'' and a Band IS95 Spurious emissions 400 MHz to Lower 1 MHz Band Edge

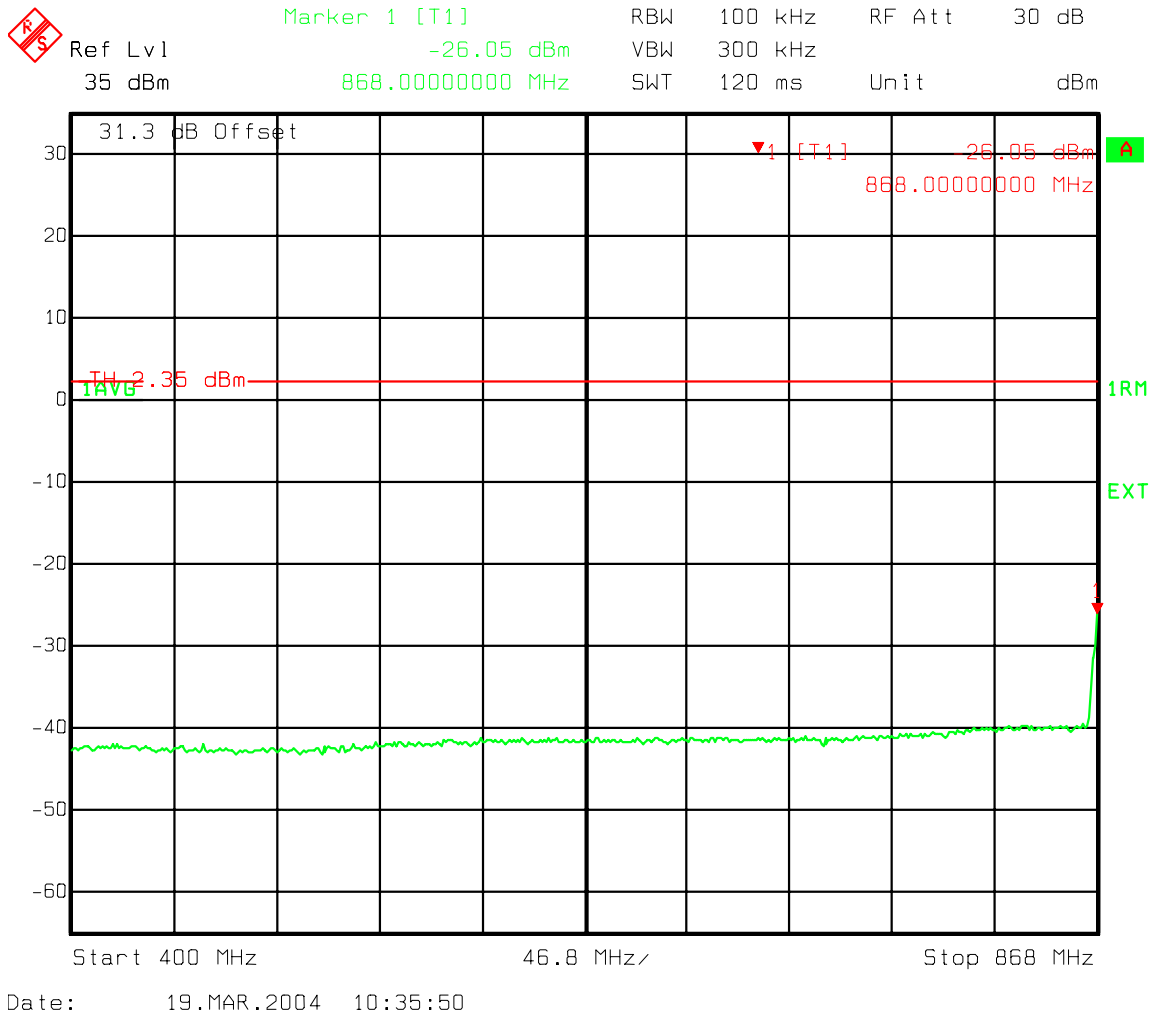


Figure 16 : One Carrier - A'' and a Band IS95 Spurious emissions 400 MHz to Lower 1 MHz Band Edge

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

A '' and a Band IS95 Spurious emissions Upper 1 MHz Band Edge to 1 GHz

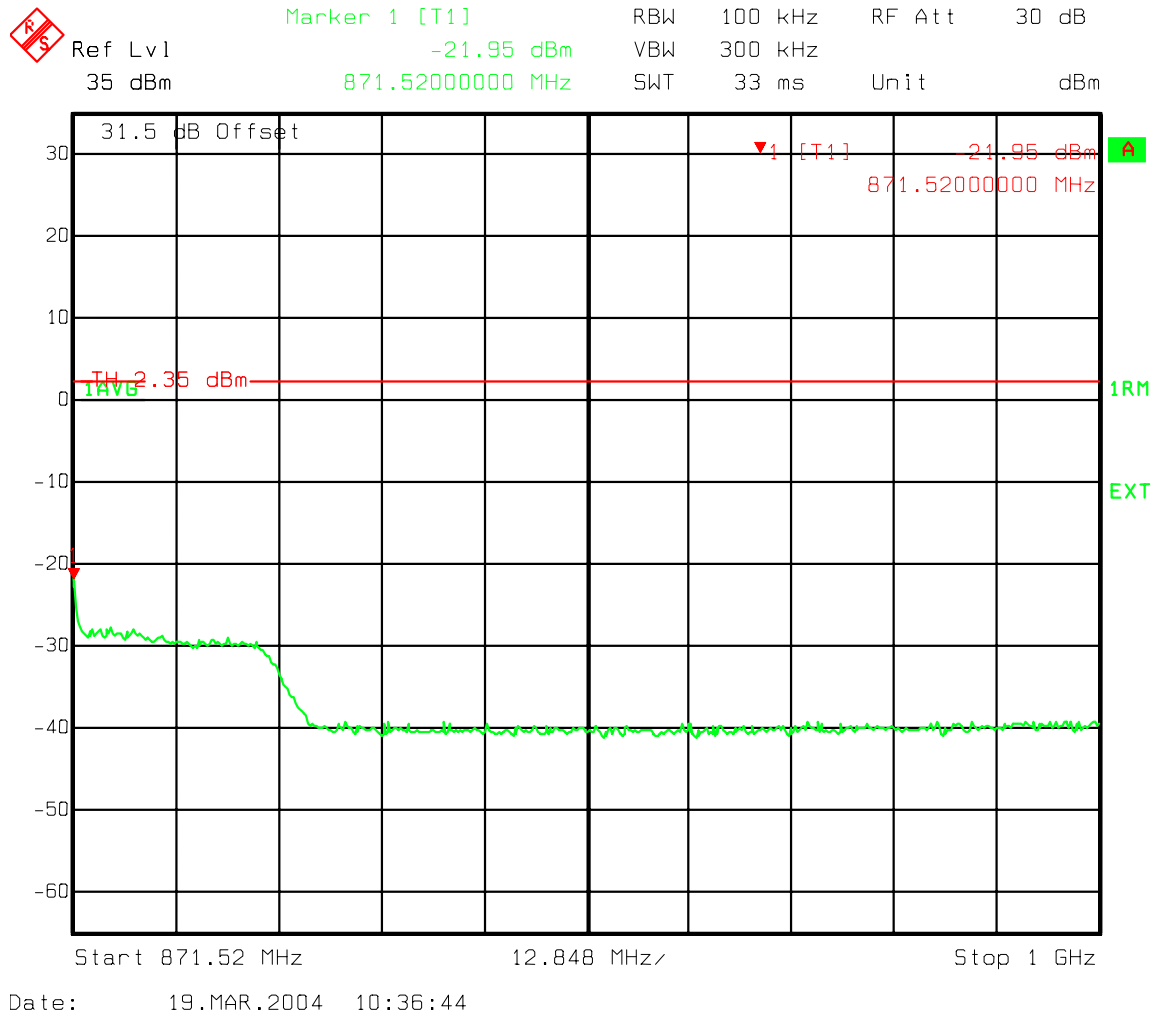


Figure 17 : One Carrier - A '' and a Band IS95 Spurious emissions Upper 1 MHz Band Edge to 1 GHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

A'' and A Band IS95 Spurious emissions 400-1000 MHz

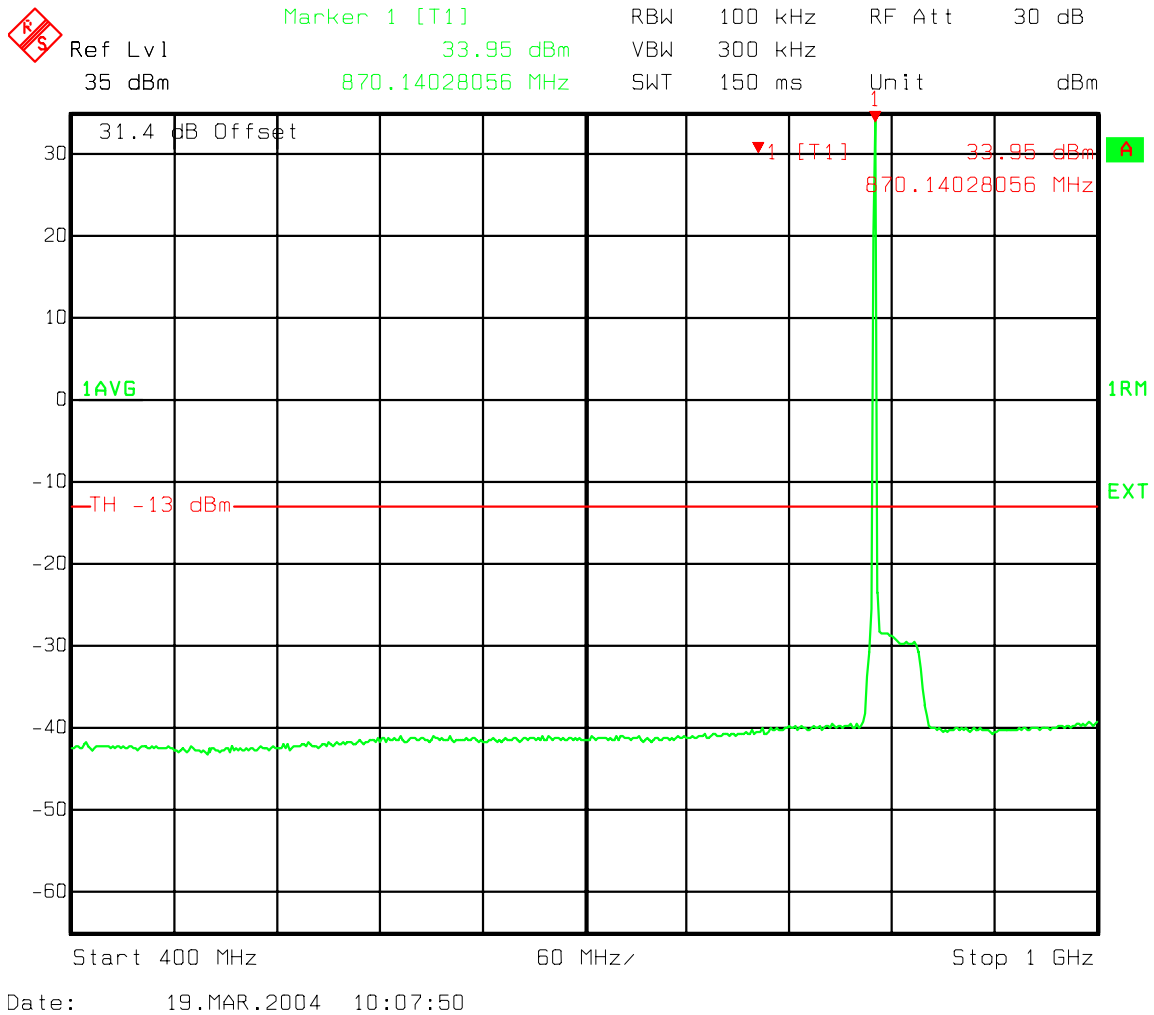


Figure 18 : One Carrier - A'' and A Band IS95 Spurious emissions 400-1000 MHz

Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port one Carrier band A and A'' IS95

A'' and A Band IS95 Spurious emissions 1000-2000 MHz

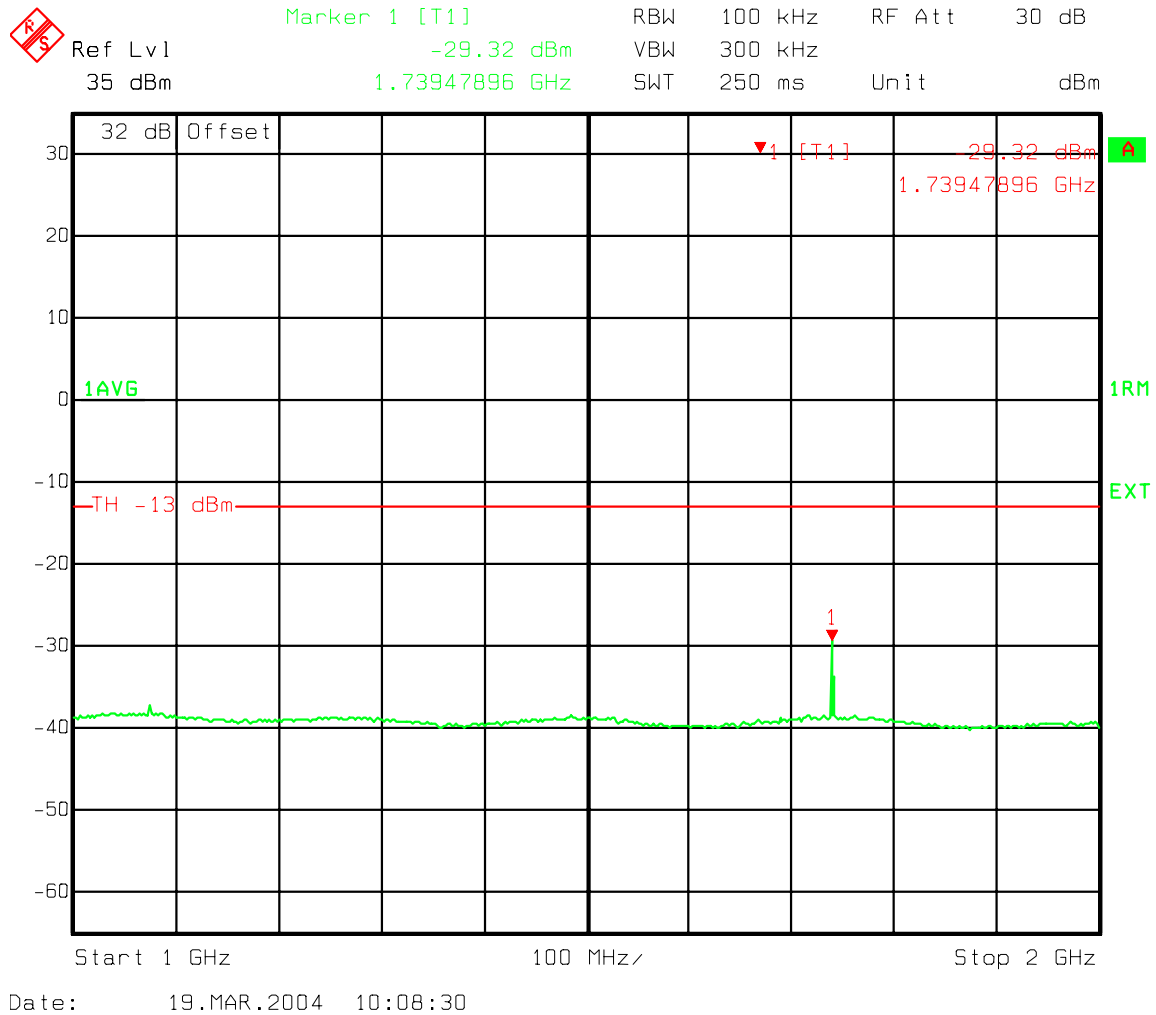
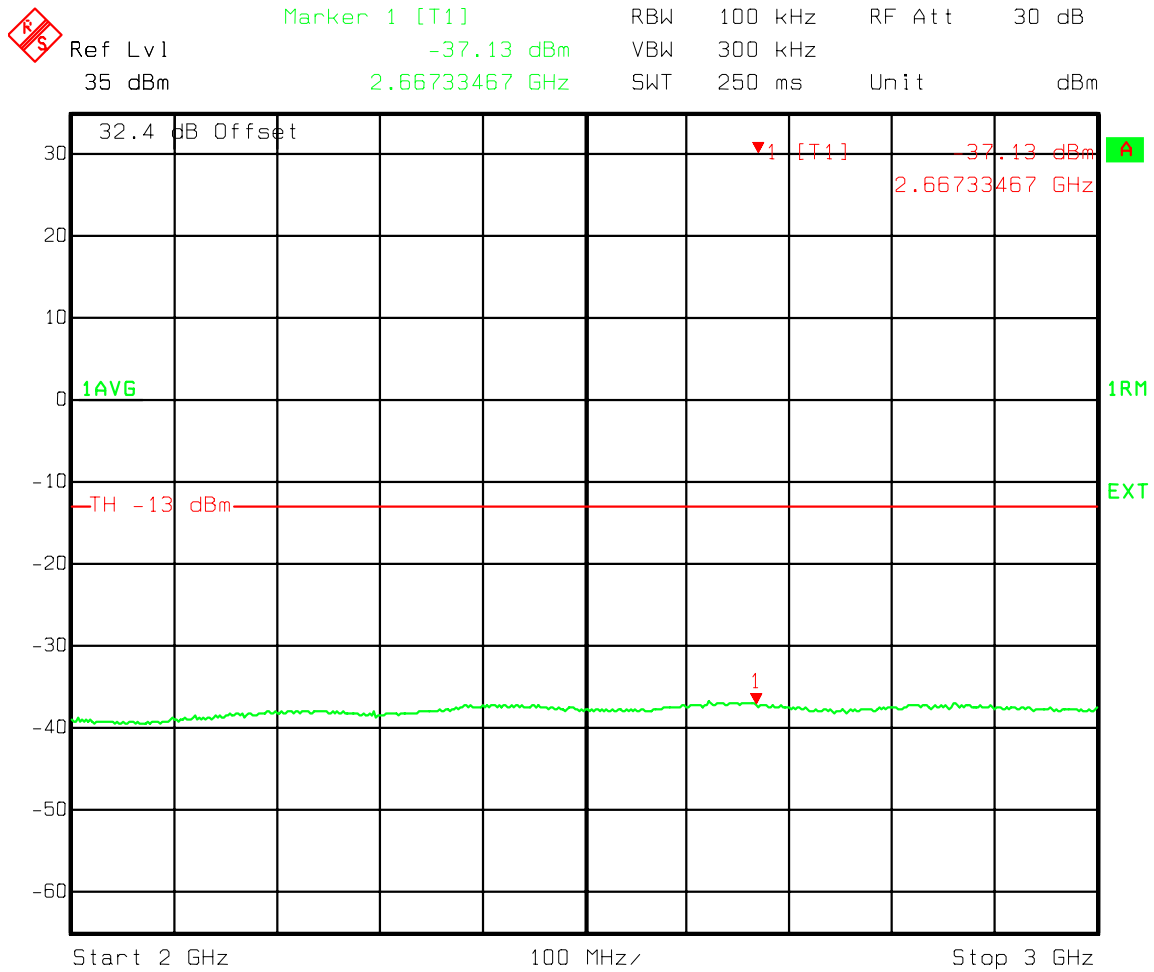


Figure 19 : One Carrier - A'' and A Band IS95 Spurious emissions 1000-2000 MHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

A'' and A Band IS95 Spurious emissions 2000-3000 MHz

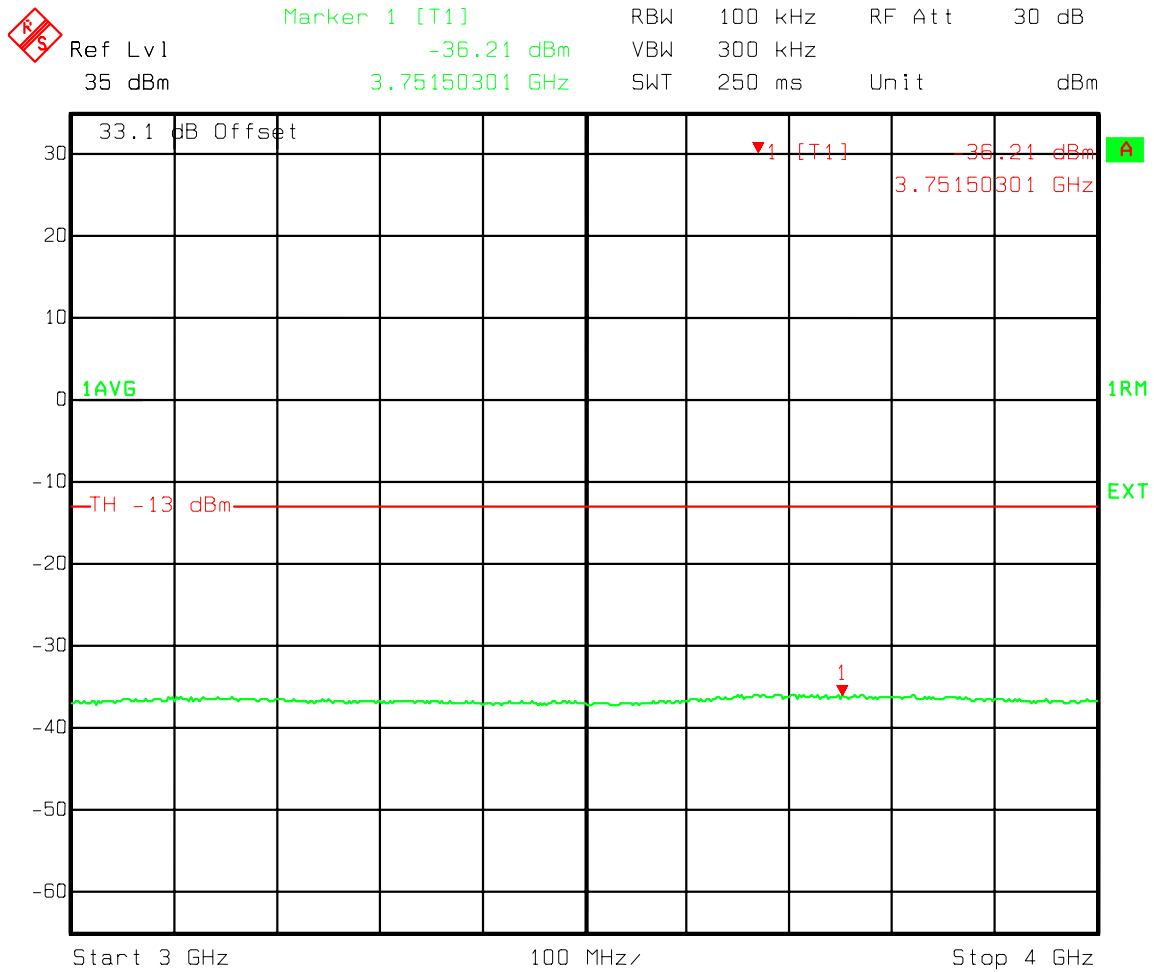


Date: 19.MAR.2004 10:09:11

Figure 20 : One Carrier - A'' and A Band IS95 Spurious emissions 2000-3000 MHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
Port one Carrier band A and A'' IS95**

A'' and A Band IS95 Spurious emissions 3000-4000 MHz

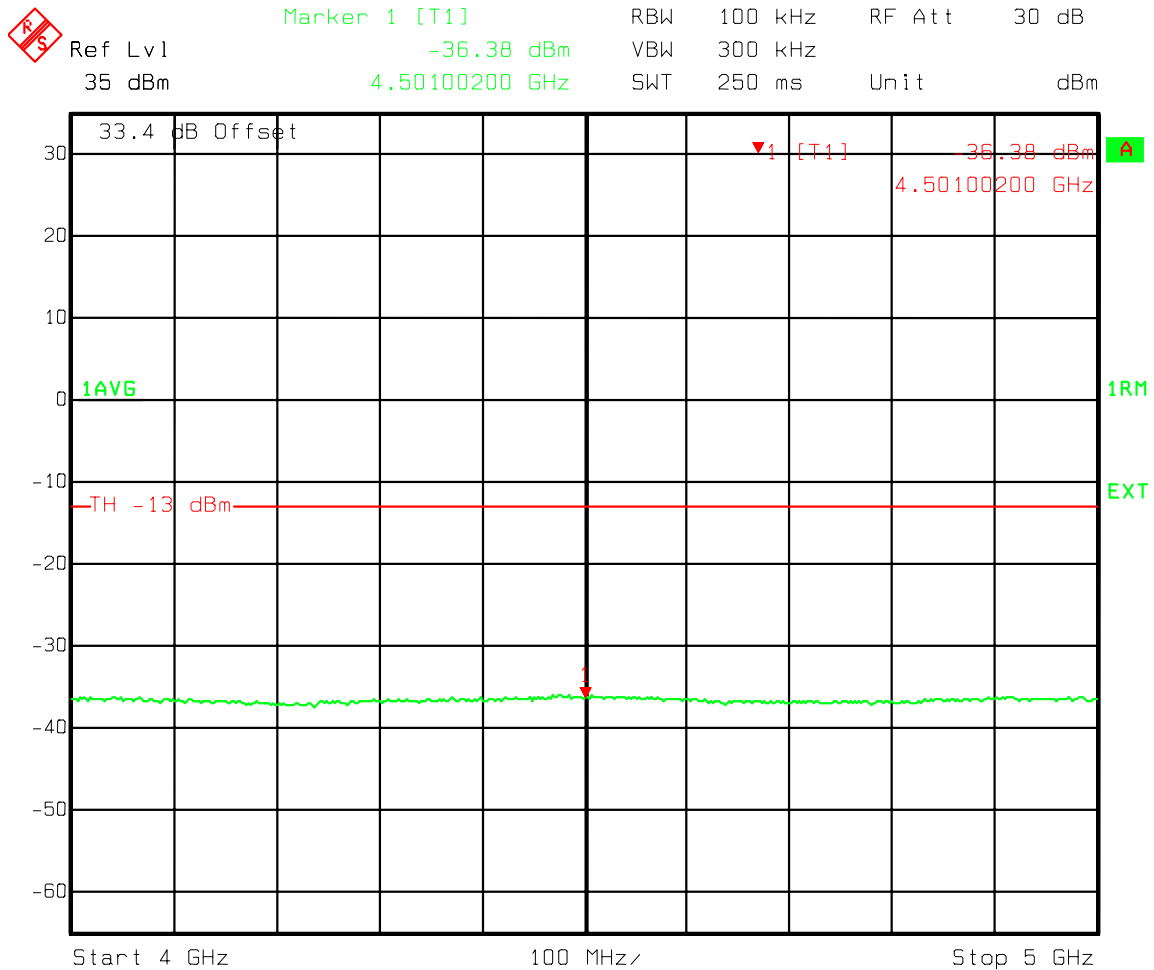


Date: 19.MAR.2004 10:09:51

Figure 21 : One Carrier - A'' and A Band IS95 Spurious emissions 3000-4000 MHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

A'' and A Band IS95 Spurious emissions 4000-5000 MHz

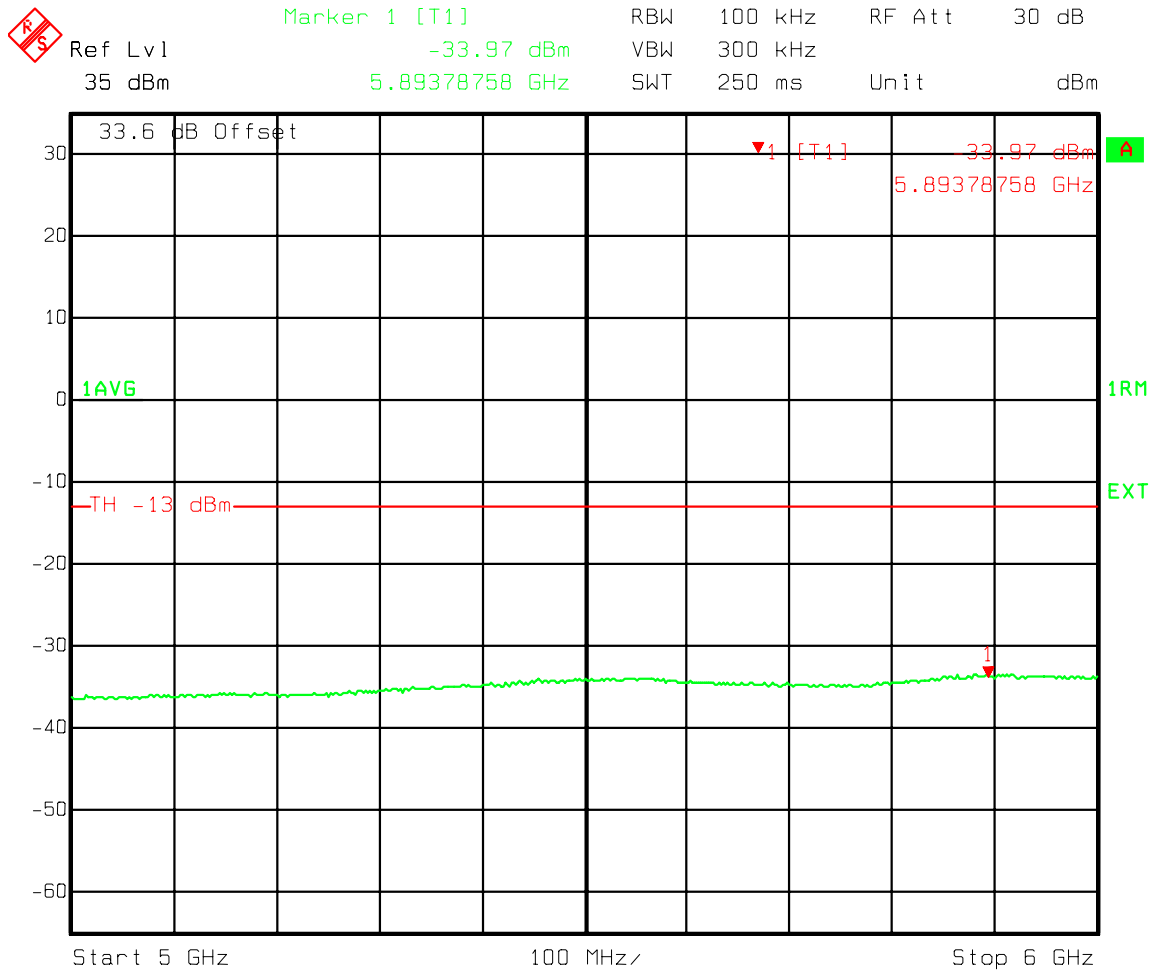


Date: 19.MAR.2004 10:10:31

Figure 22 : One Carrier - A'' and A Band IS95 Spurious emissions 4000-5000 MHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
Port one Carrier band A and A'' IS95**

A'' and A Band IS95 Spurious emissions 5000-6000 MHz

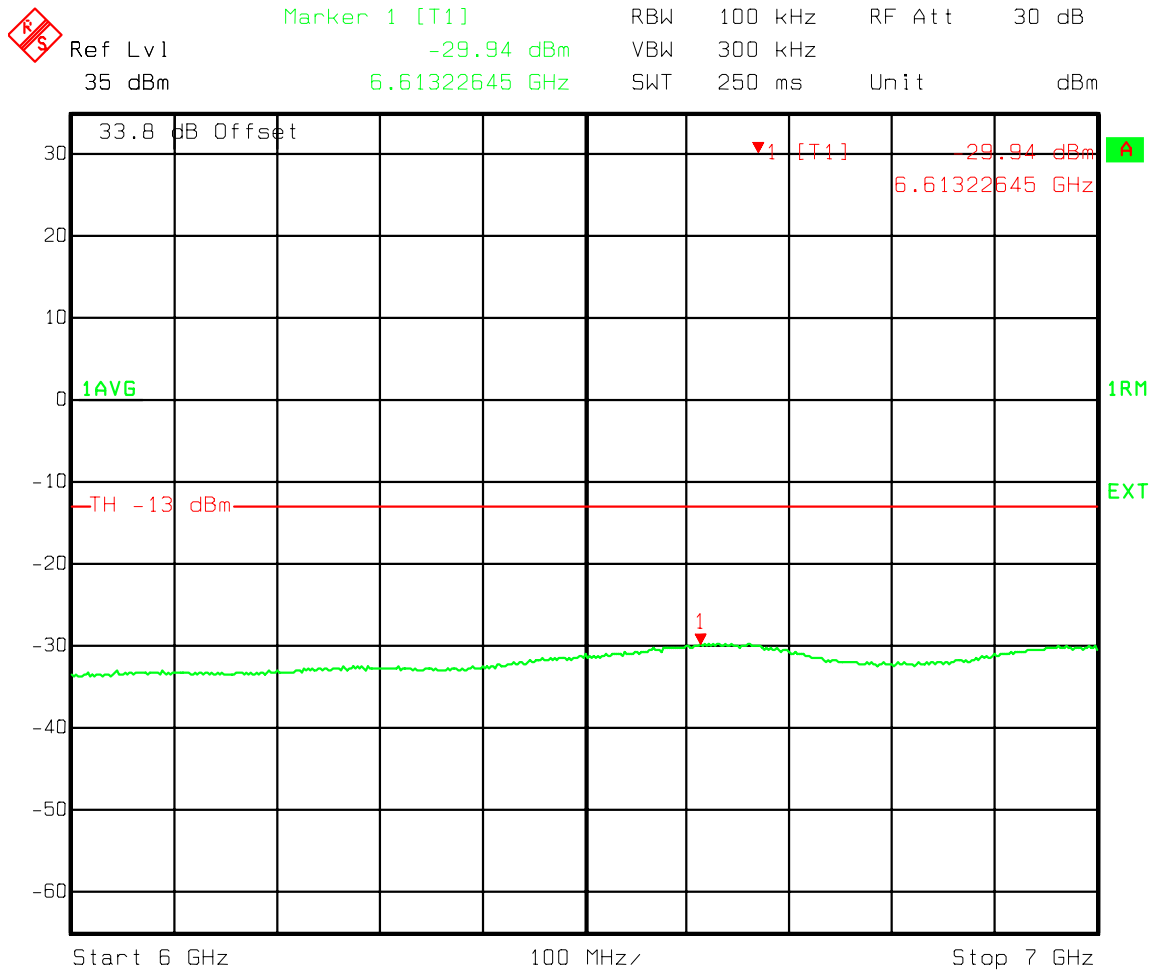


Date: 19.MAR.2004 10:11:13

Figure 23 : One Carrier - A'' and A Band IS95 Spurious emissions 5000-6000 MHz

Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port one Carrier band A and A'' IS95

A'' and A Band IS95 Spurious emissions 6000-7000 MHz

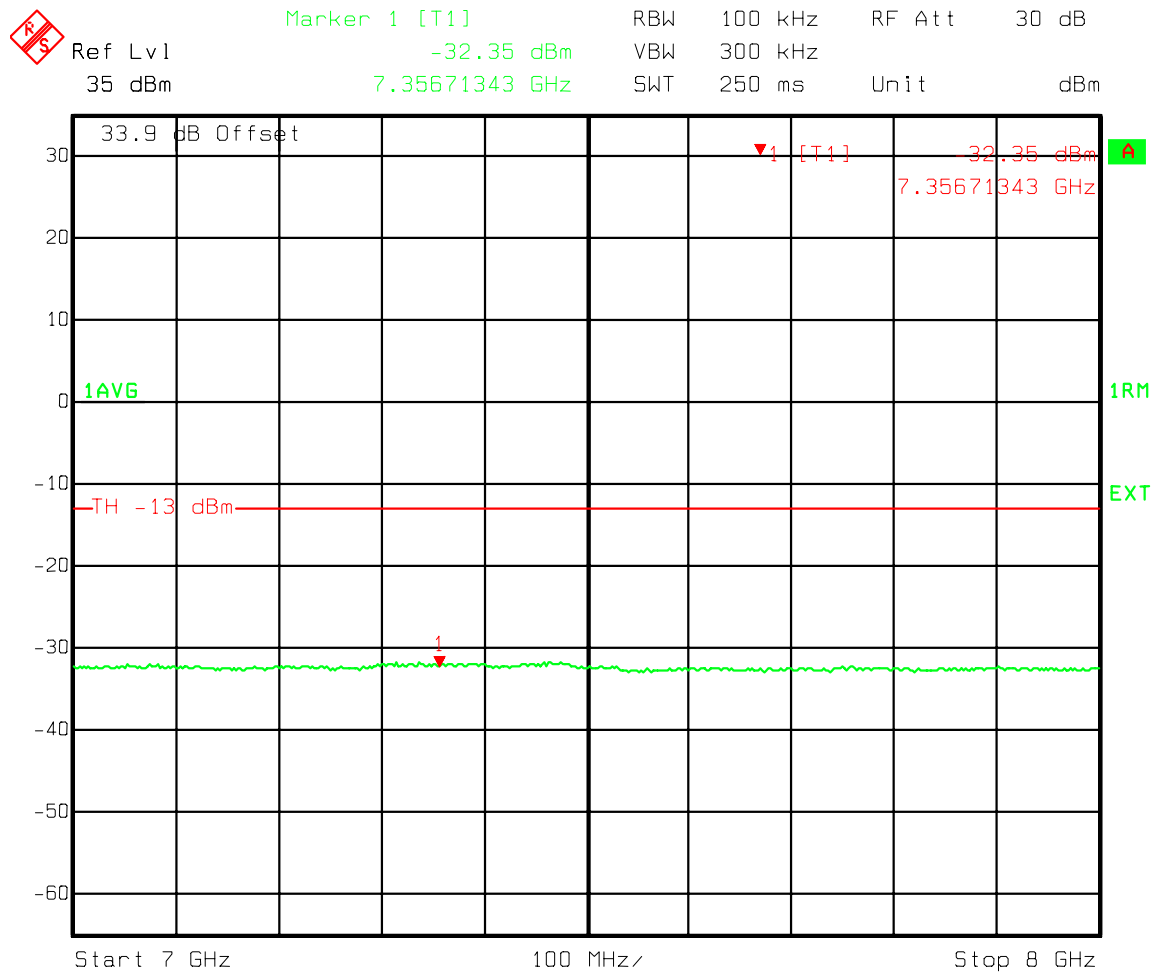


Date: 19.MAR.2004 10:11:55

Figure 24 : One Carrier - A'' and A Band IS95 Spurious emissions 6000-7000 MHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

A'' and A Band IS95 Spurious emissions 7000-8000 MHz

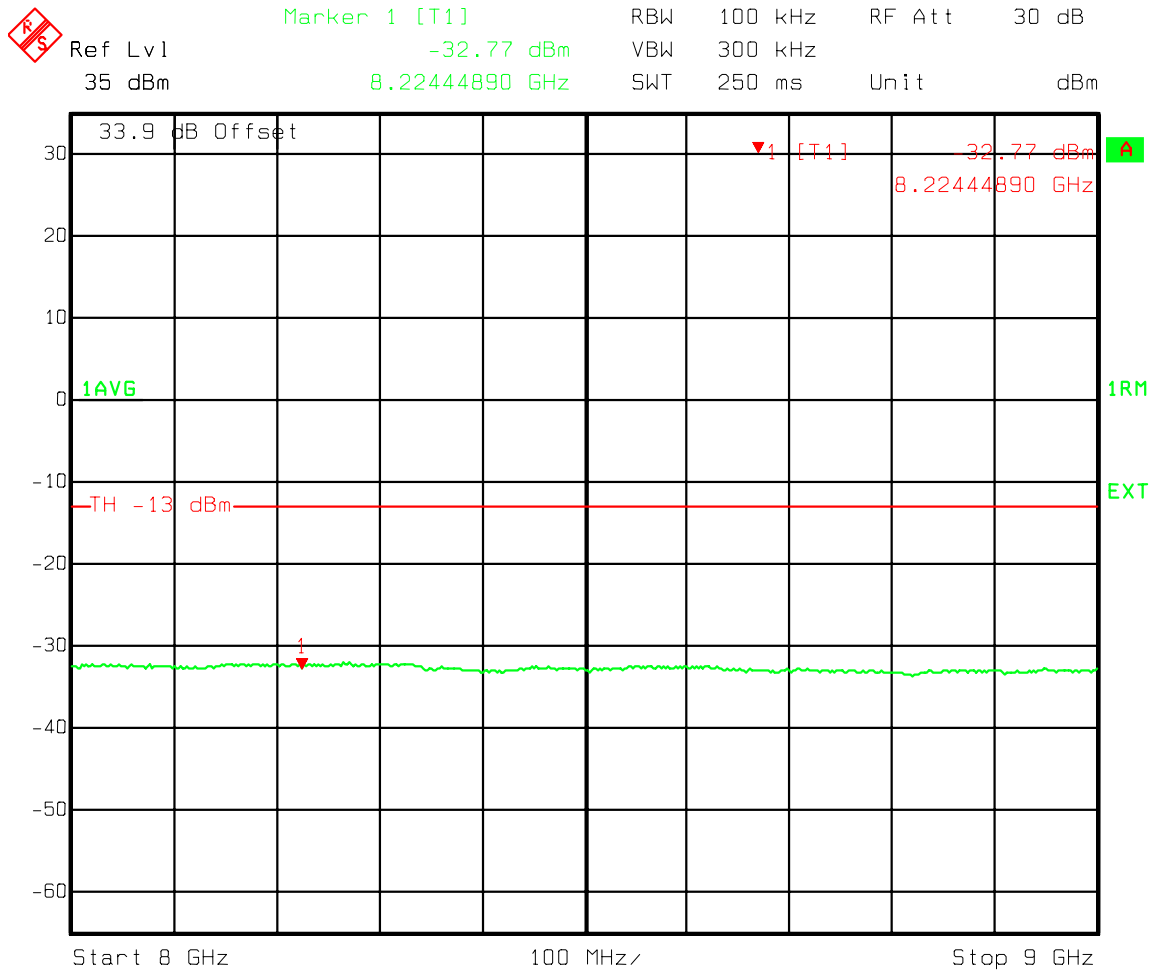


Date: 19.MAR.2004 10:12:38

Figure 25 : One Carrier - A'' and A Band IS95 Spurious emissions 7000-8000 MHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
Port one Carrier band A and A'' IS95**

A'' and A Band IS95 Spurious emissions 8000-9000 MHz

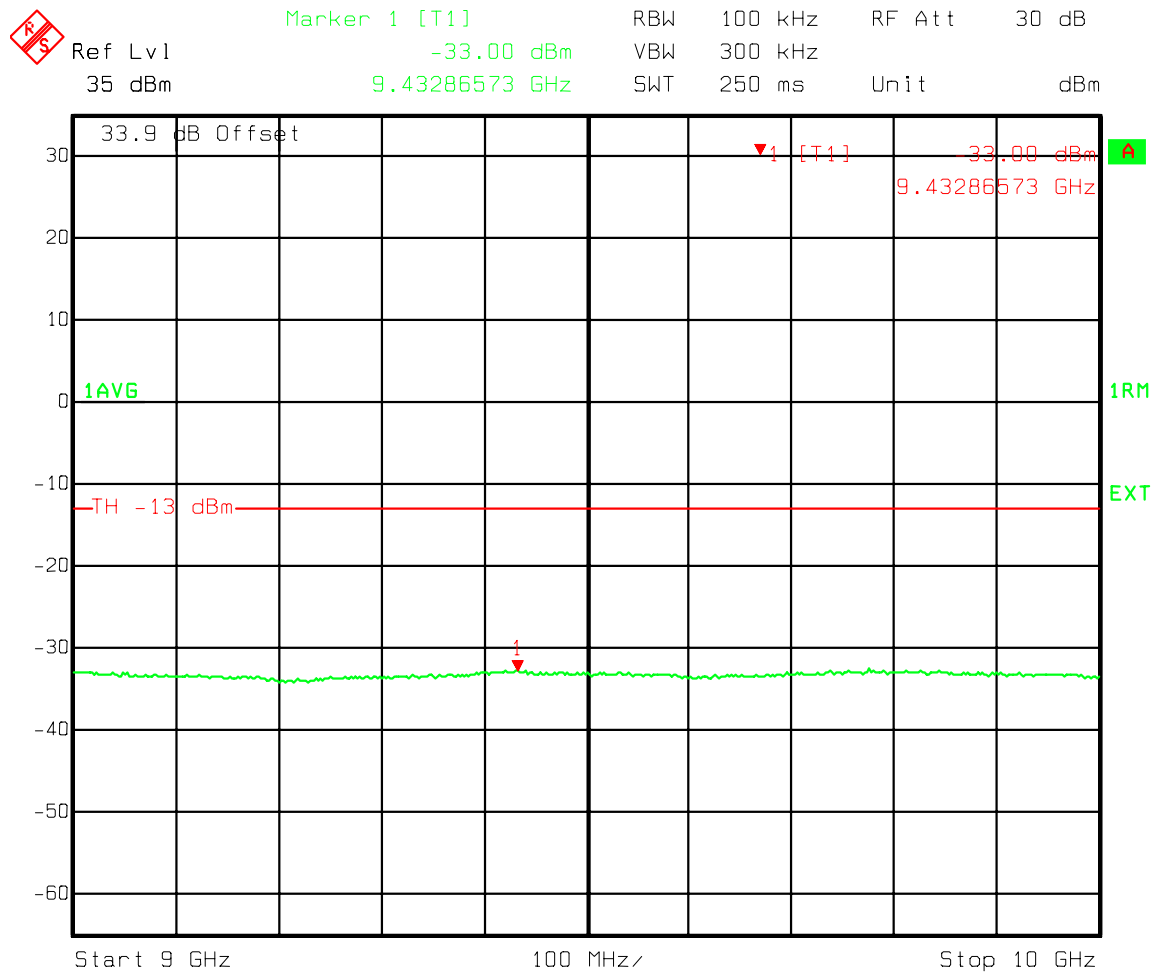


Date: 19.MAR.2004 10:13:19

Figure 26 : One Carrier - A'' and A Band IS95 Spurious emissions 8000-9000 MHz

**Single Chan 1015 IS95 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant.
 Port one Carrier band A and A'' IS95**

A'' and A Band IS95 Spurious emissions 9000-10000 MHz



Date: 19.MAR.2004 10:14:01

Figure 27 : One Carrier - A'' and A Band IS95 Spurious emissions 9000-10000 MHz

6 Appendix B - Two Carriers IS-95 Spurious Emission

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

Occupied Bandwidth Ch 358, 399 Band B

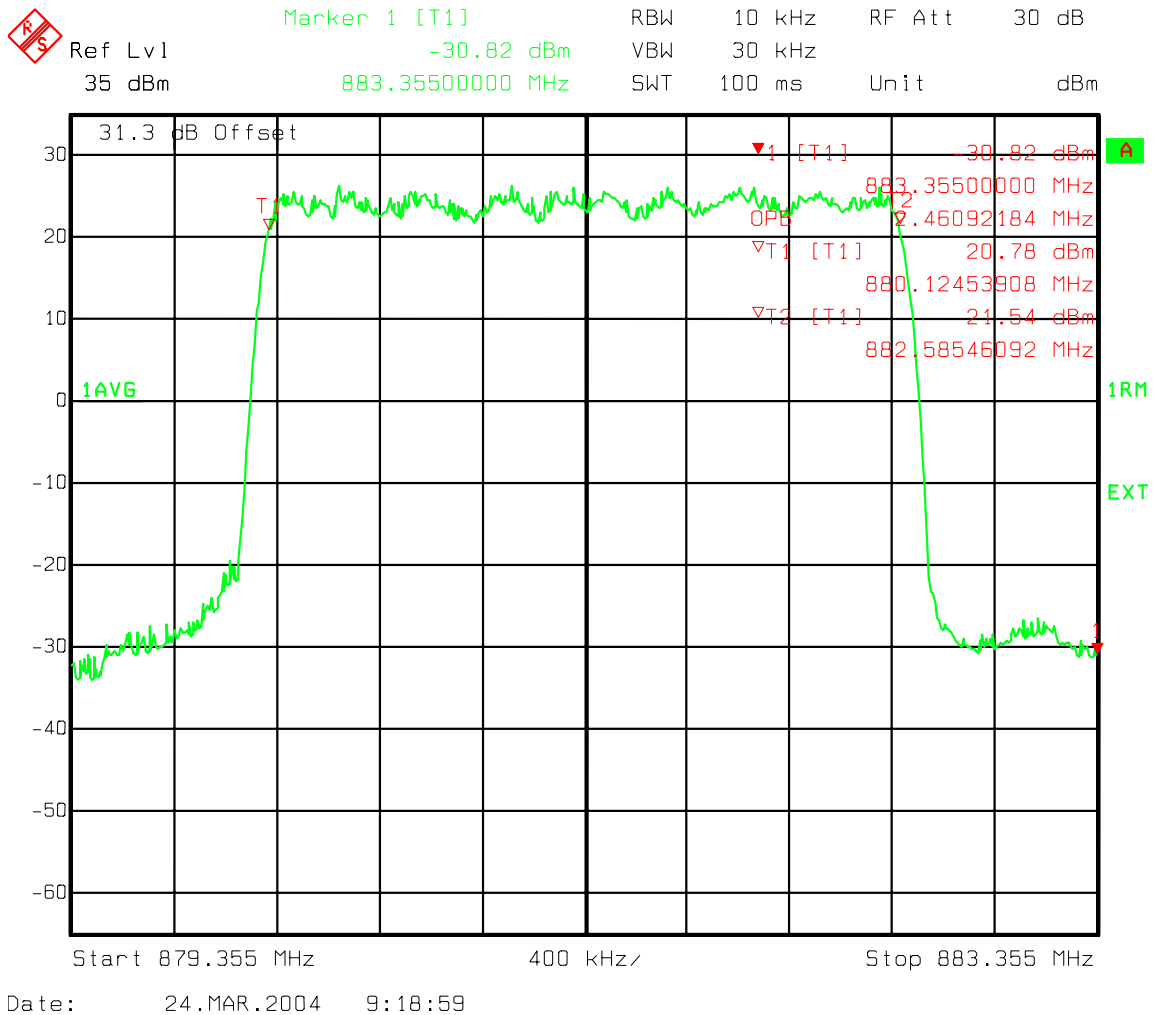


Figure 28 : Two Carriers - Occupied Bandwidth Ch 358, 399 Band B

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band Ch 358, 399 IS95 Adjacent 1 MHz Lower emissions 879-880 MHz

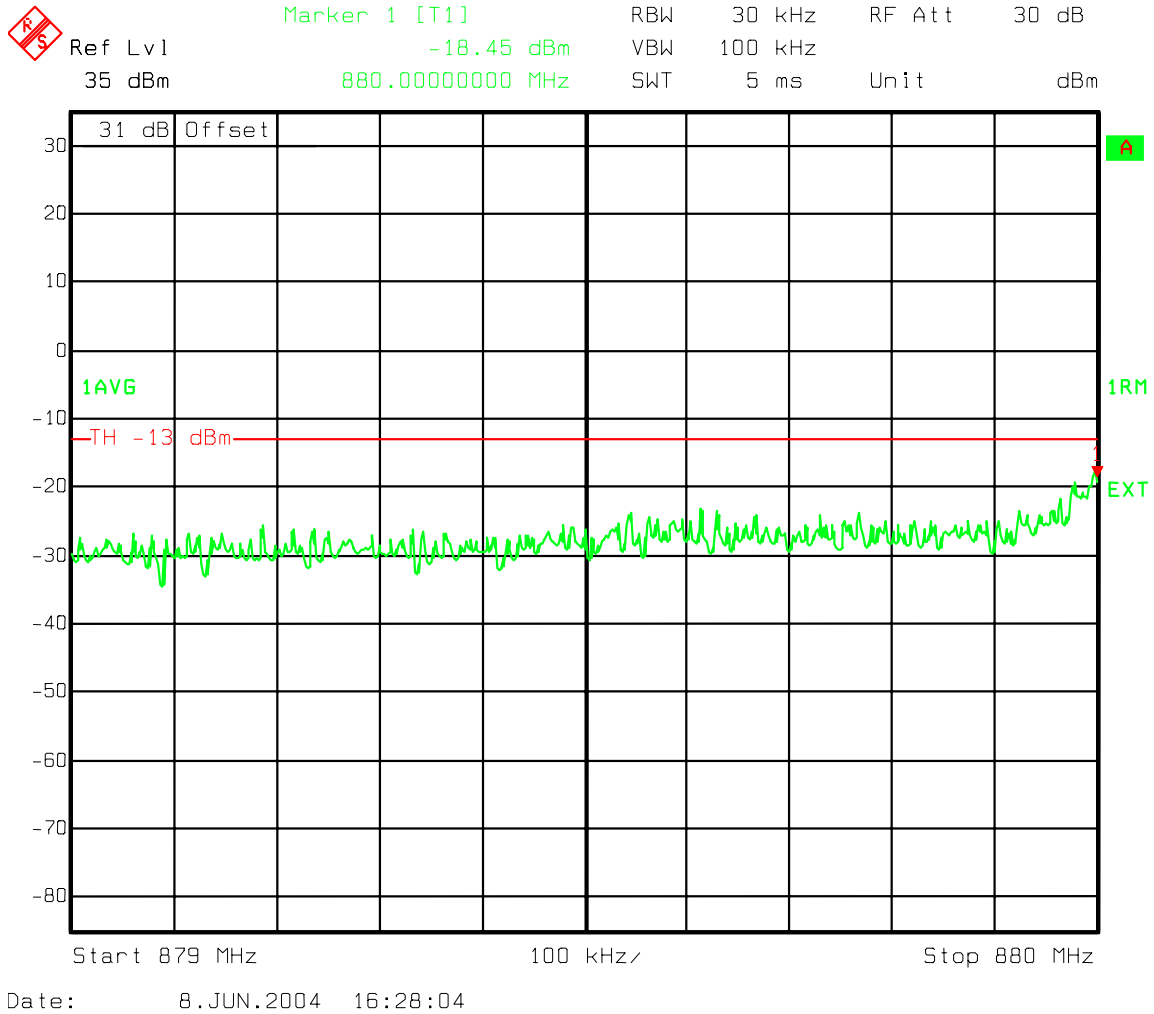
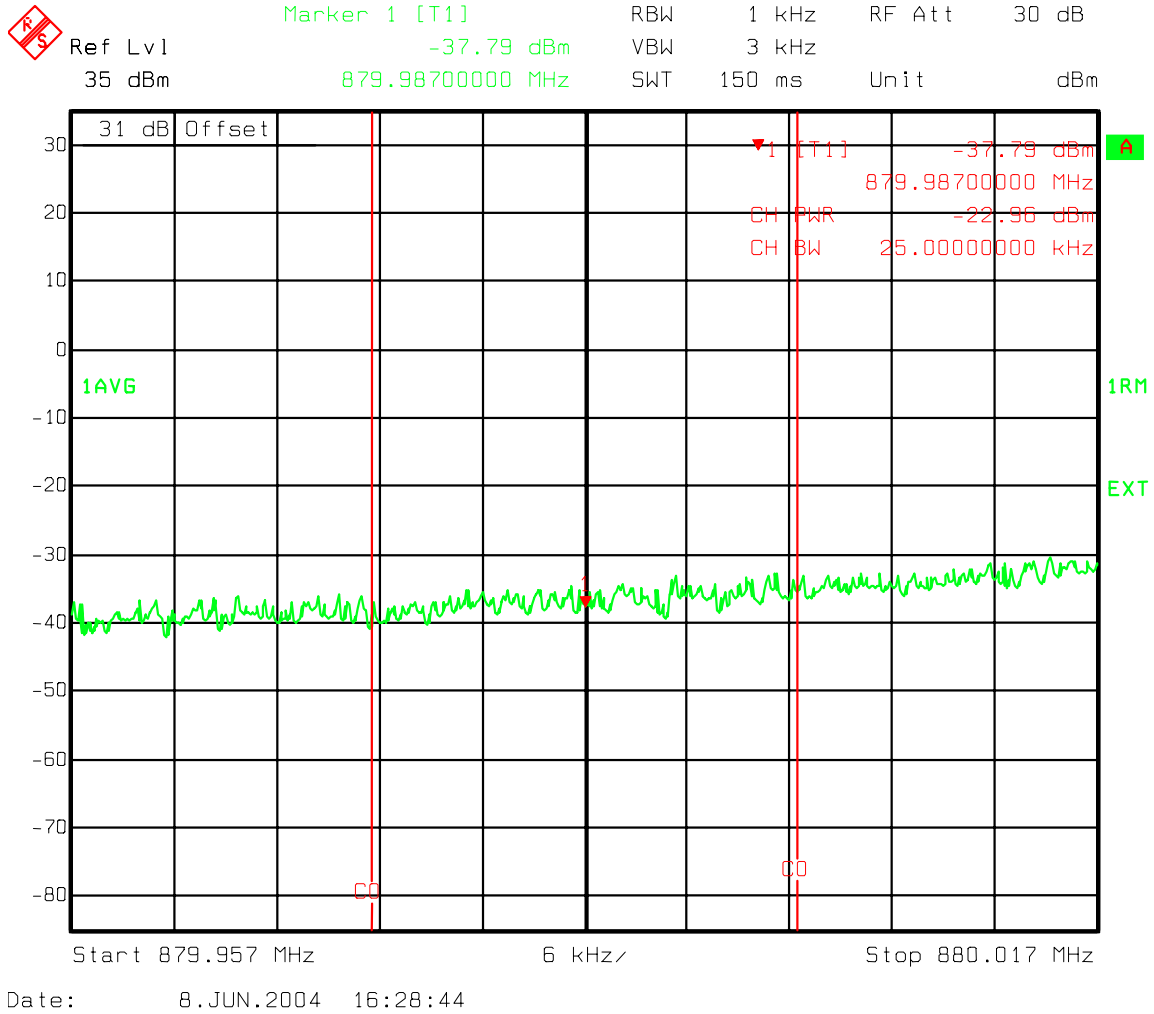


Figure 29 : Two Carriers - B Band Ch358, 399 IS95 Adjacent 1 MHz Lower emissions 879-880 MHz

**Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1
 (Tornado) Ant. Port band B IS95**

**Ch358, 399 IS95 Lower B Band Adjacent to outside edge 25kHz band Channel
 Power**



**Figure 30 : Two Carriers - Ch 358, 399 IS95 Lower B Band Adjacent to outside edge 25kHz
 band Channel Power**

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

Ch 601, 642 Upper a Band adjacent 1 MHz band emissions 890-891 MHz

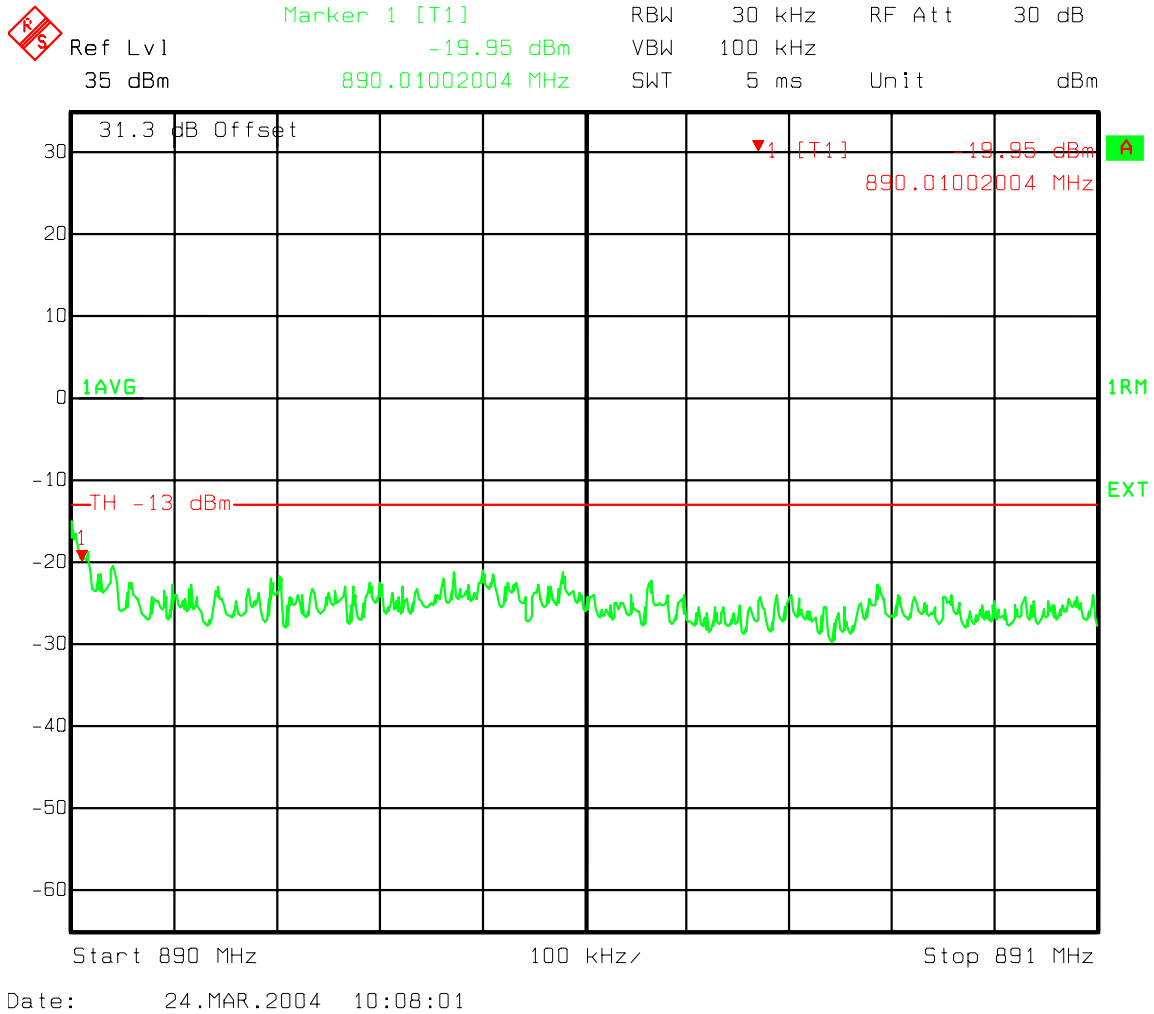
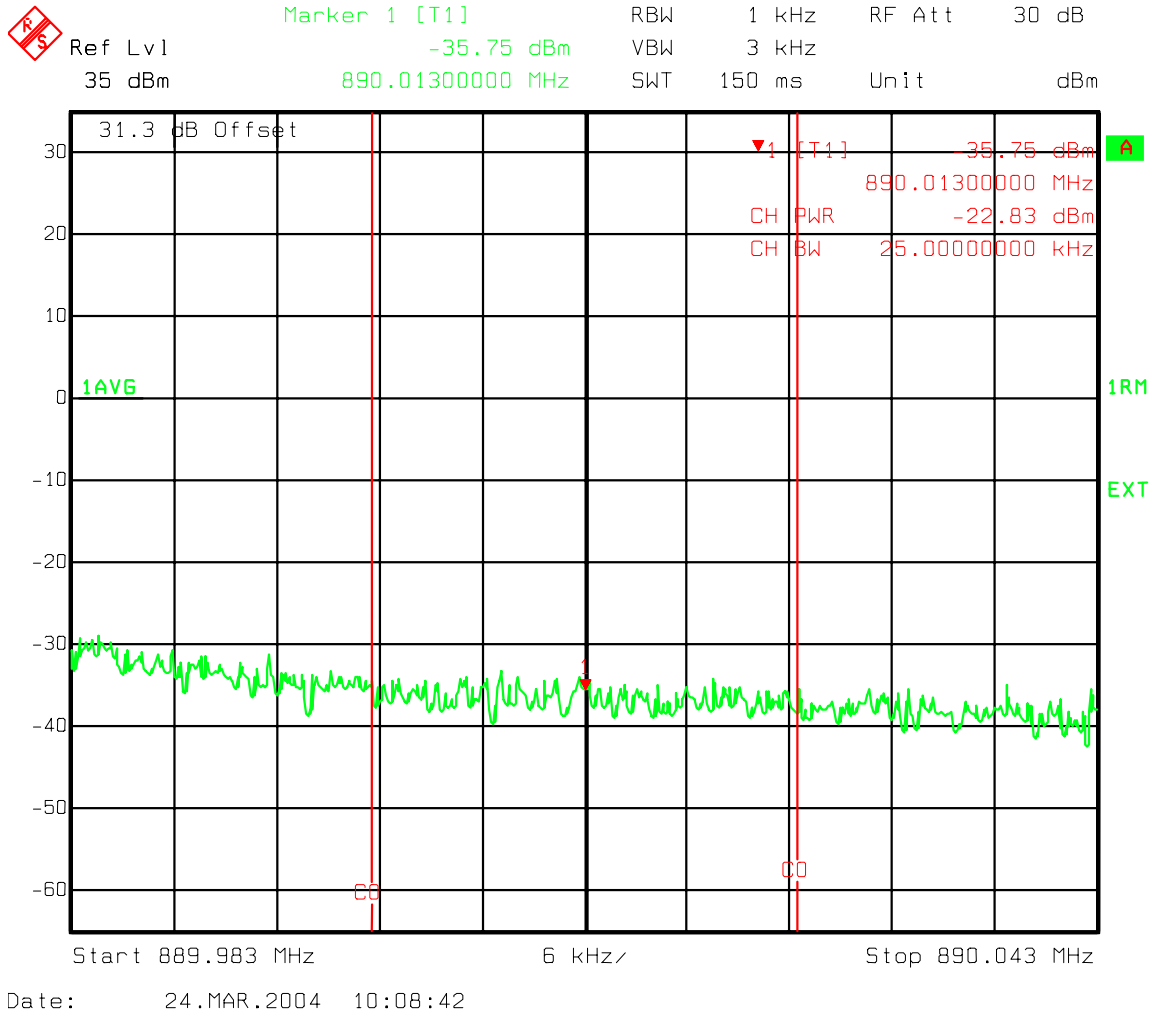


Figure 31 : Two Carriers - Ch 601, 642 Upper a Band adjacent 1 MHz band emissions 890-891 MHz

**Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1
 (Tornado) Ant. Port band B IS95**

Ch 601, 642 Upper B Band adjacent to outside edge 25.0 kHz band Channel power



**Figure 32 : Two Carriers - Ch 601, 642 Upper B Band adjacent to outside edge 25.0 kHz
 band Channel power**

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

Industry Canada Lower 750 kHz offset 30 kHz Chan Power Ch 358, 399

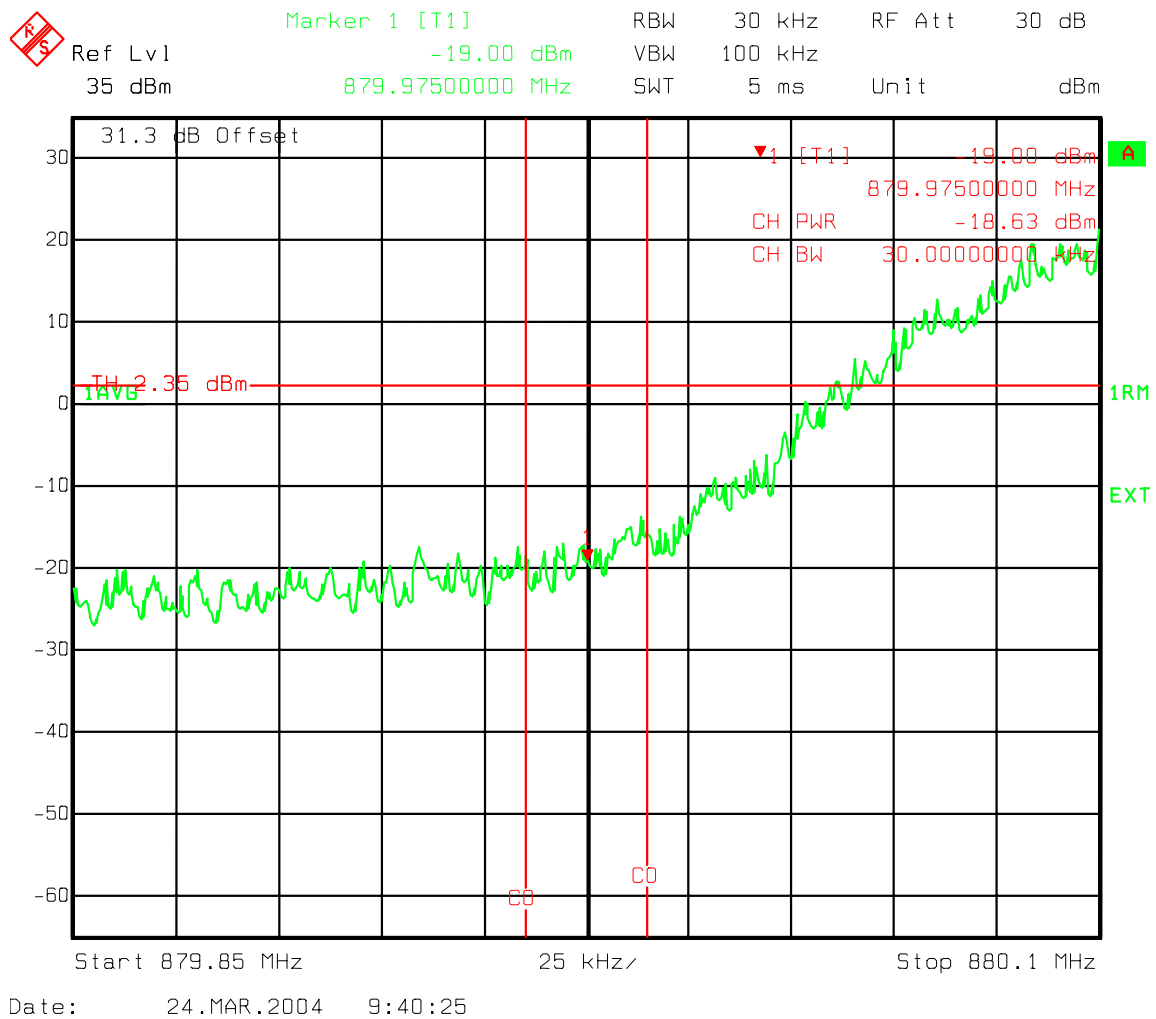


Figure 33 : Two Carriers - Industry Canada Lower 750 kHz offset 30 kHz Chan Power Ch 358, 399

**Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1
 (Tornado) Ant. Port band B IS95**

Industry Canada Upper 750 kHz offset 30 kHz Chan Power Ch 358, 399

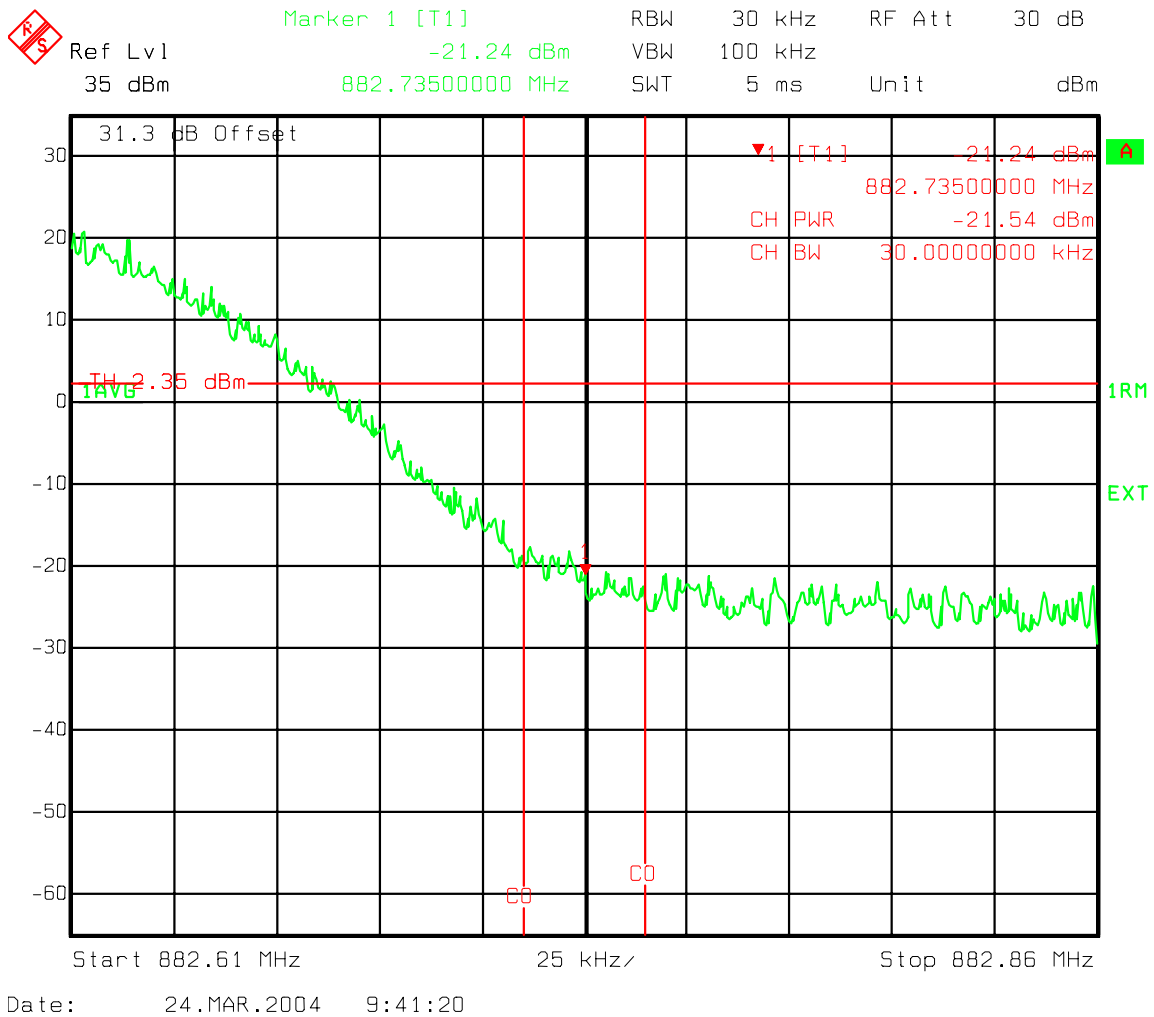


Figure 34 : Two Carriers - Industry Canada Upper 750 kHz offset 30 kHz Chan Power Ch 358, 399

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

Industry Canada 1.98 MHz offset Lower 30 kHz Chan Power Ch 358, 399

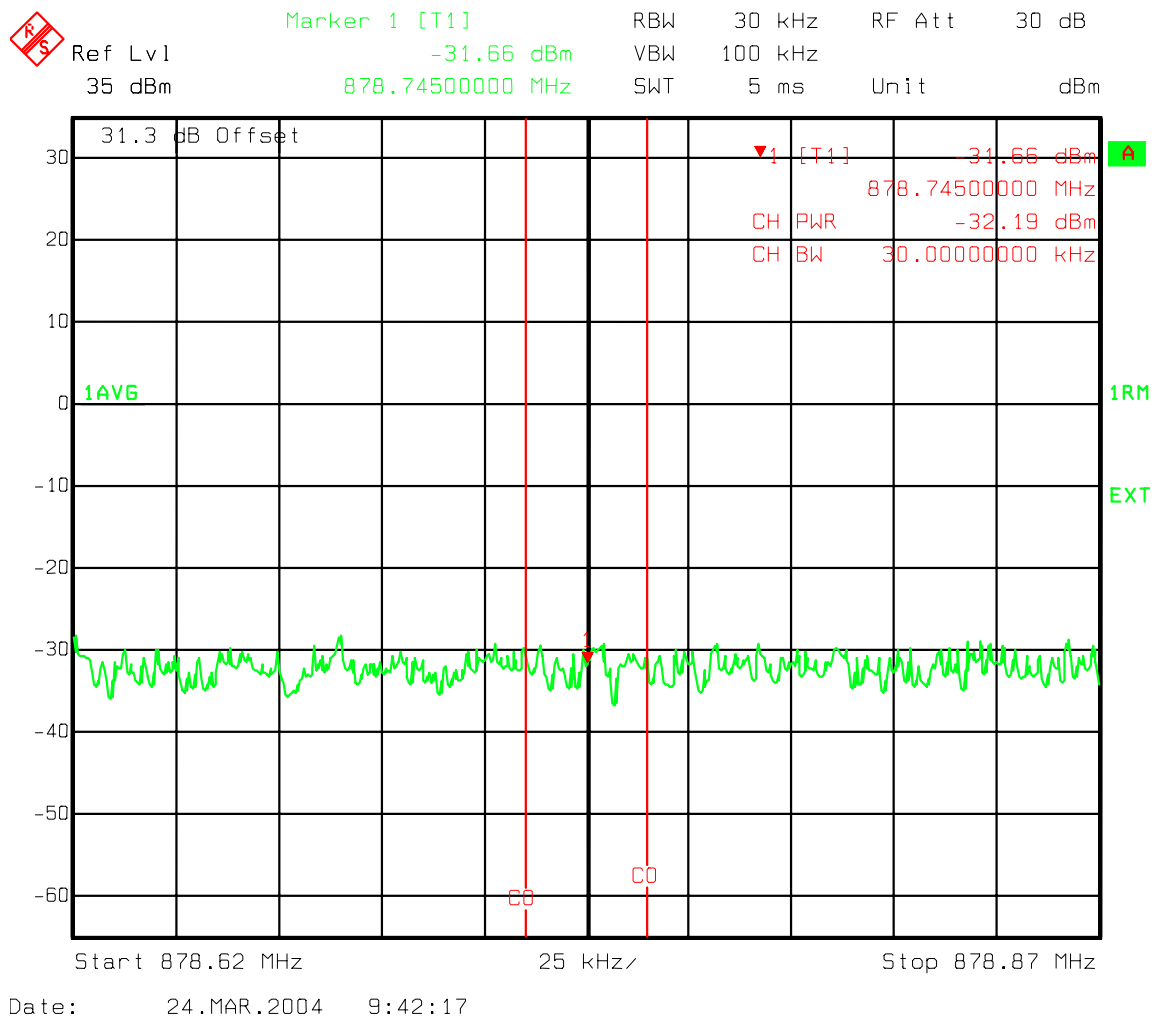


Figure 35 : Two Carriers - Industry Canada 1.98 MHz offset Lower 30 kHz Chan Power Ch 358, 399

**Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1
 (Tornado) Ant. Port band B IS95**

Industry Canada 1.98 MHz offset Upper 30 kHz Chan Power Ch 358, 399

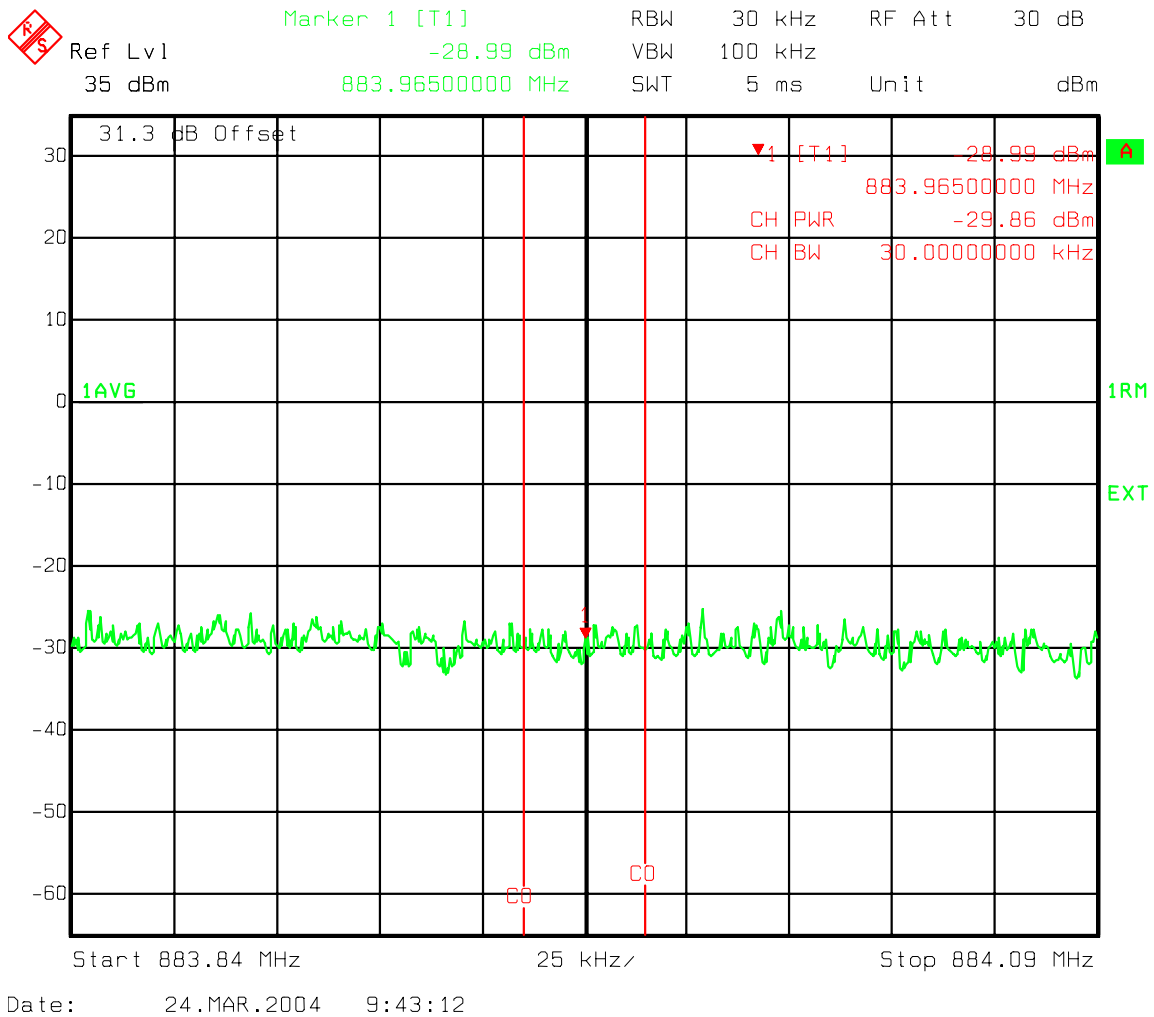


Figure 36 : Two Carriers - Industry Canada 1.98 MHz offset Upper 30 kHz Chan Power Ch 358, 399

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band IS95 Spurious emissions 400 MHz to Lower 1 MHz Band Edge

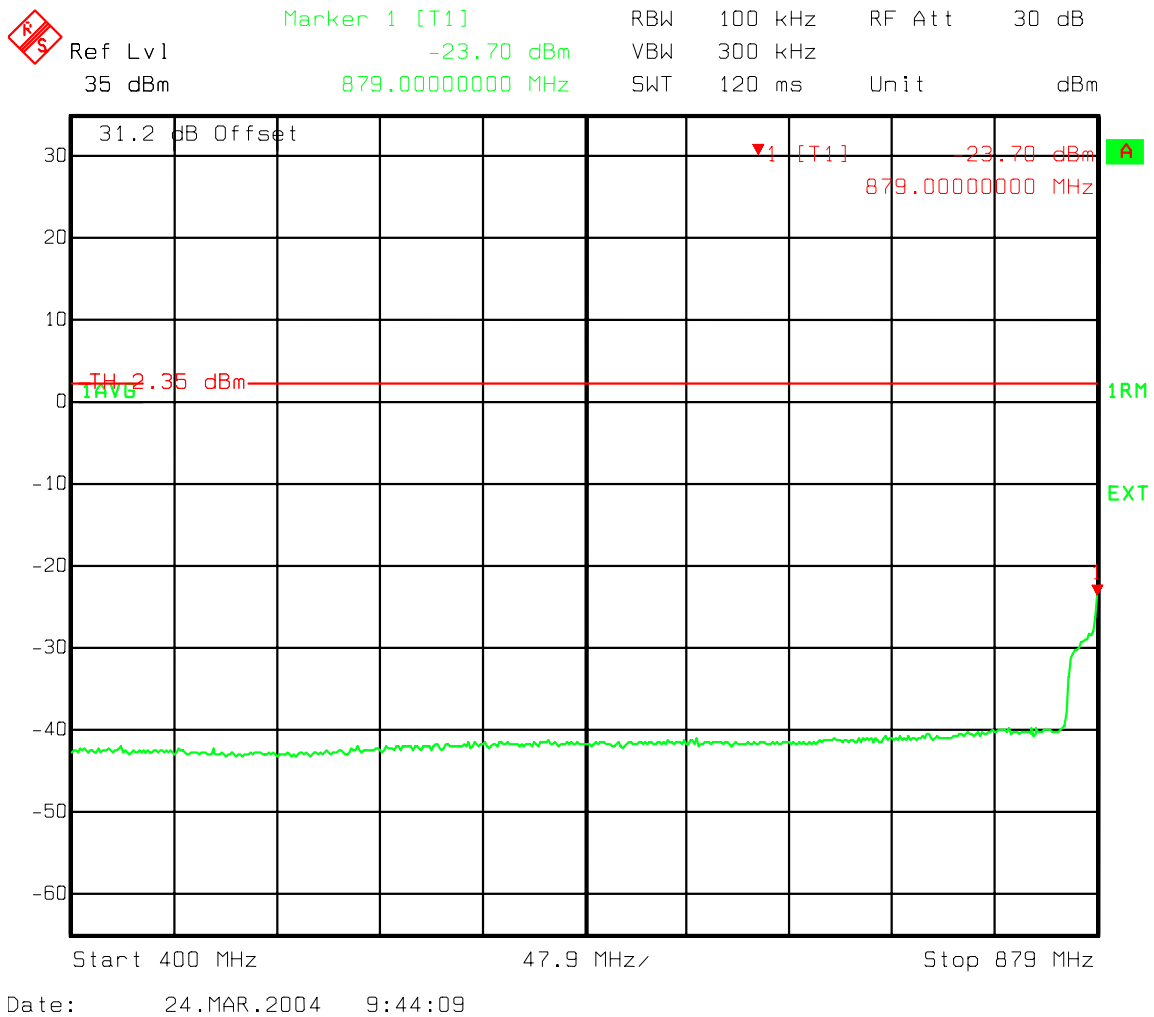


Figure 38 : Two Carriers - B Band IS95 Spurious emissions 400 MHz to Lower 1 MHz Band Edge

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band IS95 Spurious emissions Upper 1 MHz Band Edge to 1 GHz

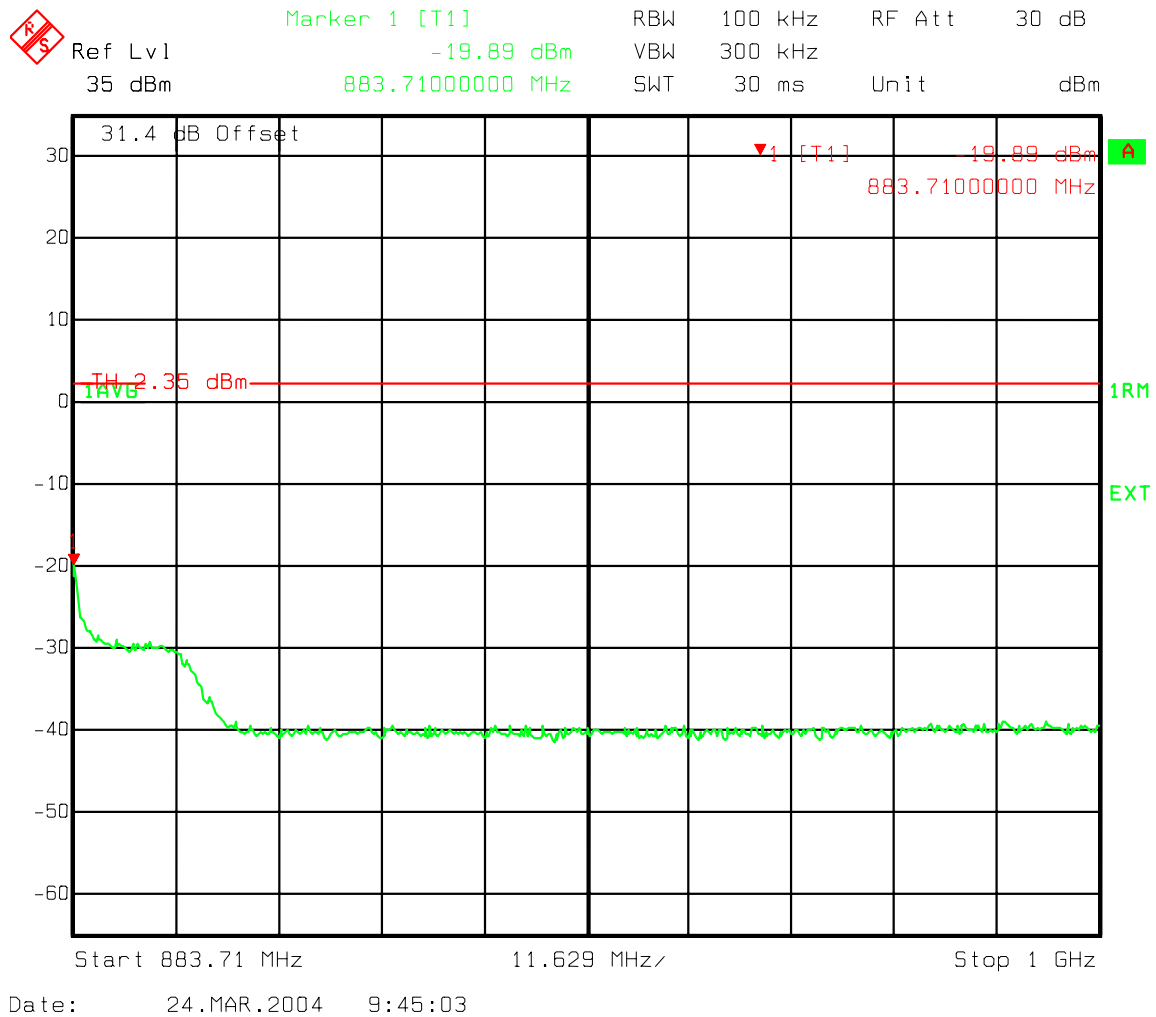


Figure 39 : Two Carriers - B Band IS95 Spurious emissions Upper 1 MHz Band Edge to 1 GHz

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band IS95 Spurious emissions 400-1000 MHz

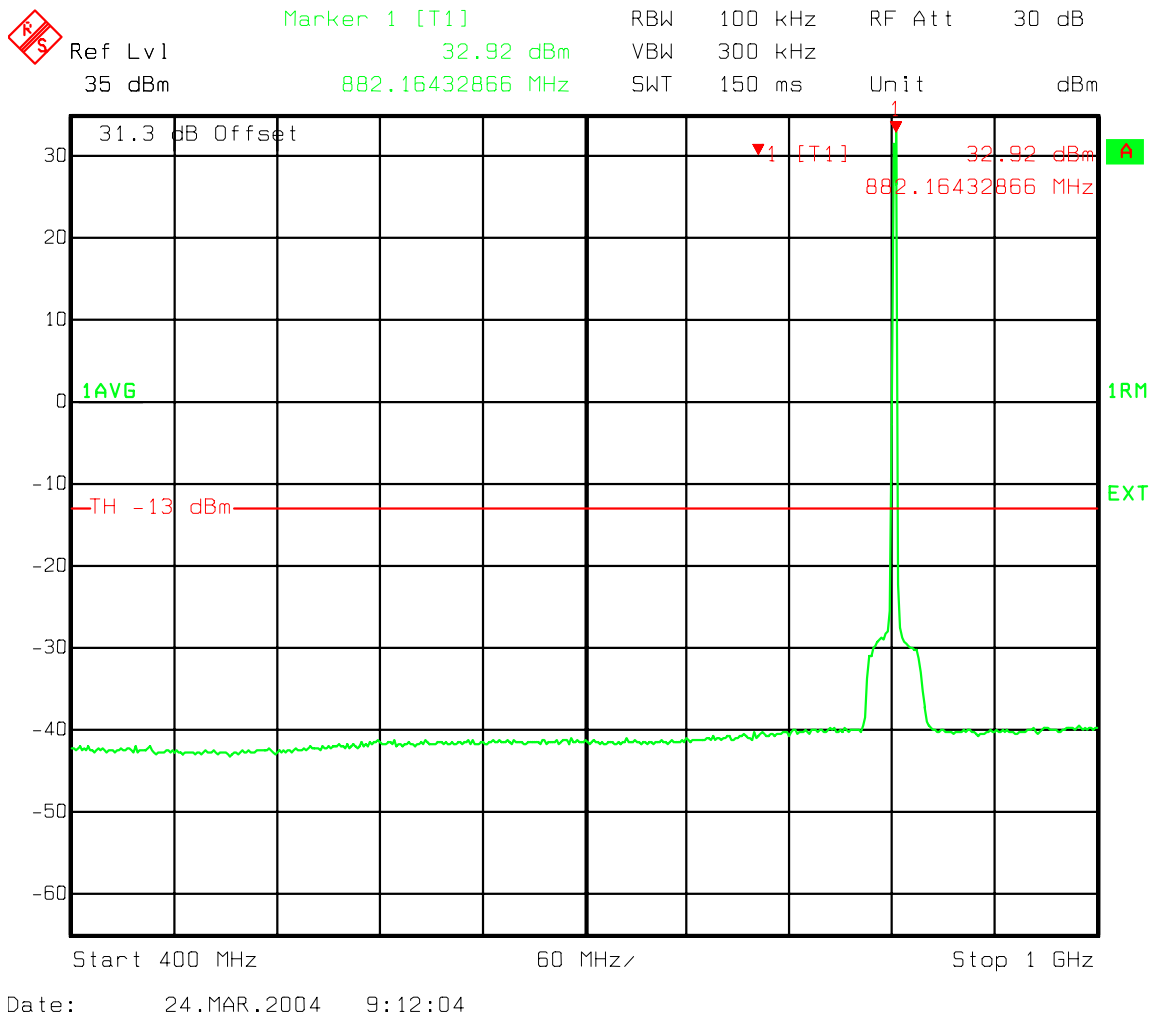


Figure 40 : Two Carriers - B Band IS95 Spurious emissions 400-1000 MHz

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band IS95 Spurious emissions 1000-2000 MHz

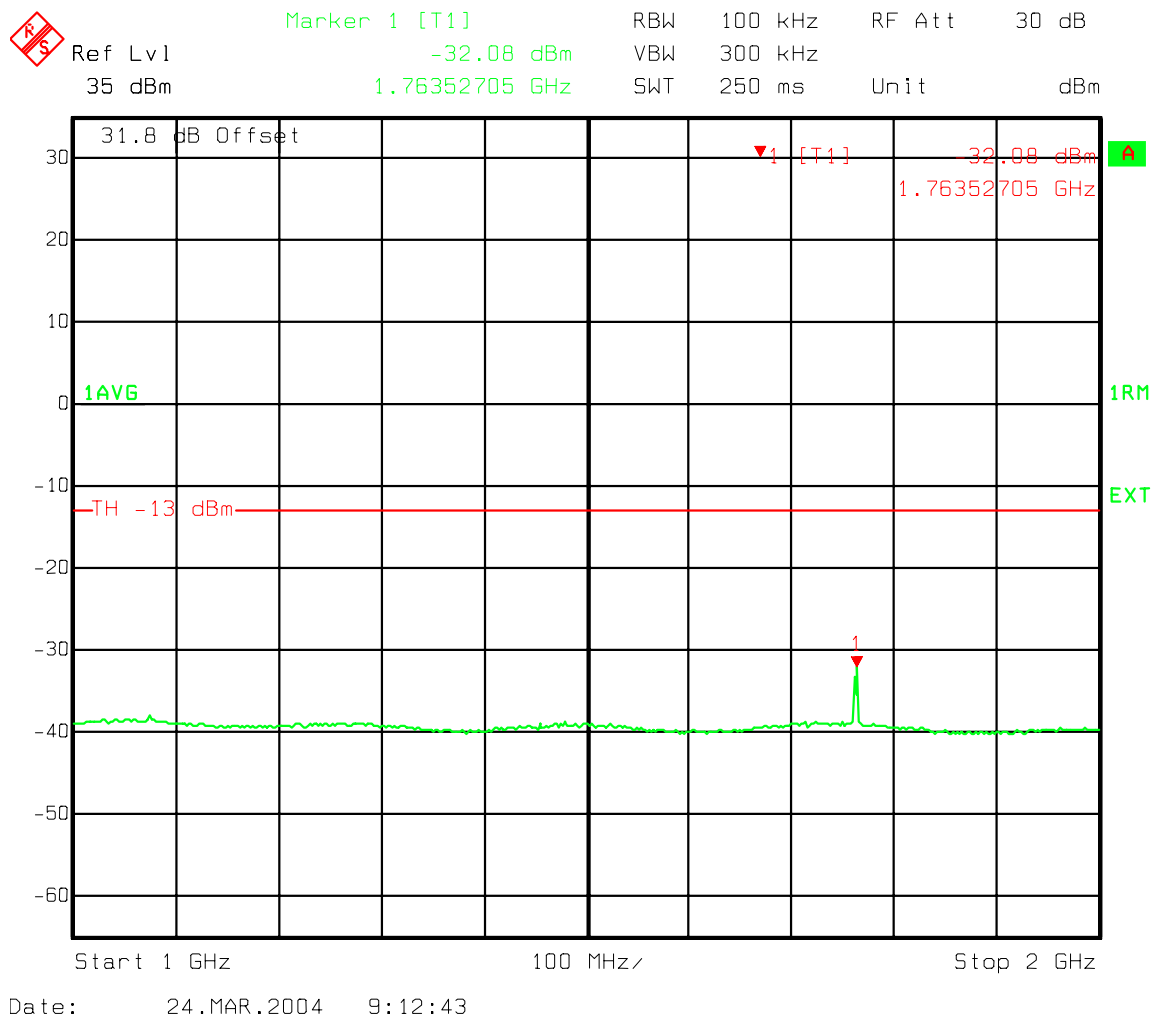


Figure 41 : Two Carriers - B Band IS95 Spurious emissions 1000-2000 MHz

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band IS95 Spurious emissions 2000-3000 MHz

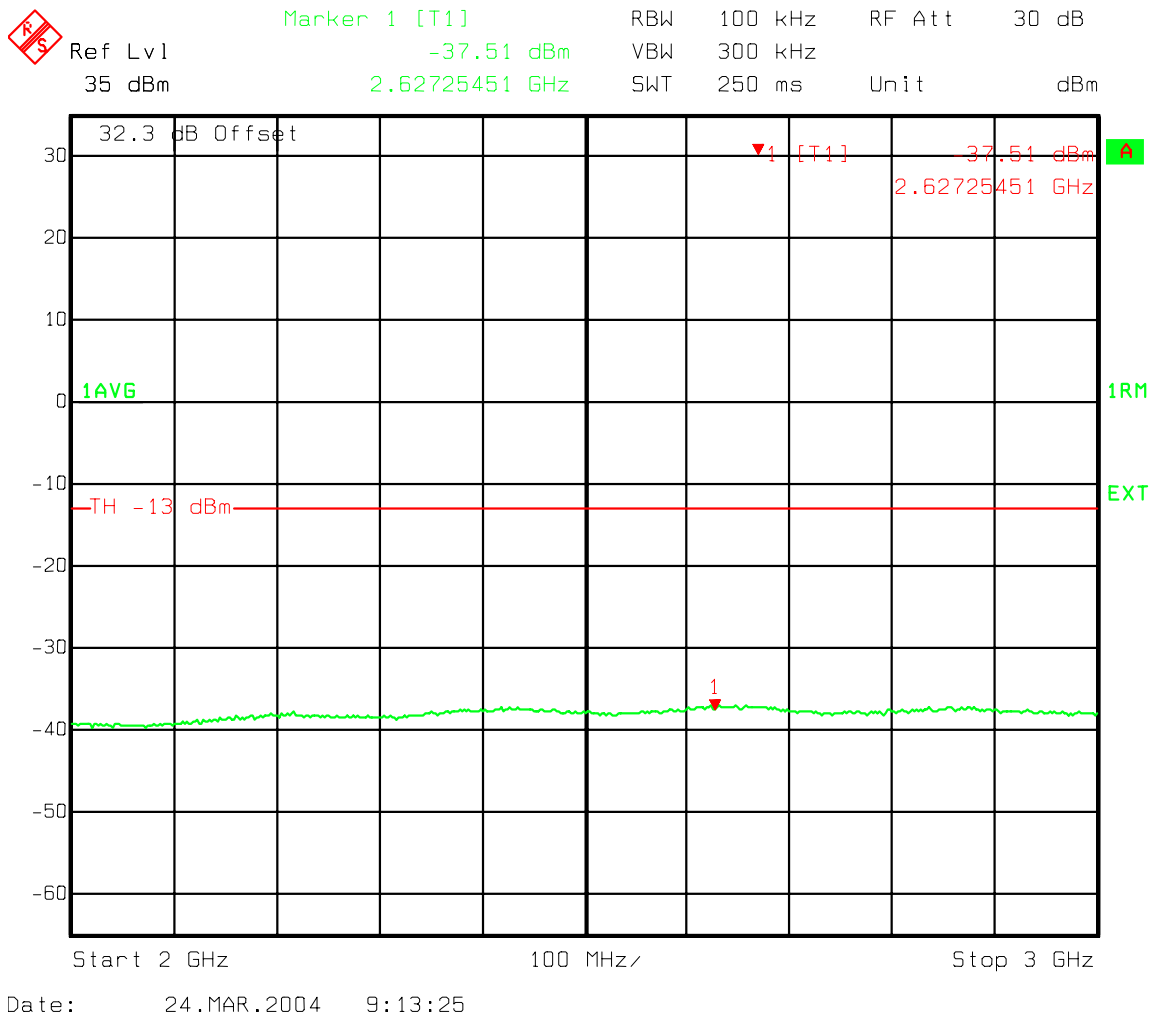


Figure 42 : Two Carriers - B Band IS95 Spurious emissions 2000-3000 MHz

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band IS95 Spurious emissions 3000-4000 MHz

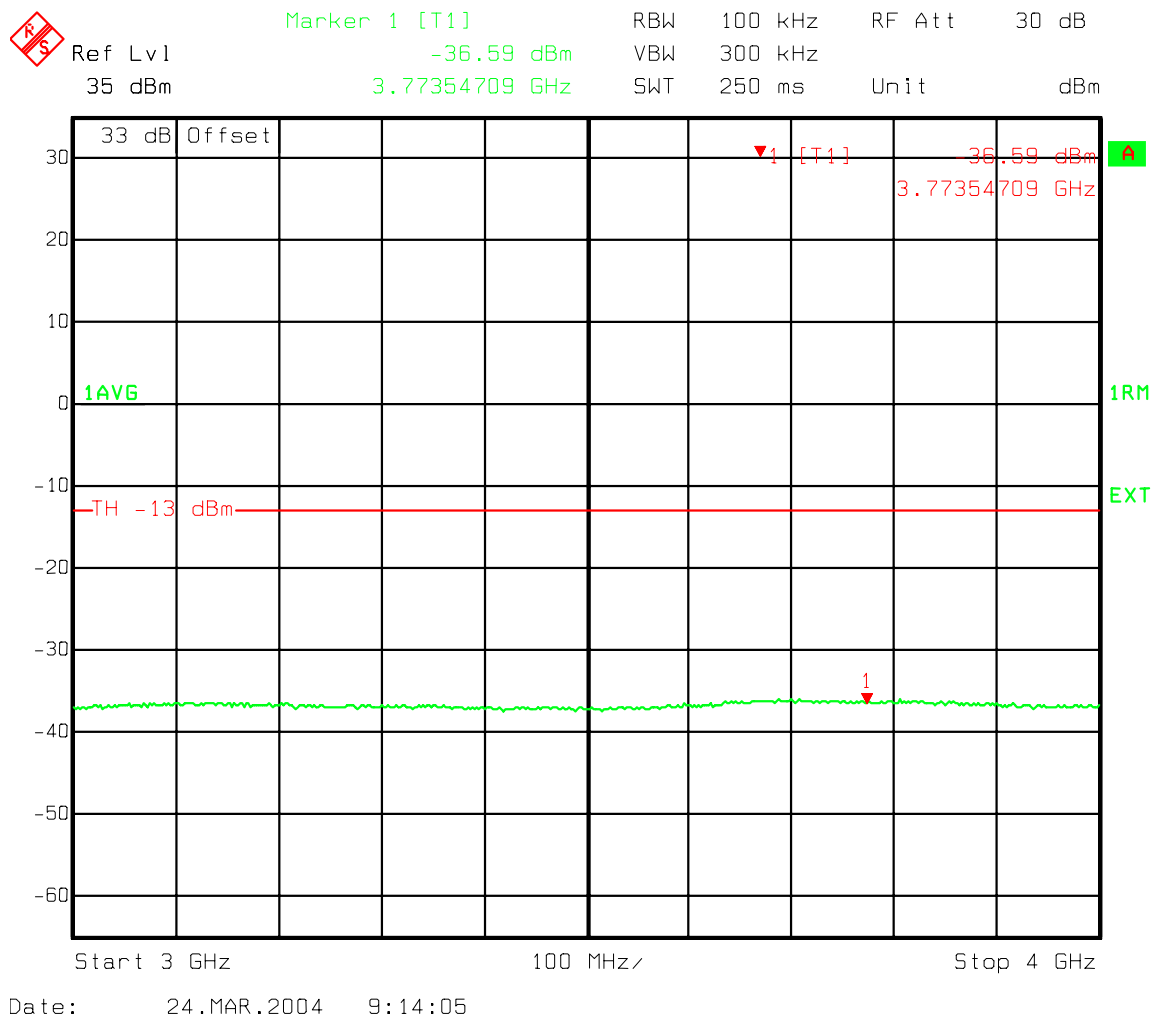


Figure 43 : Two Carriers - B Band IS95 Spurious emissions 3000-4000 MHz

**Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1
 (Tornado) Ant. Port band B IS95**

B Band IS95 Spurious emissions 4000-5000 MHz

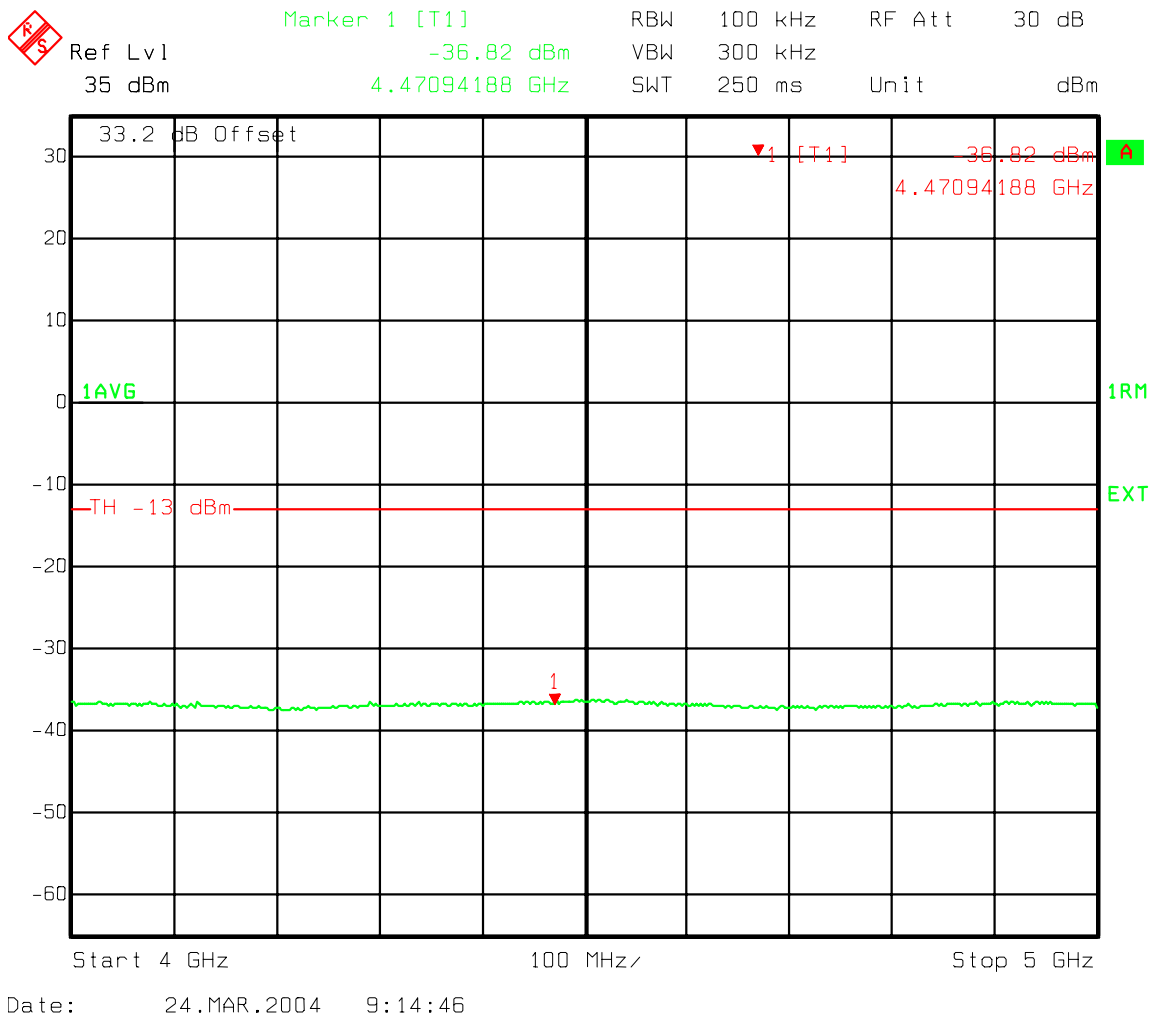


Figure 44 : Two Carriers - B Band IS95 Spurious emissions 4000-5000 MHz

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band IS95 Spurious emissions 5000-6000 MHz

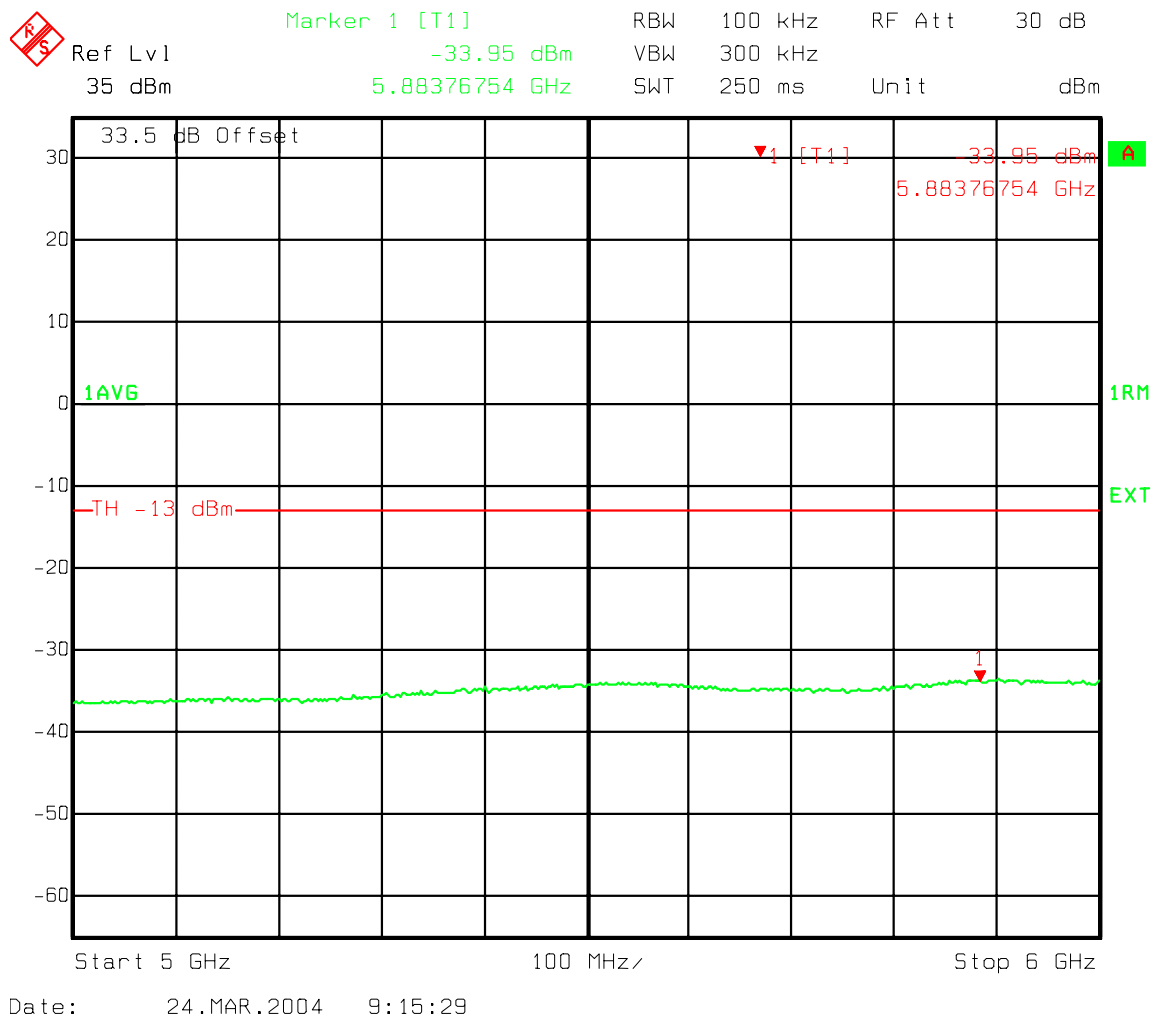


Figure 45 : Two Carriers - B Band IS95 Spurious emissions 5000-6000 MHz

**Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1
 (Tornado) Ant. Port band B IS95**

B Band IS95 Spurious emissions 6000-7000 MHz

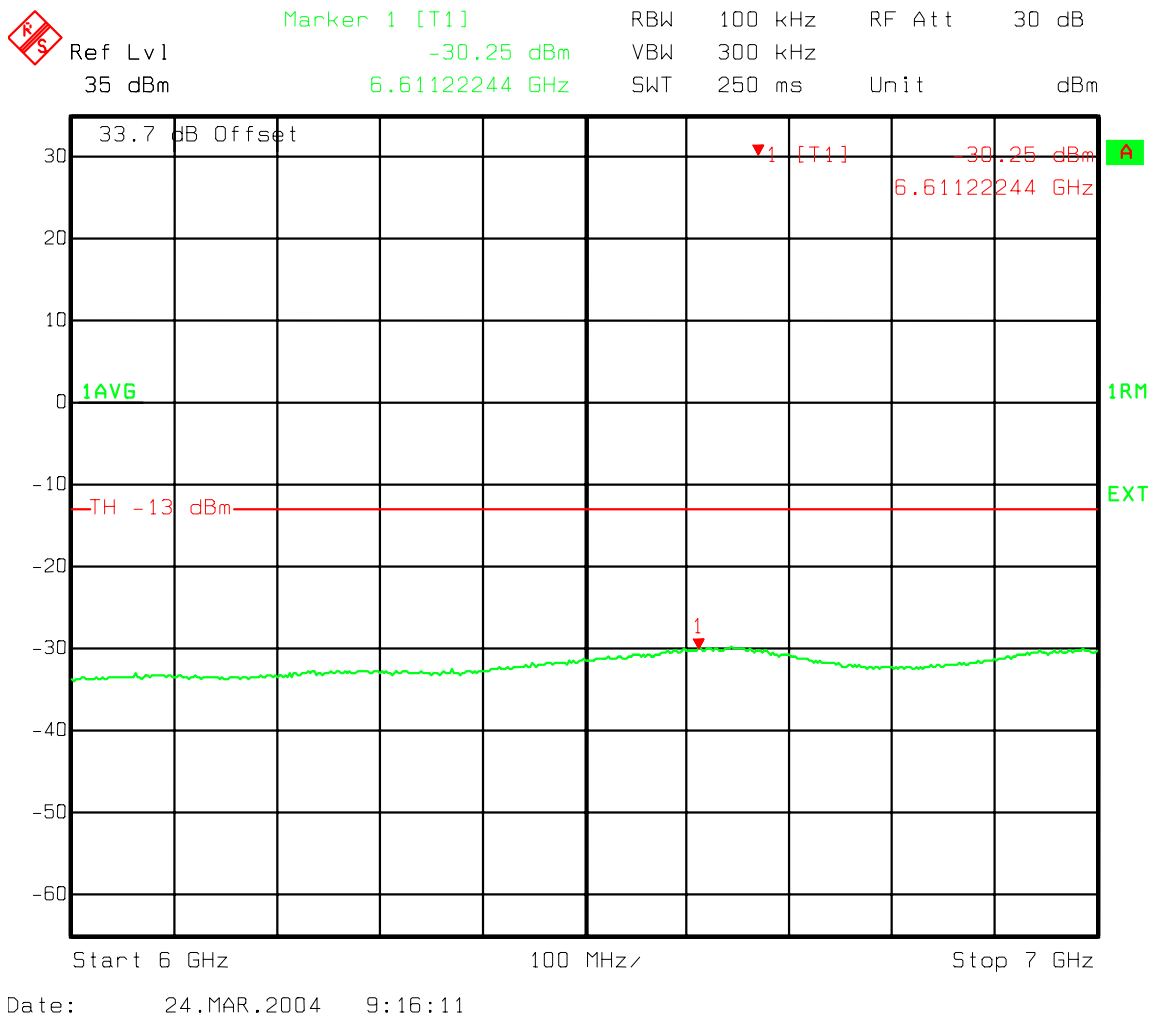


Figure 46 : Two Carriers - B Band IS95 Spurious emissions 6000-7000 MHz

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band IS95 Spurious emissions 7000-8000 MHz

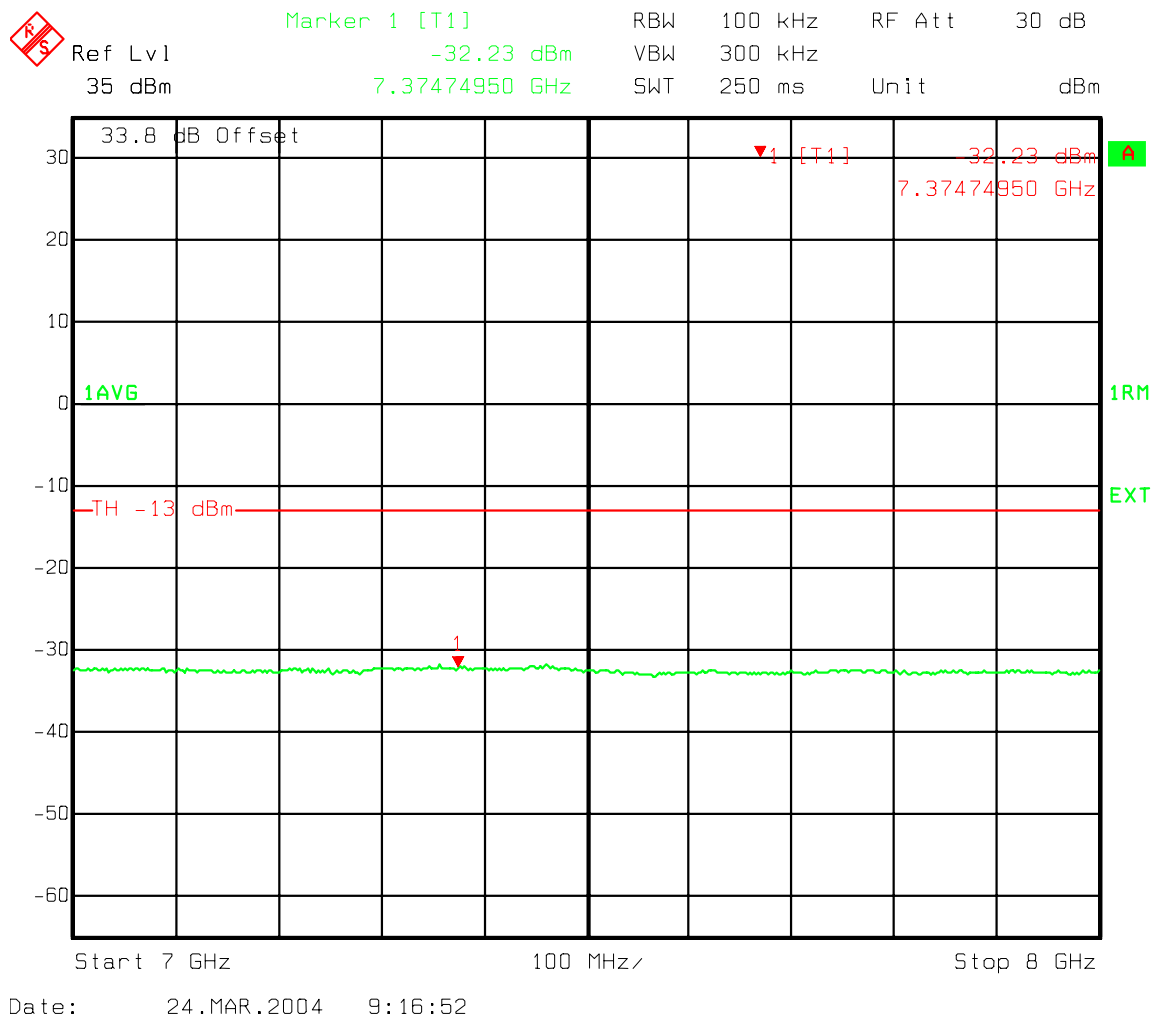


Figure 47 : Two Carriers - B Band IS95 Spurious emissions 7000-8000 MHz

Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1 (Tornado) Ant. Port band B IS95

B Band IS95 Spurious emissions 8000-9000 MHz

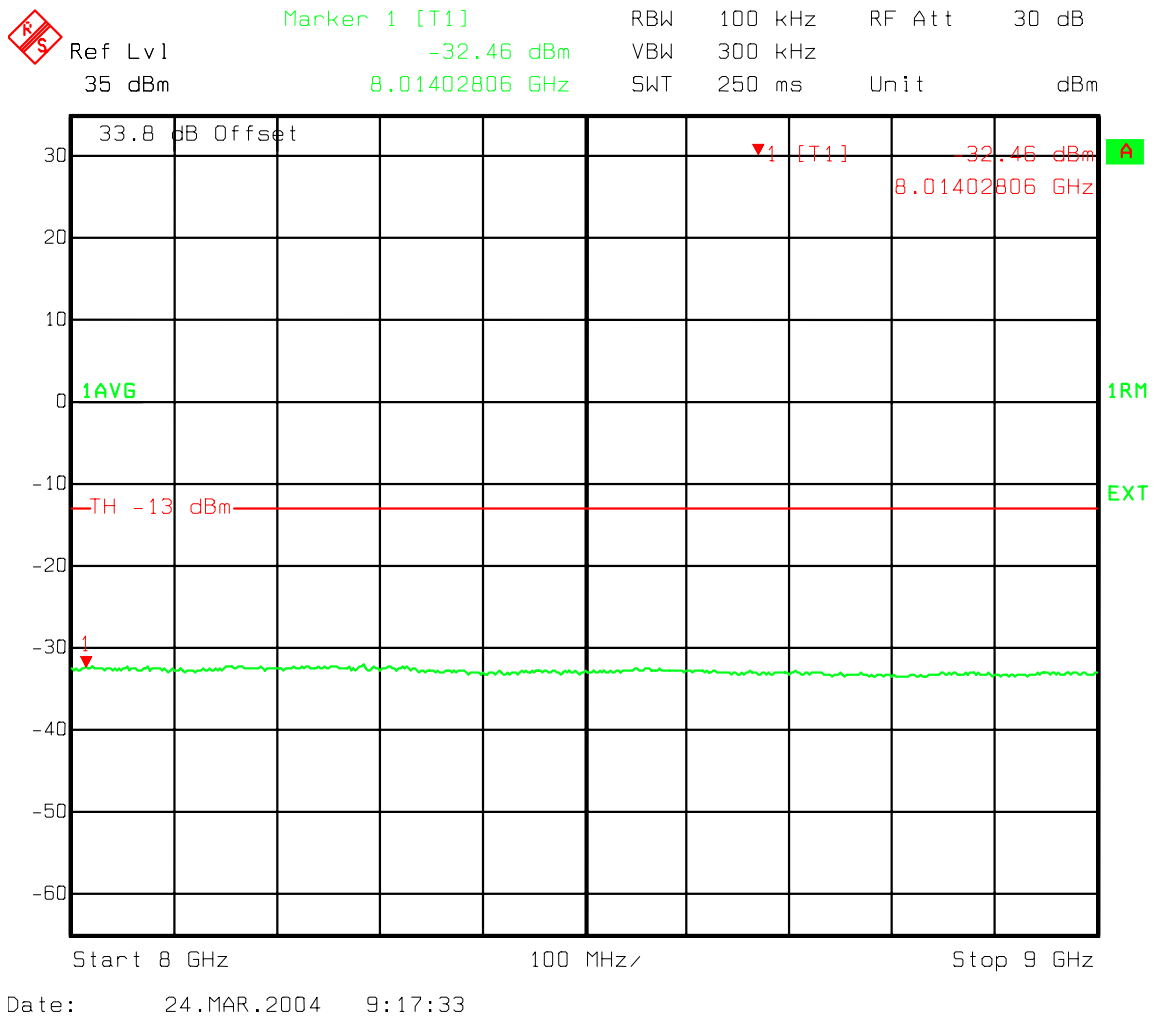


Figure 48 : Two Carriers - B Band IS95 Spurious emissions 8000-9000 MHz

**Two Carriers 358, 399 and 601, 642 Spurious Emissions at the 800 MHz MFRM1
(Tornado) Ant. Port band B IS95**

B Band IS95 Spurious emissions 9000-10000 MHz

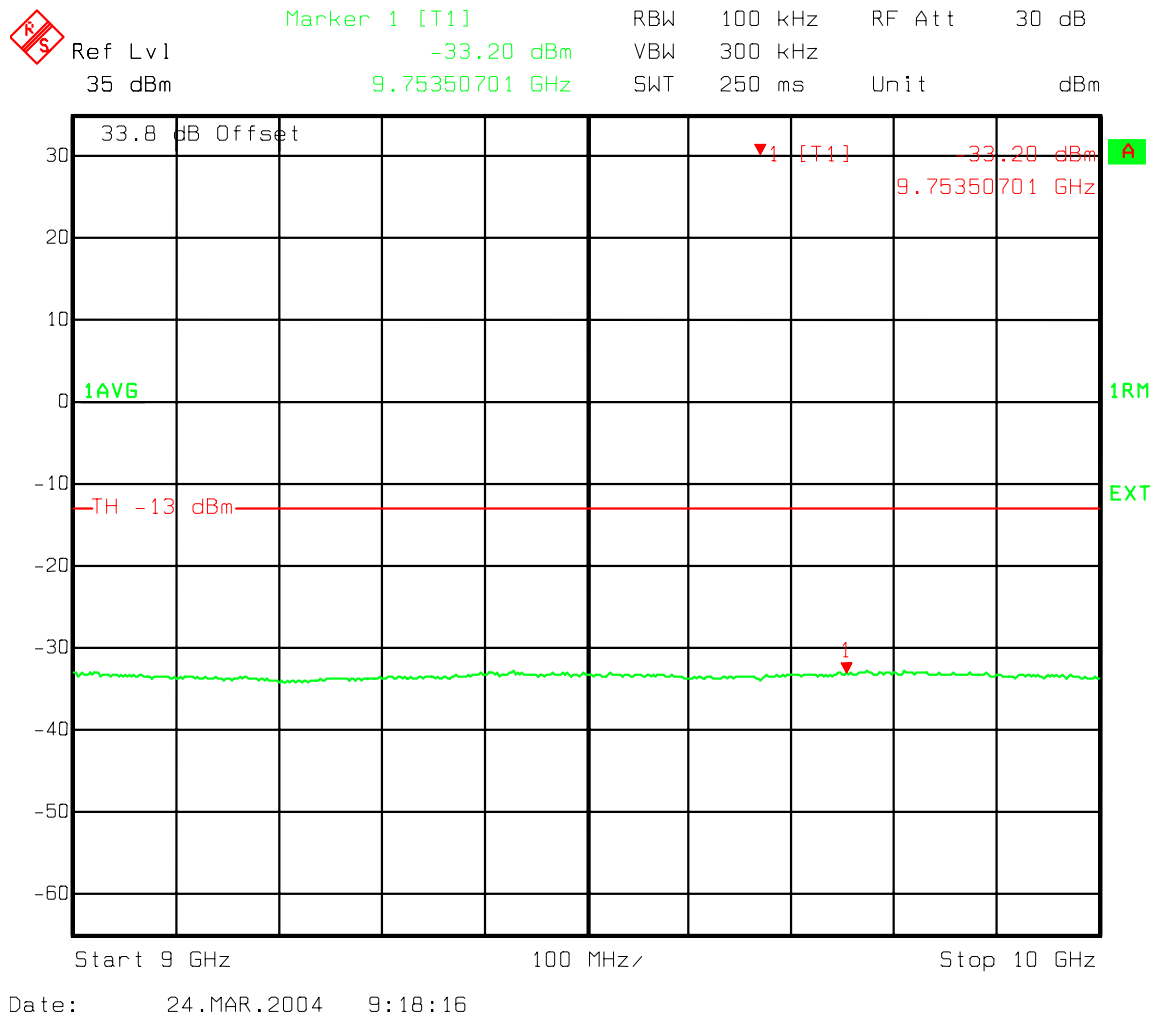


Figure 49 : Two Carriers - B Band IS95 Spurious emissions 9000-10000 MHz