EXHIBIT 2A

Test Report Provided by Nortel

Applicant: Nortel Networks

For Class II Permissive Change on:

AB6NT1900RM-CBTS

Test Report for FCC Equipment Authorization

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Decision Maker

Decision Maker's Name	Signature	Date
Thomas Wong		

Decision Ratifier

The release of this document will be reviewed and approved for distribution and use by the following:

Ratifier's Name	Signature	Date
Rick Kerslake		

Revision History

Stream/ issue	Revision Date	Reason for Change	Author
00/0.1	February 21, 2006	Test Report Released	Tuan Tran

Change bars are not used in this document.

Acronyms and Abbreviations

BTS	Base Station Transceiver Subsystem
BW	Bandwidth
cBTS	Compact Base Station Transceiver Subsystem
CDMA	Code Division Multiple Access
CEM	Channel Element Module
DPM	Duplexer Preselector Module
GPSTM	Global Position System Timing Module
IS	Interim Standard
PA	Power Amplifier
PC	Personal Computer
RBW	Resolution BandWidth
RF	Radio Frequency
RM	Radio Module
SA	Spectrum Analyzer
VSA	Vector Signal Analyzer

1 Introduction

This test report supports FCC filing for the cBTS 1900 MHz Radio Module. This test report will be used as a Class II permissive change filing for FCC part 24. This filing includes single, two and three carrier modes for the 1900 MHz PCS band. The following test results include; RF Power Output, Occupied Bandwidth and Spurious Emissions at Antenna Terminals. Frequency Stability over voltage and temperature test results are included. Emissions testing was conducted at -48VDC at room temperature as well as applicable environmental temperature limits for the product. The IS95, IS-2000, IS-856 and IS-856A 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's cBTS 1900 MHz Radio Module (1900 MHz RM).

The cBTS 1900 MHz Radio Module is intended for use in the Domestic Public Personal Communications Service area and is designed in accordance with the following standards:

- *CFR 47, Part 24, Subpart E, Broadband Personal Communications Service [1]*
- *CFR 47, Part 2, Subpart J, Equipment Authorization Procedures - Equipment Authorization [2]*
- *IC RSS-133, Issue 2, 2 GHz Personal Communication Services [3]*
- *ANSI-97-E, Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations [4]*

1.1 Required Tests

Table 1 summarizes the required tests[1] for the CDMA cBTS 1900 MHz Radio Module.

Table 1 : Required Tests

FCC Measurement Specification	FCC Limit Specification	Description	Test to be Performed?
2.1046	24.232	RF Power Output	Yes
2.1033	N/A	Application for certification	Yes
2.1049	24.131	Occupied Bandwidth	Yes
2.1051, 2.1057	24.238	Spurious Emissions at Antenna Terminals	Yes
2.1055	24.235	Frequency Stability	Yes

1. This test report presents FCC part 24 results tested in Nortel Labs. Field Strength of Spurious Emissions test measurements along with requirements specified in 2.1033 are covered in a separate Product Integrity test plan from C-MAC Engineering Canada.

2 Engineering Declaration

The CDMA cBTS 1900 MHz Radio Module has been tested in accordance with the requirements contained in the Federal Communications Commission Rules and Regulations Part 2 and 24.

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: Tranhtuan Date: Feb 23 /06

Reviewed by:
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Signature: [signature] Date: Feb 24, 2006

Approved by:
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Signature: Rick Kerslake Date: Feb. 28, 2006

3 Equipment Authorization Application Requirements

3.1 Standard Test Conditions and Test Equipment

The cBTS 1900 MHz Radio Module 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)
- Supported Modulations: IS-95 (dual BPSK) IS-2000 (true QPSK) and IS856/IS856A (QPSK, 8-PSK, 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
cBTS 1900 MHz Radio Module System (comprised of the modules below)	N/A	N/A	N/A
a) cBTS 1900 MHz Radio Module	NTRZ71CA	P5	NNTM536G3LFY
c) A/D Band DPM	NTRZ89AA	P5	CLWvWW100PH7
d) B/E Band DPM	NTRZ89CA	P3	CLWVWW100DC5
e) C/F Band DPM	NTRZ89EA	P3	CLWVWW100DC7
f) XCEM 192 Module (IS95/IS2000)	NTRZ80BA	07	NNTM74X0L0PK1
g) DOM Rev. 0 (IS856)	NTBW99D0	N1	ARVN2442007
h) DOM Rev. A (IS56A)	NTBW89DA	N6	NNTM536G3MDX
k) DOM Rev. A (IS56A)	NTBW89DA	N6	NNTM536G3M4M
l) DOM Rev. A (IS56A)	NTBW99DA	N6	NNTM536G3M4K

3.3 Test Equipment List

Table 3 shows the identification of the test equipment required for testing.

Table 3 : Test Equipment List

Description	Manufacturer	Model	Serial/Batch Number	Cal. Due Date
20 Hz to 40.0 GHz Spectrum Analyzer	Rohde&Schwarz	FSEM-30	100024	Jan 5 / 07
RF Power Meter	HP	E4419A	US38260822	Oct 21 / 07
RF Power Sensor Head	HP	E9300A	MY41496938	Oct 21 / 07
30dB Attenuator	NARDA	776B-30	N/A	Verified
20 dB Attenuator	NARDA	4778-20	N/A	Verified
6 dB Attenuator	NARDA	4778-6	N/A	Verified
RF Cable	N/A	N/A	N/A	Verified

4 Transmitter Tests

4.1 RF Power Output

4.1.1 RF Power Output Requirements

FCC Part 2.1046

(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 Sec. 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.

FCC Limit (Subpart E--Broadband PCS, Sec. 24.232 Power and antenna height limits.)

In no case may the peak output power of a base station transmitter exceed 100 watts.

4.1.2 Test Method

The cBTS is setup via the BTS controller to enable the cBTS 1900 MHz Radio Module to transmit at maximum rated output power level. Measurements are made on channels at the bottom and top of the licensed sub-bands with the Compact RM operating with -48Vdc. in one, two and three carrier configurations and for each of the supported modulation formats. The RF power output is measured using power meter.

4.1.3 Test Setup

The set-up used for the cBTS 1900 MHz Radio Module RF power output test is illustrated in Figure 1. RF power output measurements are referenced to the DPM antenna port.

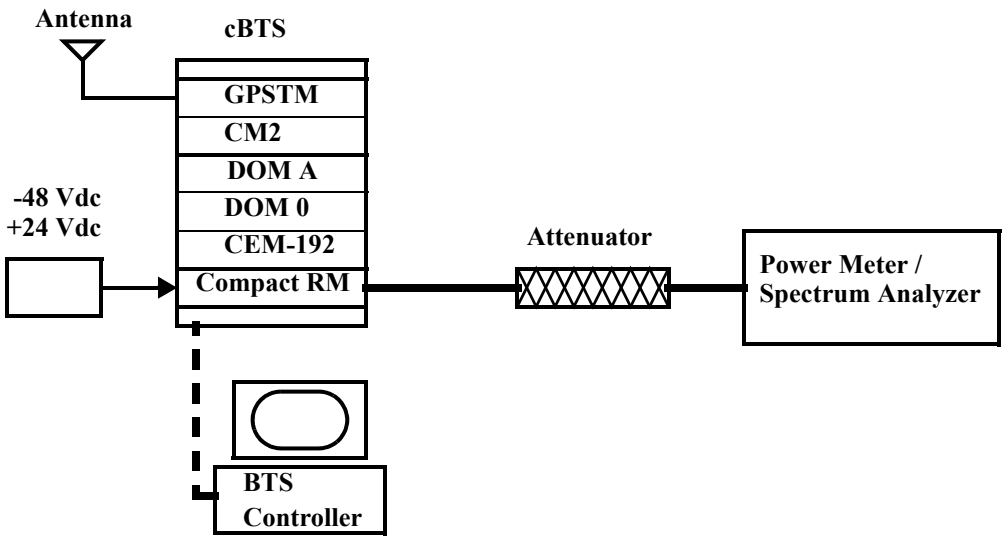


Figure 1 : Test Setup for RF Power Output Measurement

4.1.4 Test Results

The cBTS 1900 MHz Radio Module complies with the requirement. The RF power output measured in one, two and three carrier configurations for each of the licensed subbands and supported modulation formats is shown in Table 4 through Table 9. The maximum measured RF output power from the cBTS 1900 MHz Radio Module was 46.06 dBm.

Table 4 : RF Output Power of cBTS 1900 MHz Radio Module, 1 Carrier, IS-95 Mode

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	FCC Limit (dBm)
25 (A)	1931.25	46.05	46.0	50
1175 (C)	1988.75	46.06	46.0	50

Table 5 : RF Output Power of cBTS 1900 MHz Radio Module, 1 Carrier, IS-856/IS856A

Channel Number (Band)	Mode	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	FCC Limit (dBm)
425 (B)	16QAM (DOM 0)	1951.25	45.84	46.0	50
775 (E)	16QAM (DOM 0)	1968.75	45.97	46.0	50
425 (B)	16QAM (DOM A)	1951.25	45.92	46.0	50
775 (E)	16QAM (DOM A)	1968.75	45.93	46.0	50

Table 6 : RF Output Power of cBTS 1900 MHz Radio Module, 2 Carrier

Channel Number (Band)	Mode	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	FCC Limit (dBm)
25, 50 (A)	IS 95	1931.25, 1932.5	45.98	46.0	50
1150, 1175 (C)	IS 95	1987.5, 1988.75	46.05	46.0	50
25, 50 (A)	16QAM (DOM 0)	1931.25, 1932.5	45.94	46.0	50
1150, 1175 (C)	16QAM (DOM 0)	1987.5, 1988.75	45.99	46.0	50
25, 50 (A)	16QAM (DOM A)	1931.25, 1932.5	45.96	46.0	50
1150, 1175 (C)	16QAM (DOM A)	1987.5, 1988.75	45.97	46.0	50

Table 7 : RF Output Power of cBTS 1900 MHz Radio Module, 3 Carrier, IS-95 Mode

Channel Number (Band)	Frequency (MHz) (centre channel)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	FCC Limit (dBm)
25, 50, 75 (A)	1932.5	45.99	46.0	50
325, 350, 375 (D)	1947.5	46.06	46.0	50
825, 850, 875 (F)	1972.5	46.03	46.0	50
1125, 1150, 1175 (C)	1987.5	46.01	46.0	50

Table 8 : RF Output Power of cBTS 1900 MHz Radio Module, 3 Carrier IS-856A

Channel Number (Band)	Mode	Frequency (MHz) (centre channel)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	FCC Limit (dBm)
25, 50, 75 (A)	16QAM (DOM A)	1932.5	45.96	46.0	50
325, 350, 375 (D)	16QAM (DOM A)	1947.5	45.99	46.0	50
425, 450, 475 (B)	QPSK (DOM A)	1952.5	45.98	46.0	50
725, 750, 775 (E)	QPSK (DOM A)	1967.5	45.96	46.0	50
825, 850, 875 (F)	8 PSK (DOM A)	1972.5	46.02	46.0	50
1125, 1150, 1175 (C)	8 PSK (DOM A)	1987.5	45.97	46.0	50

Table 9 : RF Output Power of cBTS 1900 MHz Radio Module, 2 Carrier IS-95 & 1 Carrier IS-856A, 16-QAM Mode

Channel Number (Band)	Frequency (MHz) (centre channel)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	FCC Limit (dBm)
425, 450, 475 (B)	1952.5	46.02	46.0	50
725, 750, 775 (E)	1967.5	45.98	46.0	50

4.2 Certification Requirements

4.2.1 Application for certification

FCC Part 2.1033 Application for certification.

(c) Applications for equipment other than that operating under parts 15 and 18 of the rules shall be accompanied by a technical report containing the following information:

(8) The dc voltages applied to and dc currents into the several elements of the final radio frequency amplifying device for normal operation over the power range.

4.2.2 Test Results

The final amplifying dc voltage is 27.0 Vdc. The final dc current is shown in Table 10:

Table 10 : Average Current Values Pout = 47 dBm @ the output of PA

Average Current Values @ Pout = 47 dBm				
	25°C			
	Q4 [A]	Q5 [A]	Q6 [A]	Q7 [A]
25, 50, 75 (A)	2.11	2.53	2.46	2.36
575, 600, 625 (B)	2.11	2.50	2.36	2.25
1125, 1150, 1175 (C)	2.07	2.46	2.25	2.18
Mean	2.1	2.50	2.36	2.24

4.3 Occupied Bandwidth

4.3.1 Occupied Bandwidth Requirements

FCC Part 2.1049

The occupied bandwidth, 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) Transmitters 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 the discretion of the user.

4.3.2 Test Method

The cBTS is setup via the BTS controller to enable the cBTS 1900 MHz Radio Module to transmit at maximum rated output power level. Measurements are made on channels at the bottom and top of the licensed sub-bands with the Compact RM operating with -48Vdc. in one, two and three carrier configurations and for each of the supported modulation formats. The occupied bandwidth is measured using the 99% Channel Power feature of the SA.

4.3.3 Test Setup

The set-up used for the cBTS 1900 MHz Radio Module Occupied bandwidth test is illustrated in Figure 2.

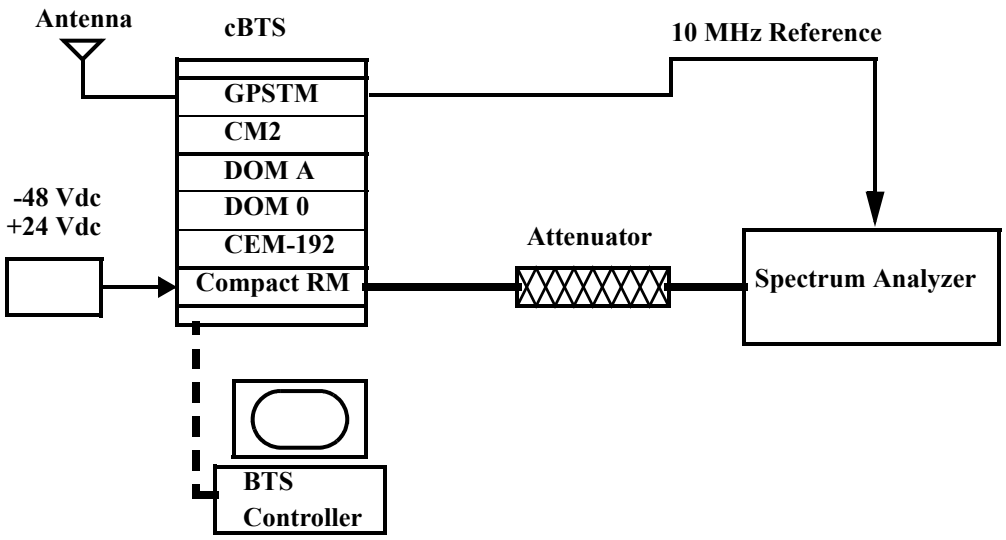


Figure 2 : Test Setup for Occupied Bandwidth Measurement

4.3.4 Test Results

The cBTS 1900 MHz Radio Module complies with the requirement. The occupied bandwidth measured in one, two and three carrier configurations for each of the licensed subbands and supported modulation formats is shown in Table 11 through Table 16.

Table 11 : Occupied Bandwidth, cBTS 1900 MHz Radio Module, 1 Carrier, IS-95 Mode

Channel Number (Band)	Frequency (MHz)	Measured Occupied Bandwidth (kHz)
25 (A)	1931.25	1262.52
1175 (C)	1988.75	1270.54

Table 12 : Occupied Bandwidth, cBTS 1900 MHz Radio Module, 1 Carrier, IS-856IS856A

Channel Number (Band)	Module	Frequency (MHz)	Measured Occupied Bandwidth (kHz)
425 (B)	DOM 0	1951.25	1262.52
775 (E)	DOM 0	1968.75	1266.53
425 (B)	DOM A	1951.25	1266.53
775 (E)	DOM A	1968.75	1266.53

Table 13 : Occupied Bandwidth, cBTS 1900 MHz Radio Module, 2 Carrier

Channel Number (Band)	Mode	Frequency (MHz)	Measured Occupied Bandwidth (kHz)
25, 50 (A)	IS 95	1931.25, 1932.5	2492.85
1150, 1175 (C)	IS 95	1987.5, 1988.75	2484.96
25, 50 (A)	16QAM DOM 0	1931.25, 1932.5	2484.96
1150, 1175 (C)	16QAM DOM 0	1987.5, 1988.75	2484.96
25, 50 (A)	16QAM DOM A	1931.25, 1932.5	2476.95
1150, 1175 (C)	16QAM DOM A	1987.5, 1988.75	2492.98

Table 14 : Occupied Bandwidth, cBTS 1900 MHz Radio Module, 3 Carrier, IS-95 Mode

Channel Number (Band)	Frequency (MHz) (centre channel)	Measured Occupied Bandwidth (kHz)
25, 50, 75 (A)	1932.5	3719.43
325, 350, 375 (D)	1947.5	3719.43
825, 850, 875 (F)	1972.5	3703.40
1125, 1150, 1175 (C)	1987.5	3719.43

Table 15 : Occupied Bandwidth, cBTS 1900 MHz Radio Module, 3 Carrier IS-856A

Channel Number (Band)	Mode	Frequency (MHz) (centre channel)	Measured Occupied Bandwidth (kHz)
25, 50, 75 (A)	16-QAM (DOM A)	1932.5	3719.43
325, 350, 375 (D)	16 QAM (DOM A)	1947.5	3719.43
425, 450, 475 (B)	QPSK (DOM A)	1952.5	3719.43
725, 750, 775 (E)	QPSK (DOM A)	1967.5	3719.43
825, 850, 875 (F)	8 PSK (DOM A)	1972.5	3719.43
1125, 1150, 1175 (C)	8PSK (DOM A)	1987.5	3719.43

Table 16 : Occupied Bandwidth, cBTS 1900 MHz Radio Module, 2 Carrier IS-95 & 1 Carrier IS-856A, 16-QAM (DOM A) Mode

Channel Number (Band)	Frequency (MHz) (centre channel)	Measured Occupied Bandwidth (kHz)
425, 450, 475 (B)	1952.5	3703.40
725, 750, 775 (E)	1967.5	3719.43

Figure 3 : Occupied Bandwidth - 1 Carrier, Channel 25, IS-95 Mode

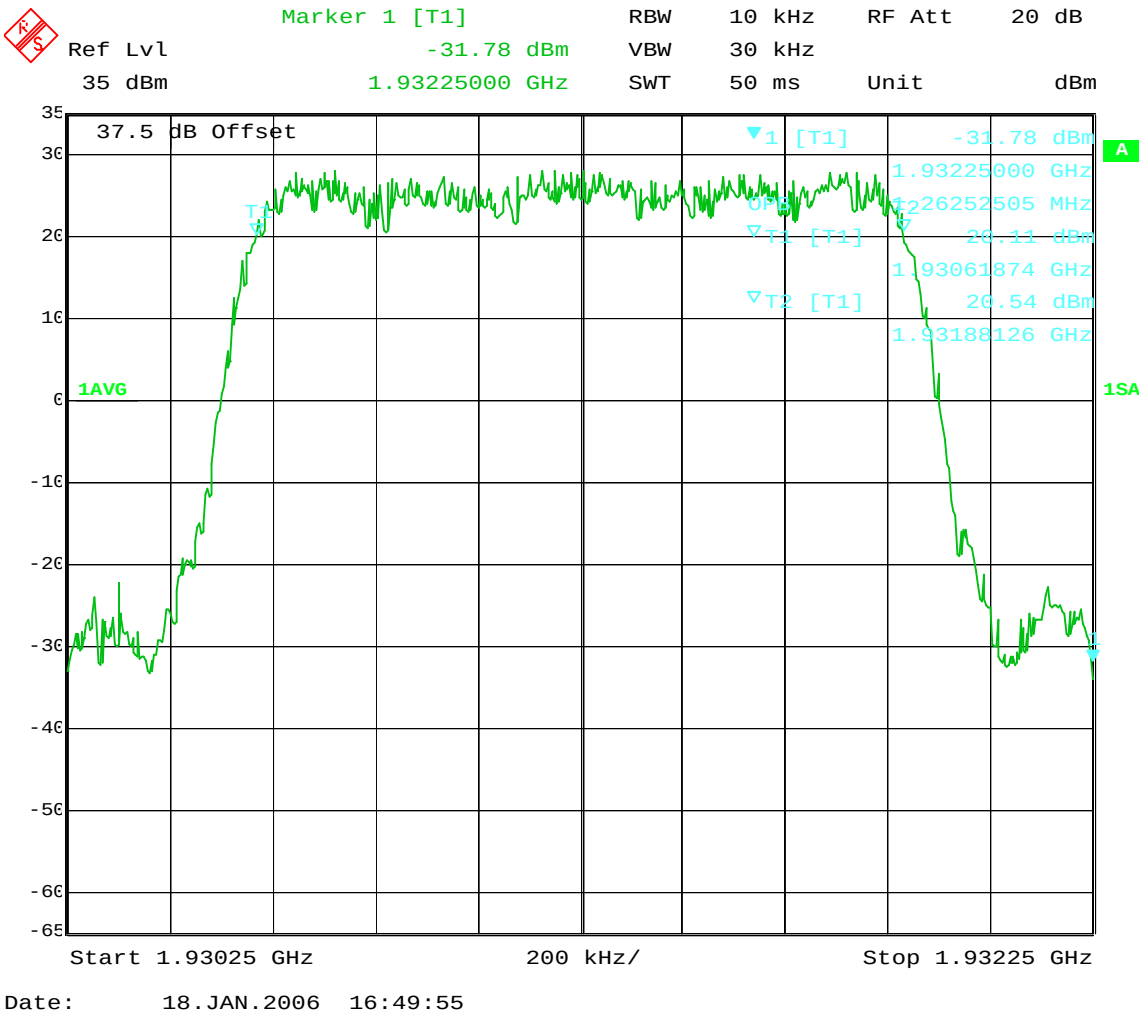
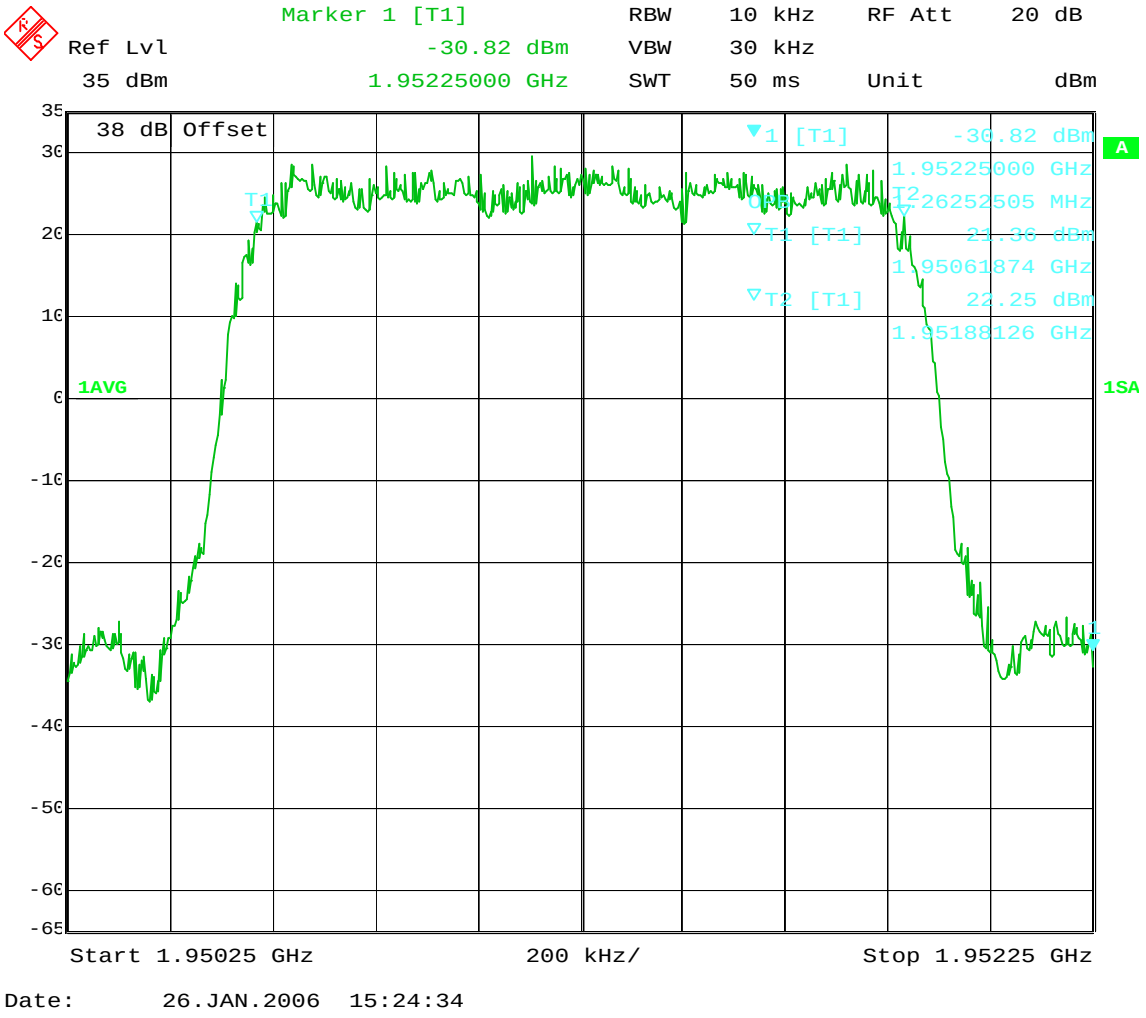


Figure 4 : Occupied Bandwidth - 1 Carrier, Channel 425, IS-856A, 16-QAM (DOM A)



Mode

Figure 5 : Occupied Bandwidth - 2 Carrier, Channels 25 & 50, IS-95 Mode

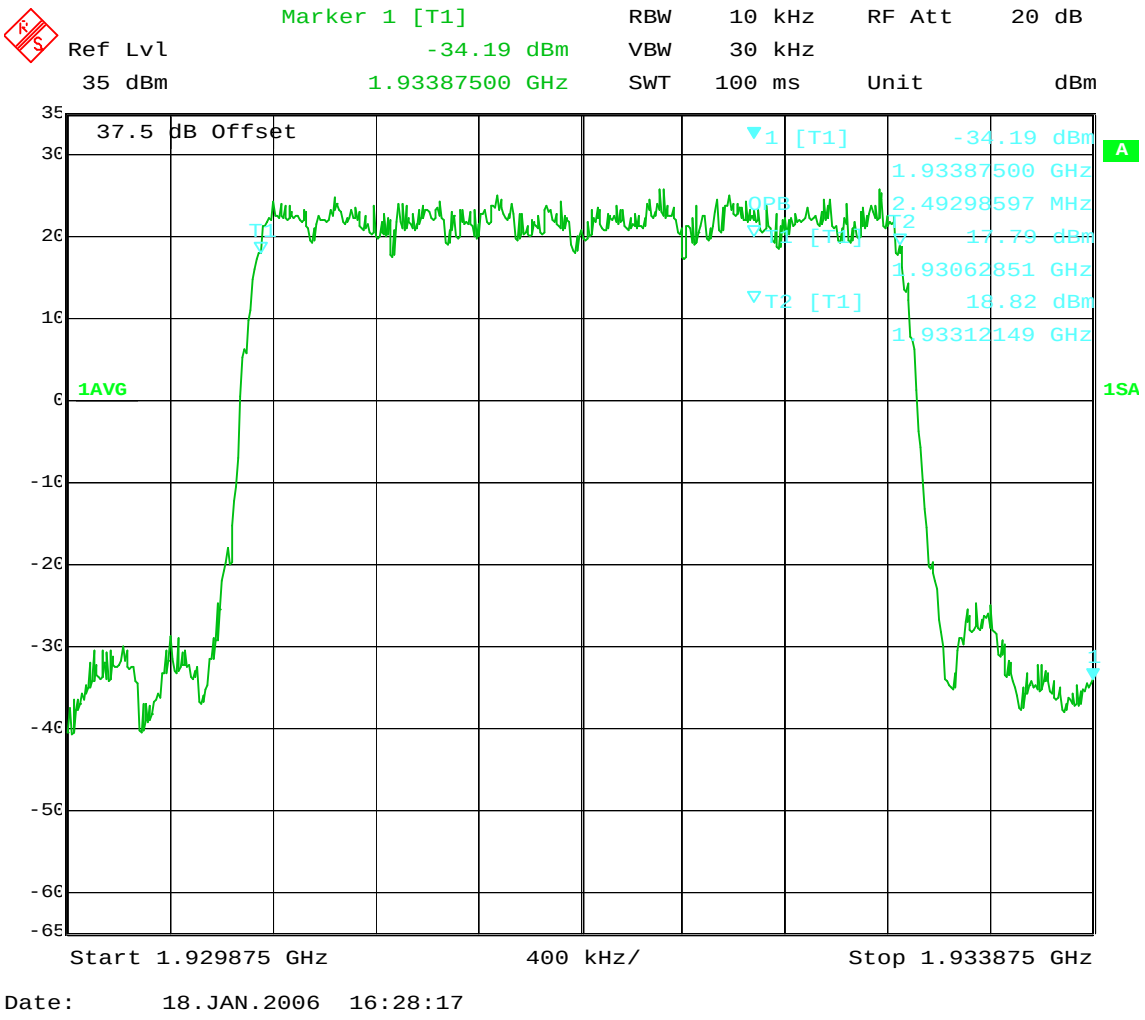


Figure 6 : Occupied Bandwidth - 3 Carrier, Channels 25, 50 &75, IS-95 Mode

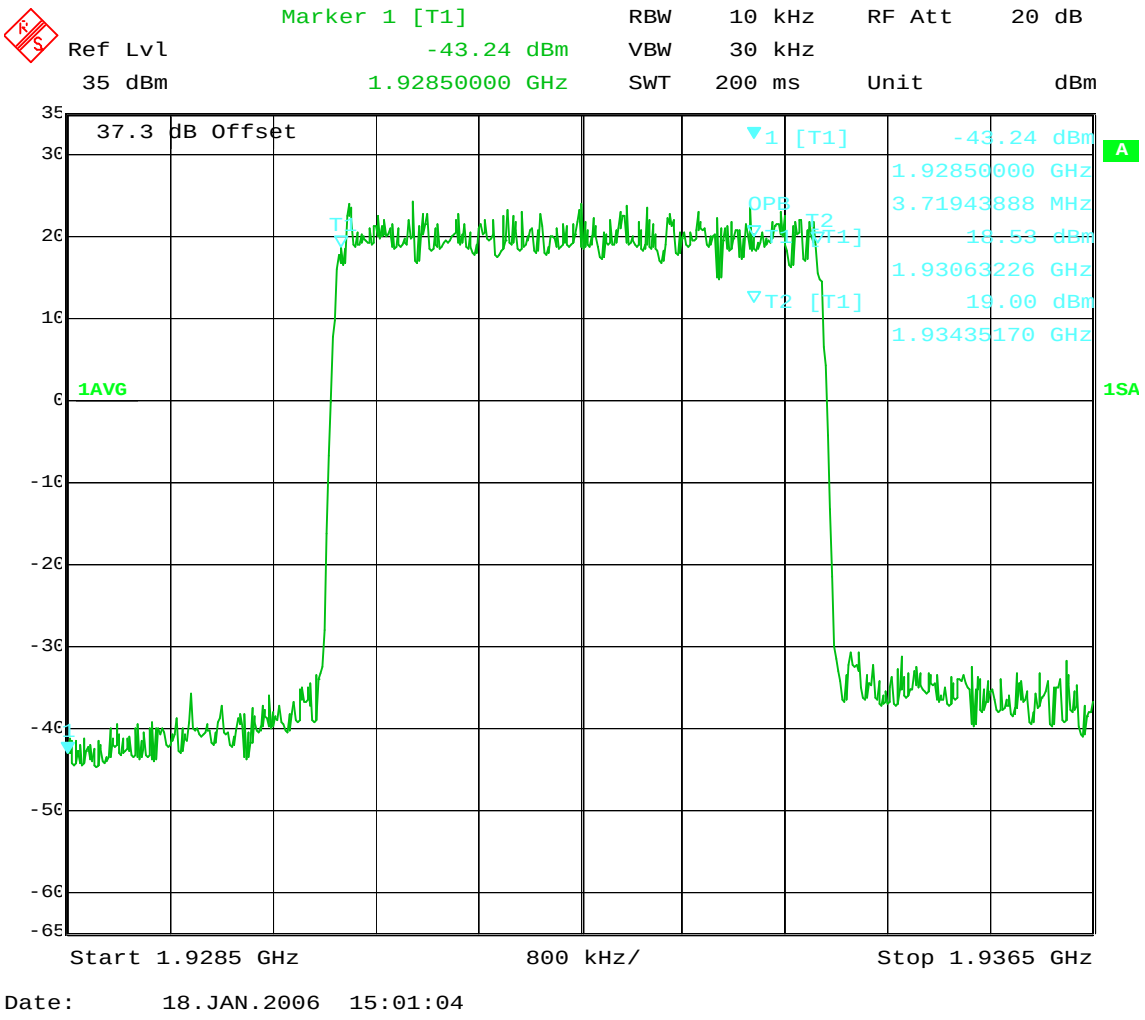


Figure 7 : Occupied Bandwidth - 3 Carrier, Channels 325, 350 & 375, IS-856A, 16-QAM (DOM A) Mode

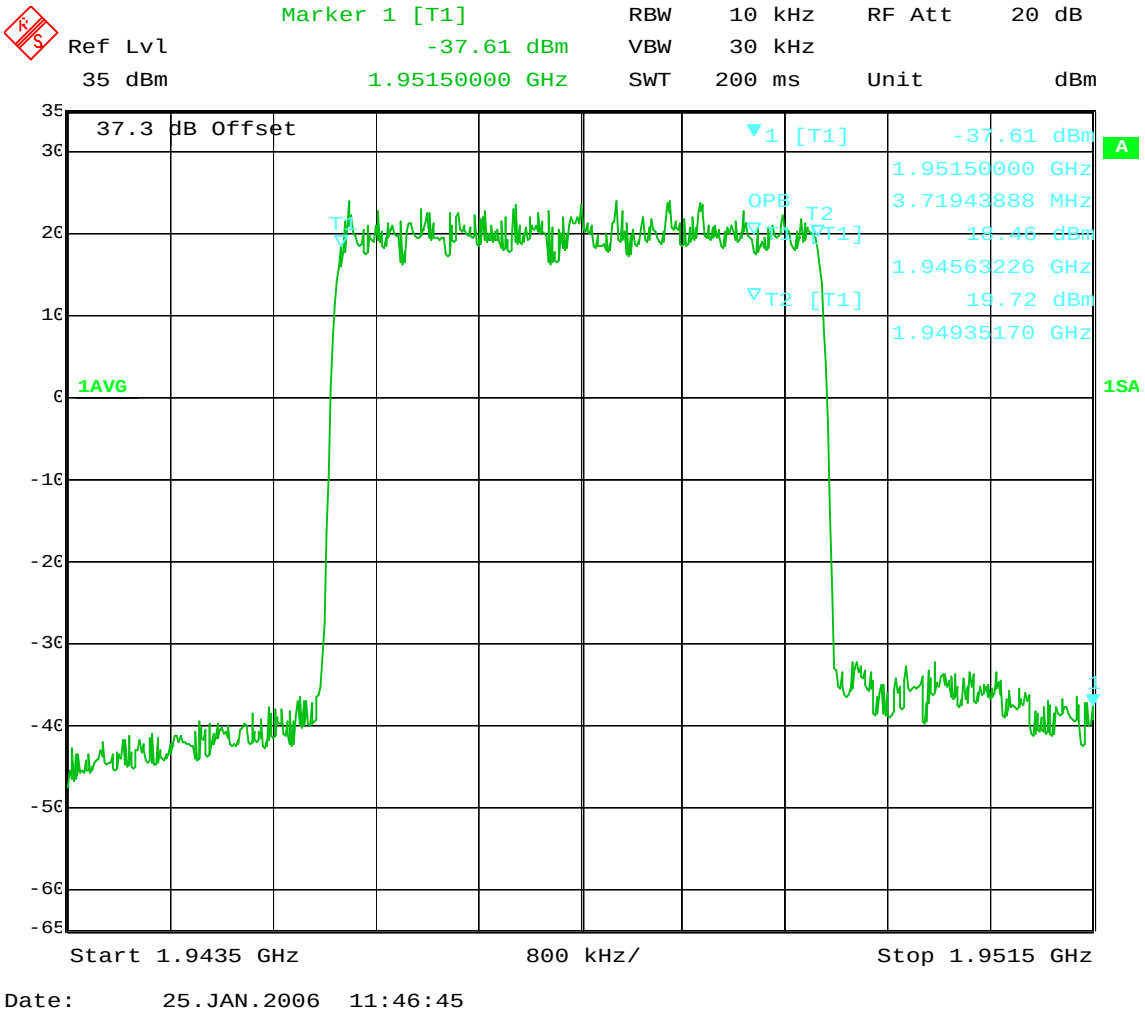
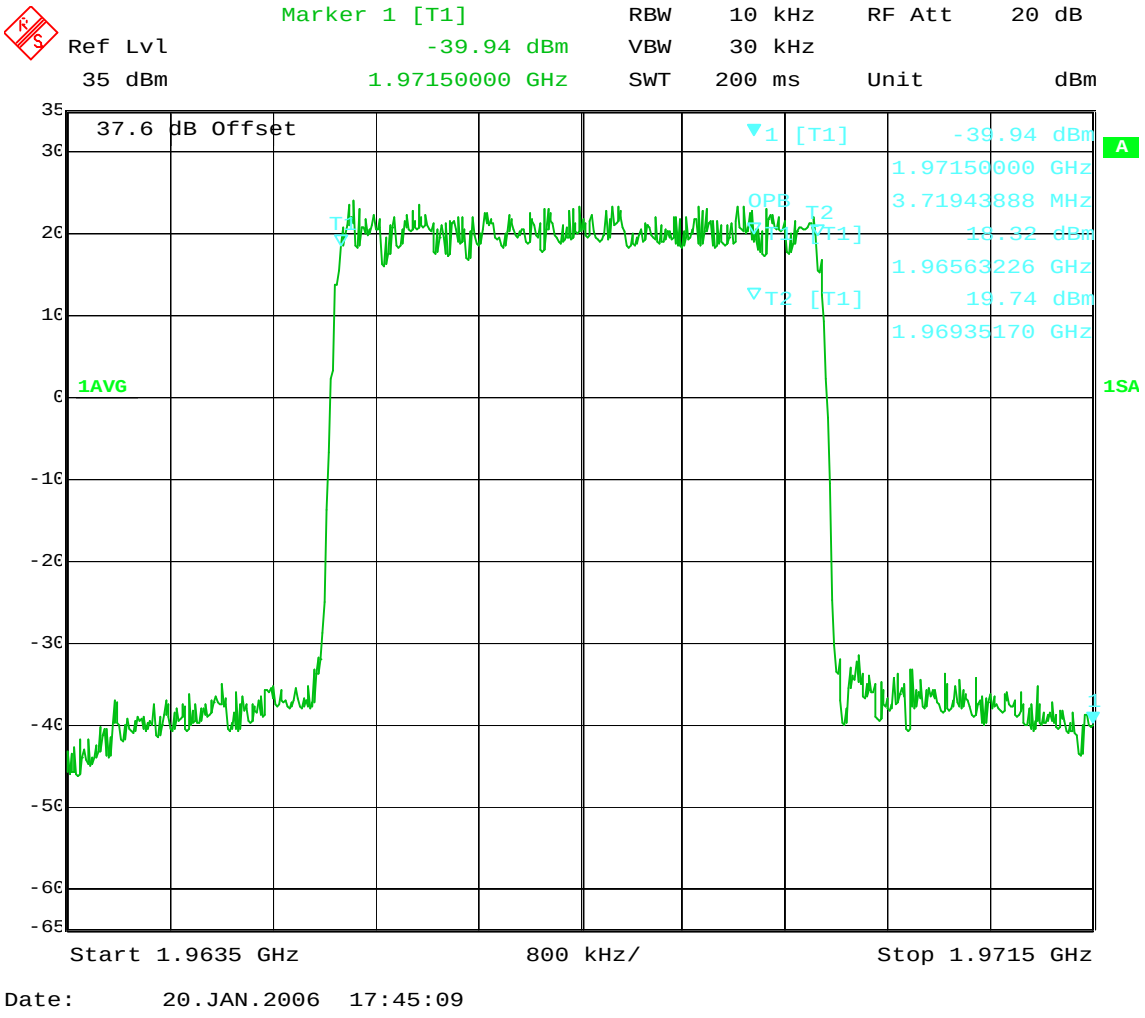


Figure 8 : Occupied Bandwidth - 3 Carrier, Channels 725, 750 & 775, 2 Carrier IS-95 & 1 Carrier IS-856A, 16 QAM (DOM A) Mode



4.4 Spurious Emissions at Antenna Terminals

4.4.1 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 Sec. 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

(a) In all of the measurements set forth in Sec. 2.1051, the spectrum shall be investigated from the lowest radio frequency signal generated in the equipment, without going below 9 kHz, up to at least the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(b) Particular attention should be paid to harmonics and subharmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages should also be checked.

(c) The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

FCC Part 24.238 Limit

(a) On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB.

(b) Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, 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. 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.

(c) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(d) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

4.4.2 Test Method

The cBTS is setup via the BTS controller to enable the cBTS 1900 MHz Radio Module to transmit at maximum rated output power level. Measurements are made on channels at the bottom and top of the licensed sub-bands with the Compact RM operating with -48Vdc. in one, two and three carrier configurations and for each of the supported modulation formats. The following spectrum analyzer settings are used for the measurement of the DPM antenna port spurious emissions:

4.4.2.1 Adjacent 1MHz to indicated PCS subband (Upper and Lower)

Table 17 : Adjacent 1 MHz Spectrum Analyzer Settings

Setting	1 Carrier	2 Carrier	3 Carrier
Resolution Bandwidth[a]	12.5 kHz	25 kHz	37.5 kHz
Video Bandwidth[b]	125 kHz	250 kHz	375 kHz
Video Average	10 Averages	10 Averages	10 Averages
Span	1 MHz	1 MHz	1 MHz
Attenuation[c]	20 dB	20 dB	20 dB
Ref. Level	set accordingly dBm	set accordingly dBm	set accordingly dBm
Ref. Level Offset	set accordingly dB	set accordingly dB	set accordingly dB

a. If the spectrum analyzer can not be set to the specified RBW, the next highest RBW should be used and all measurements corrected to the specified RBW
b. If the spectrum analyzer can not be set to the specified VBW, the next highest VBW should be used
c. The lowest value of attenuation should be used to improve measurement accuracy, without overdriving the Spectrum Analyzer. It is recommended that at least 10 dB SA internal attenuation is switched-in at all times to improve SA/Cable Interface RF match to 50 ohms.

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

4.4.2.2 All other Spurious Emissions up to 20 GHz

Table 18 : All other Emissions Spectrum Analyzer Settings

Setting	1 Carrier	2 Carrier	3 Carrier
Resolution Bandwidth	1 MHz	1 MHz	1 MHz
Video Bandwidth	10 MHz	10 MHz	10 MHz
Video Average	10 Averages	10 Averages	10 Averages
Span	set accordingly	set accordingly	set accordingly

Setting	1 Carrier	2 Carrier	3 Carrier
Attenuation[a]	20 dB	20 dB	20 dB
Ref. Level	set accordingly dBm	set accordingly dBm	set accordingly dBm
Ref. Level Offset	set accordingly dB	set accordingly dB	set accordingly dB

a. The lowest value of attenuation should be used to improve measurement accuracy, without overdriving the Spectrum Analyzer. It is recommended that at least 10 dB SA internal attenuation is switched-in at all times to improve SA/Cable Interface RF match to 50 ohms.

4.4.3 Test Setup

The set-up used for the cBTS 1900 MHz Radio Module Antenna Port Spurious Emission test is illustrated in Figure 9 and consist of:

- cBTS shelf
- cBTS 1900 MHz Radio Module system --> cBTS 1900 MHz Radio Module, DPM module and cabling
- High power (100W), high frequency range (DC to 18 GHz) attenuator as per Table 3
- High frequency range (20 Hz to 26.5 GHz) Spectrum Analyzer as per Table 3
- High frequency range, low loss RF cabling
- Control PC

Spurious Emissions are measured on the SA, which for the purpose of filing the test report for FCC compliance, needs to be calibrated and meet to or exceed the FCC Part 2.1057 - Frequency Spectrum to be investigated requirements.

The high power, high frequency range attenuator is verified for flatness across the frequency range specified in FCC Part 2.1057 - Frequency Spectrum to be investigated. Namely, for the cBTS 1900 MHz Radio Module the range is DC to 20 GHz.

Test Setup RF losses from Duplexer Antenna Port to SA Input are calibrated across the Frequency Range DC to 20 GHz and calibration data used to set the Cal Factor parameter on the R&S SA for each frequency sub-range accordingly.

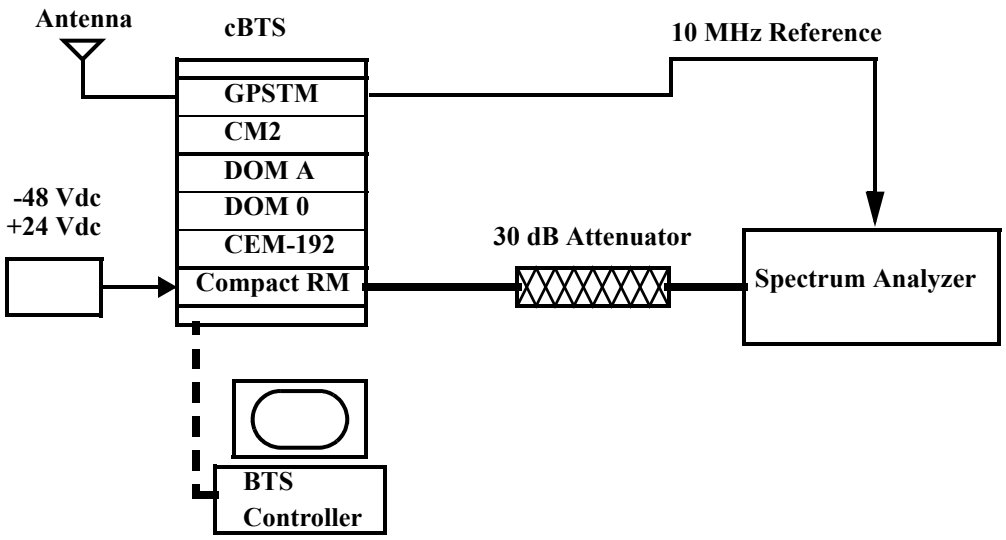


Figure 9 : Test Setup for Spurious Emissions Measurement

4.4.4 IS-95

The conducted spurious emissions of the cBTS 1900 MHz Radio Module, with IS-95 waveforms were tested at typical maximum output power.

4.4.5 IS-856/IS856A, 1xEV DO Rev 0/A

The conducted spurious emissions of the cBTS 1900 MHz Radio Module, with IS-856/IS856, 1xEV DO Rev 0/A waveforms were tested at typical maximum output power.

4.4.6 IS-95 and IS-856/IS856A, 1xEV DO Rev A

For radio configurations consisting of mixed IS-95 and IS-856A, 1xEV DO Rev A carriers, the RF Power Output requirements of the cBTS 1900 MHz Radio Module are tested at typical maximum output power.

4.4.7 Test Results

The frequency spectrum from 1 MHz to 20 GHz is scanned for emissions using the spectrum analyzer settings outlined in 4.4.2. Measurements are made over temperature on channels at the bottom and top of the licensed sub-bands in one, two and three carrier configurations and for each of the supported modulation formats. The cBTS 1900 MHz Radio Module complies with the limit of -13 dBm per 1 MHz of BW. Table 19 through Table 26 show the spurious emissions at the DPM antenna port of the cBTS 1900 MHz Radio Module for 1, 2 and 3 carrier configurations and for each of the supported modulation formats.

Table 19 : Spurious Emissions at the cBTS 1900 MHz Radio Module DPM Antenna Port, 1 Carrier, IS-95 Mode

Channel Number (Band)	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
25 (A)	1929 -:- 1930 (lower adjacent MHz)	-27.75	16.75
	1950 -:- 1951 (upper adjacent MHz)	-43.96	30.96
1175 (C)	1969 -:- 1970 (lower adjacent MHz)	-42.57	29.57
	1990 -:- 1991 (upper adjacent MHz)	-28.67	15.67
N/A	0 -:- lower adjacent MHz[a] (RBW=1 MHz)	-27.62	14.62[b]
N/A	upper adjacent MHz -:- 5000[a] (RBW=1 MHz)	-27.4	14.4[b]
N/A	5000 - 20000[a] (RBW=1 MHz)	-22.49	9.49

a. Emission levels given in these ranges represents the worst case value over all the tested channels
b. Worst Case margin values determined by the emissions performance in the 1 MHz band immediately outside the lower/upper adjacent MHz

Table 20 : Spurious Emissions at the cBTS 1900 MHz Radio Module DPM Antenna Port, 1 Carrier, IS-856

Channel Number (Band)	Mode	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
425 (B)	16 QAM (DOM 0)	1949 -:- 1950 (lower adjacent MHz)	-30.89	17.89
	16 QAM (DOM 0)	1970 -:- 1971 (upper adjacent MHz)	-42.11	29.11
775 (E)	16 QAM (DOM 0)	1949 -:- 1950 (lower adjacent MHz)	-42.75	29.75
	16 QAM (DOM 0)	1970 -:- 1971 (upper adjacent MHz)	-29.37	16.37
425 (B)	16 QAM (DOM A)	1949 -:- 1950 (lower adjacent MHz)	-31.73	18.73
	16 QAM (DOM A)	1970 -:- 1971 (upper adjacent MHz)	-42.31	29.31

Channel Number (Band)	Mode	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
775 (E)	16 QAM (DOM A)	1949 -:- 1950 (lower adjacent MHz)	-42.86	29.86
	16 QAM (DOM 0A	1970 -:- 1971 (upper adjacent MHz)	-29.53	16.53
N/A		0 -:- lower adjacent MHz[a] (RBW=1 MHz)	-27.64	14.64[b]
N/A		upper adjacent MHz -:- 5000[a] (RBW=1 MHz)	-25.14	12.14[b]
N/A		5000 - 20000[a] (RBW=1 MHz)	-21.11	8.11

a. Emission levels given in these ranges represents the worst case value over all the tested channels
b. Worst Case margin values determined by the emissions performance in the 1 MHz band immediately outside the lower/upper adjacent MHz

Table 21 : Spurious Emissions at the cBTS 1900 MHz RM DPM Antenna Port, 2 Carrier

Channel Numbers (Band)	Mode	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
25, 50 (A)	IS 95	1929 -:- 1930 (lower adjacent MHz)	-26.68	13.68
	IS 95	1950 -:- 1951 (upper adjacent MHz)	-41.99	28.99
1150, 1175 (C)	IS 95	1969 -:- 1970 (lower adjacent MHz)	-42.22	29.22
	IS 95	1990 -:- 1991 (upper adjacent MHz)	-24.90	11.9
25, 50 (A)	16 QAM (DOM 0)	1929 -:- 1930 (lower adjacent MHz)	-29.37	16.37
	16 QAM (DOM 0)	1950 -:- 1951 (upper adjacent MHz)	-42.37	29.37
1150, 1175 (C)	16 QAM (DOM 0)	1969 -:- 1970 (lower adjacent MHz)	-42.60	29.60
	16 QAM (DOM 0)	1990 -:- 1991 (upper adjacent MHz)	-26.51	13.51
25, 50 (A)	16 QAM (DOM A)	1929 -:- 1930 (lower adjacent MHz)	-27.65	14.65
	16 QAM (DOM A)	1950 -:- 1951 (upper adjacent MHz)	-42.76	29.76
1150, 1175 (C)	16 QAM (DOM A)	1969 -:- 1970 (lower adjacent MHz)	-42.59	29.59
	16 QAM (DOM A)	1990 -:- 1991 (upper adjacent MHz)	-24.98	13.98

Channel Numbers (Band)	Mode	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
N/A		0 -:- lower adjacent MHz[a] (RBW=1 MHz)	-23.31	10.31[b]
N/A		upper adjacent MHz -:- 5000[a] (RBW=1 MHz)	-21.1	8.1[b]
N/A		5000 - 20000[a] (RBW=1 MHz)	-20.97	7.97

a. Emission levels given in these ranges represents the worst case value over all the tested channels
b. Worst Case margin values determined by the emissions performance in the 1 MHz band immediately outside the lower/upper adjacent MHz

Table 22 : Spurious Emissions at the cBTS 1900 MHz Radio Module DPM Antenna Port, 3 Carrier, IS-95 Mode

Channel Numbers (Band)	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
25, 50, 75 (A)	1929 -:- 1930 (lower adjacent MHz)	-29.27	16.27
	1950 -:- 1951 (upper adjacent MHz)	-37.29	24.29
325, 350, 375 (D)	1929 -:- 1930 (lower adjacent MHz)	-36.73	23.73
	1950 -:- 1951 (upper adjacent MHz)	-25.13	12.13
825, 850, 875 (F)	1969 -:- 1970 (lower adjacent MHz)	-29.95	16.95
	1990 -:- 1991 (upper adjacent MHz)	-37.17	24.17
1125, 1150, 1175 (C)	1969 -:- 1970 (lower adjacent MHz)	-36.56	23.56
	1990 -:- 1991 (upper adjacent MHz)	-23.53	10.53
N/A	0 -:- lower adjacent MHz[a] (RBW=1 MHz)	-32.03	19.03[b]
N/A	upper adjacent MHz -:- 5000[a] (RBW=1 MHz)	-22.58	9.58[b]
N/A	5000 - 20000[a] (RBW=1 MHz)	-21.15	8.15

a. Emission levels given in these ranges represents the worst case value over all the tested channels
b. Worst Case margin values determined by the emissions performance in the 1 MHz band immediately outside the lower/upper adjacent MHz

Table 23 : Spurious Emissions at the cBTS 1900 MHz Radio Module DPM Antenna Port, 3 Carrier IS-856, QPSK (DOM A) Mode

Channel Numbers (Band)	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
425, 450, 475 (B)	1949 -:- 1950 (lower adjacent MHz)	-29.48	16.48
	1970 -:- 1971 (upper adjacent MHz)	-36.92	23.92
725, 750, 775 (E)	1949 -:- 1950 (lower adjacent MHz)	-37.17	24.17
	1970 -:- 1971 (upper adjacent MHz)	-26.24	13.24
N/A	0 -:- lower adjacent MHz[a] (RBW=1 MHz)	-32.33	19.33[b]
N/A	upper adjacent MHz -:- 5000[a] (RBW=1 MHz)	-26.37	13.37[b]
N/A	5000 - 20000[a] (RBW=1 MHz)	-22.14	8.14

a. Emission levels given in these ranges represents the worst case value over all the tested channels
b. Worst Case margin values determined by the emissions performance in the 1 MHz band immediately outside the lower/upper adjacent MHz

Table 24 : Spurious Emissions at the cBTS 1900 MHz Radio Module DPM Antenna Port, 3 Carrier IS-856, 16-QAM (DOM A) Mode

Channel Numbers (Band)	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
25, 50, 75 (A)	1929 -:- 1930 (lower adjacent MHz)	-29.07	16.07
	1950 -:- 1951 (upper adjacent MHz)	-37.00	24.00
325, 350, 375 (D)	1929 -:- 1930 (lower adjacent MHz)	-37.06	24.06
	1950 -:- 1951 (upper adjacent MHz)	-25.02	13.02
N/A	0 -:- lower adjacent MHz[a] (RBW=1 MHz)	-32.40	19.40[b]
N/A	upper adjacent MHz -:- 5000[a] (RBW=1 MHz)	-23.62	10.62[b]
N/A	5000 - 20000[a] (RBW=1 MHz)	-21.86	8.86

a. Emission levels given in these ranges represents the worst case value over all the tested channels

b. Worst Case margin values determined by the emissions performance in the 1 MHz band immediately outside the lower/upper adjacent MHz

Table 25 : Spurious Emissions at the cBTS 1900 MHz Radio Module DPM Antenna Port, 3 Carrier IS-856, 8 PSK (DOM A) Mode

Channel Numbers (Band)	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
825, 850, 875 (F)	1969 -:- 1970 (lower adjacent MHz)	-28.36	15.36
	1990 -:- 1991 (upper adjacent MHz)	-36.80	23.80
1125, 1150, 1175 (C)	1969 -:- 1970 (lower adjacent MHz)	-36.03	23.03
	1990 -:- 1991 (upper adjacent MHz)	-22.65	8.65
N/A	0 -:- lower adjacent MHz[a] (RBW=1 MHz)	-32.24	19.24[b]
N/A	upper adjacent MHz -:- 5000[a] (RBW=1 MHz)	-20.44	7.44[b]
N/A	5000 - 20000[a] (RBW=1 MHz)	-20.23	8.23

a. Emission levels given in these ranges represents the worst case value over all the tested channels
b. Worst Case margin values determined by the emissions performance in the 1 MHz band immediately outside the lower/upper adjacent MHz

Table 26 : Spurious Emissions at the cBTS 1900 MHz Radio Module DPM Antenna Port, 2 Carrier IS-95 & 1 Carrier IS-856, 16 QAM (DOM A) Mode

Channel Numbers (Band)	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
425, 450, 475 (A)	1949 -:- 1950 (lower adjacent MHz)	-25.19	12.19
	1970 -:- 1971 (upper adjacent MHz)	-37.22	24.22

Channel Numbers (Band)	Frequency (MHz)	Worst Case Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
725, 750, 775 (E)	1949 -:- 1950 (lower adjacent MHz)	-37.10	24.10
	1970 -:- 1971 (upper adjacent MHz)	-25.50	12.50
N/A	0 -:- lower adjacent MHz[a] (RBW=1 MHz)	-25.19	12.19[b]
N/A	upper adjacent MHz -:- 5000[a] (RBW=1 MHz)	-25.18	12.18[b]
N/A	5000 - 20000[a] (RBW=1 MHz)	-21.85	8.85

a. Emission levels given in these ranges represents the worst case value over all the tested channels
b. Worst Case margin values determined by the emissions performance in the 1 MHz band immediately outside the lower/upper adjacent MHz

Figure 10 : Conducted Spurious Emissions - 1 Carrier, Channel 25, IS-95 (Lower Adjacent 1 MHz)

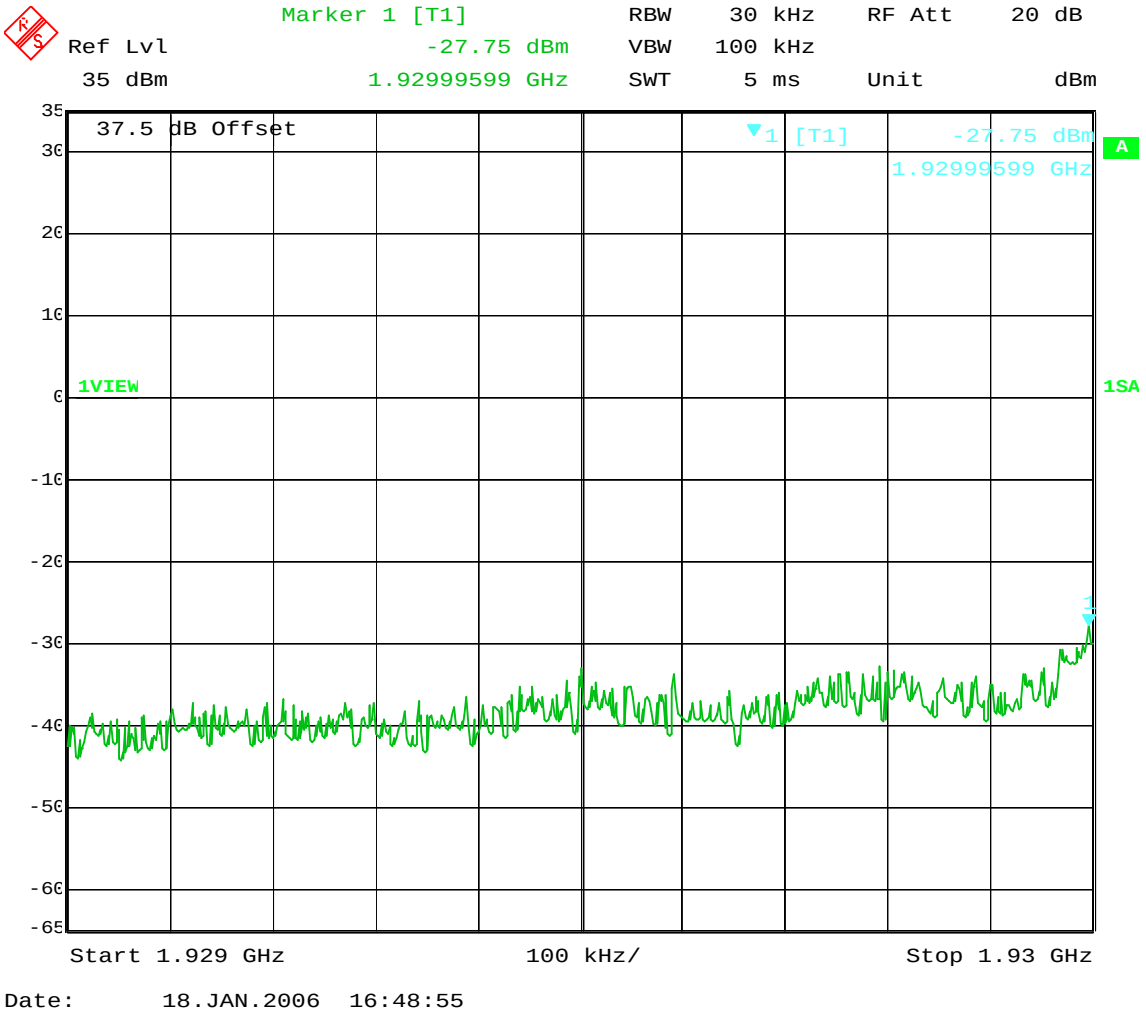


Figure 11 : Conducted Spurious Emissions - 1 Carrier, Channel 25, IS-95 (Upper Adjacent 1 MHz)

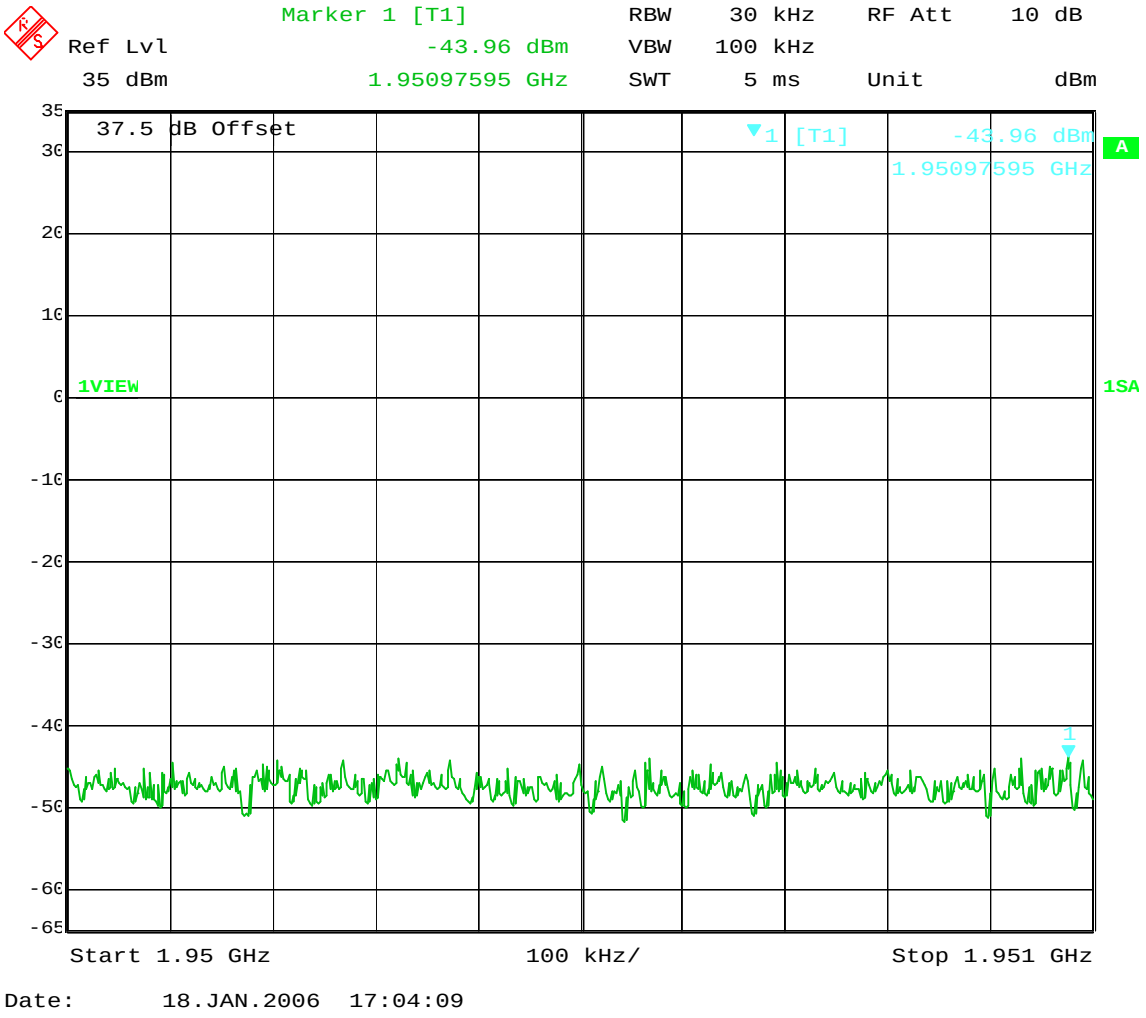


Figure 12 : Conducted Spurious Emissions - 1 Carrier, Channel 25, IS-95 (9kHz -:- Lower Adjacent 1 MHz)

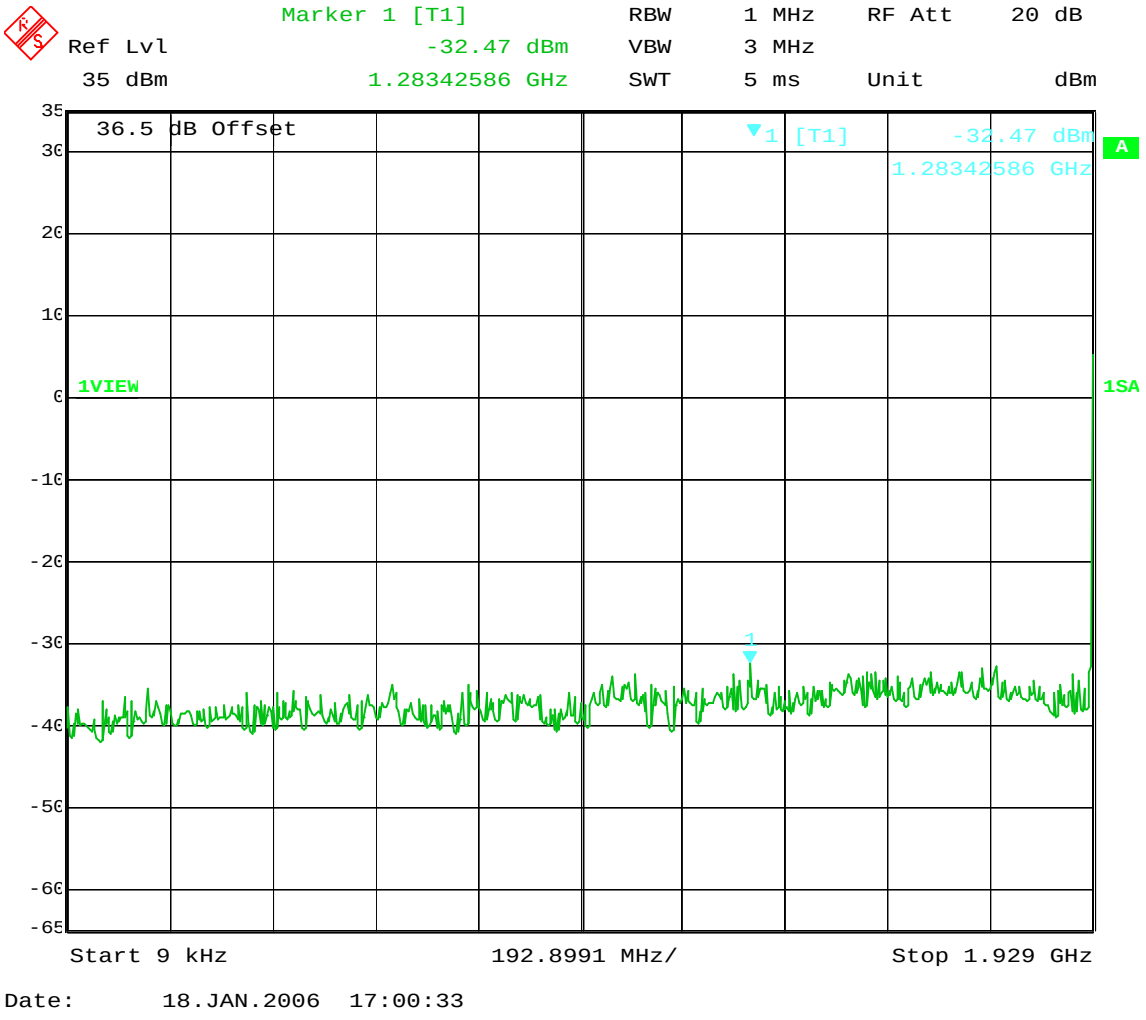


Figure 13 : Conducted Spurious Emissions - 1 Carrier, Channel 25, IS-95 (Lower Adjacent 1 MHz - 1 MHz -:- Lower Adjacent 1 MHz)

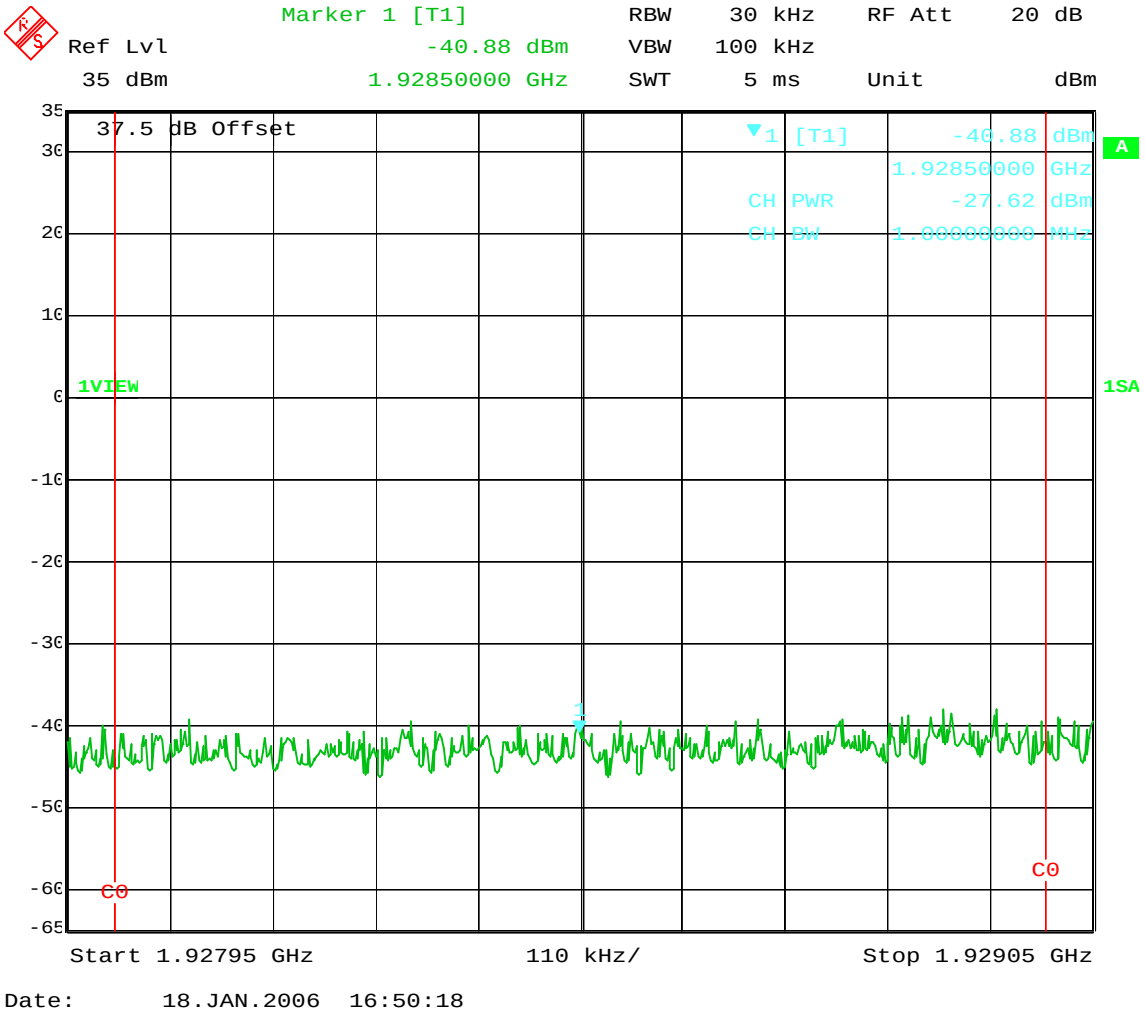


Figure 14 : Conducted Spurious Emissions - 1 Carrier, Channel 25, IS-95 (Upper Adjacent 1 MHz -:- Upper Adjacent 1 MHz + 1 MHz)

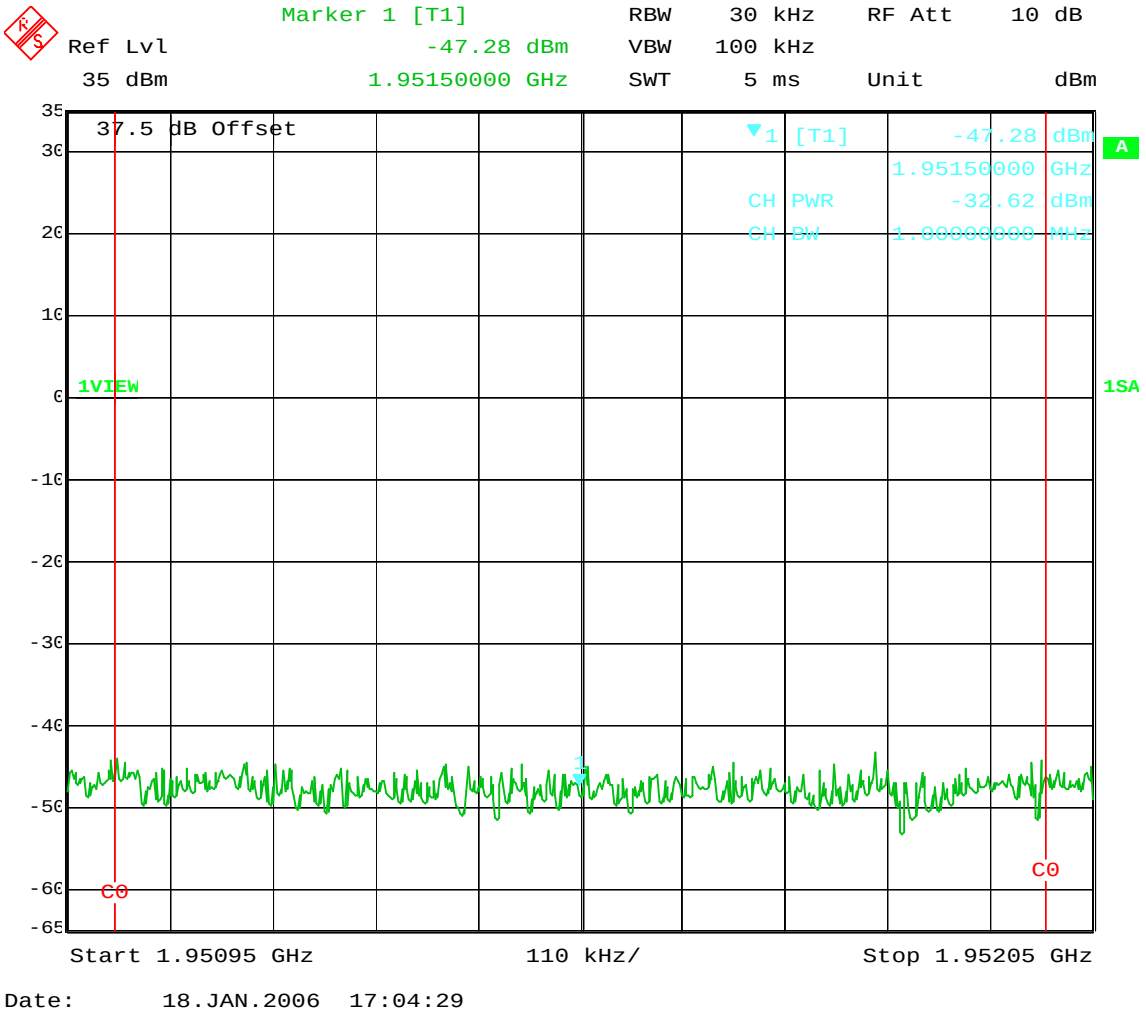


Figure 15 : Conducted Spurious Emissions - 1 Carrier, Channel 25, IS-95 (Upper Adjacent 1 MHz -:- 5 GHz)

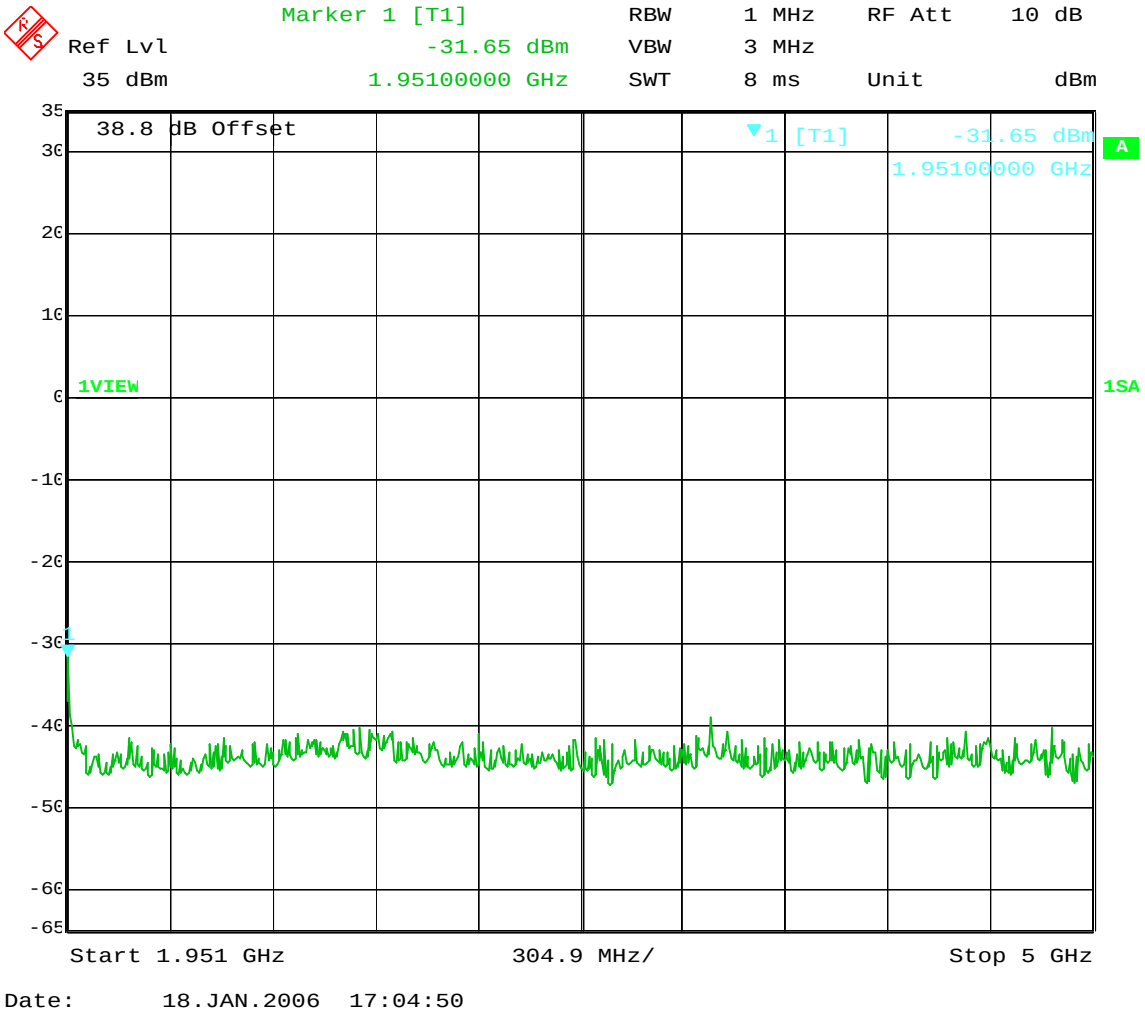


Figure 16 : Conducted Spurious Emissions - 1 Carrier, Channel 25, IS-95 (5 GHz -:- 12.5 GHz)

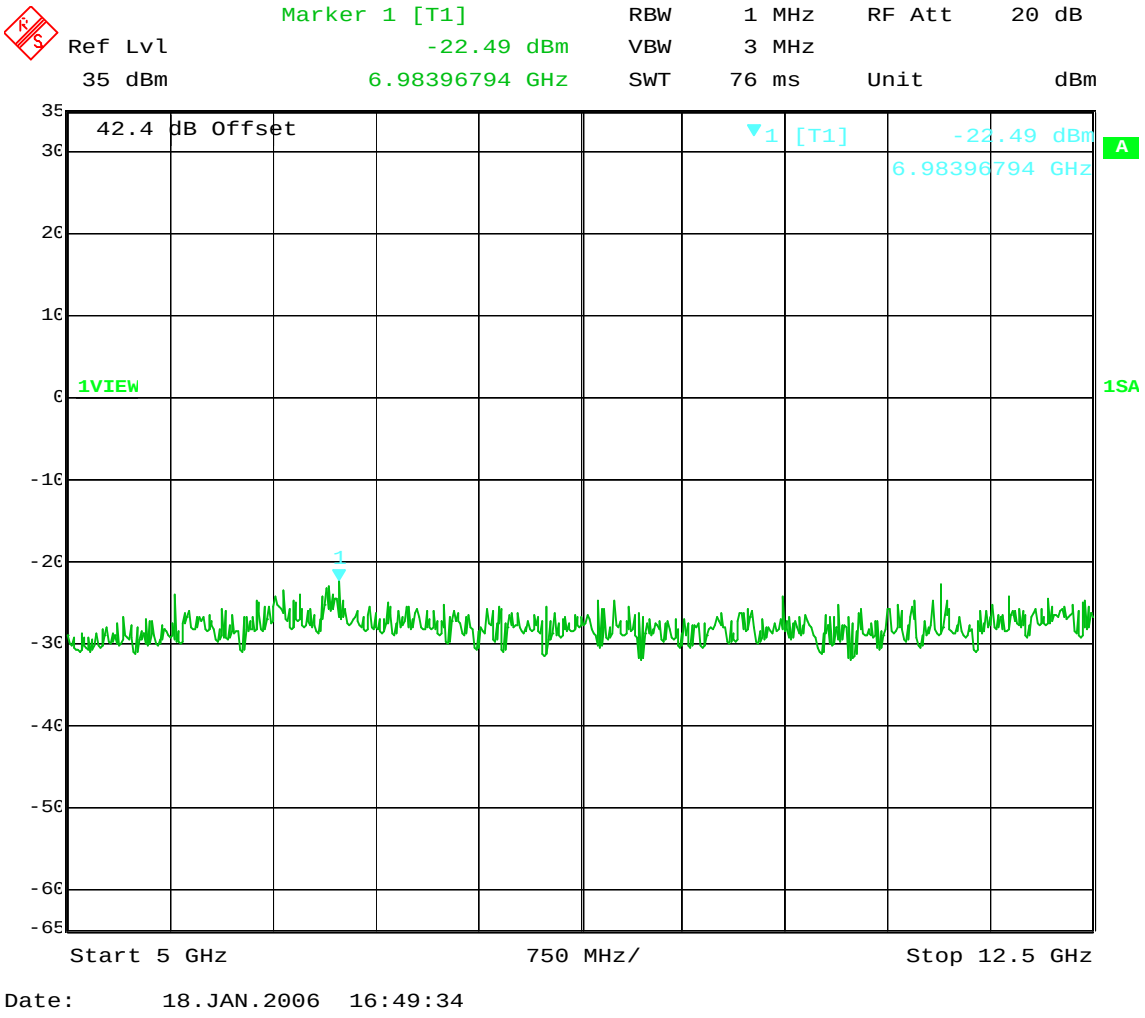


Figure 17 : Conducted Spurious Emissions - 1 Carrier, Channel 25, IS-95 (12.5 GHz -:- 20 GHz)

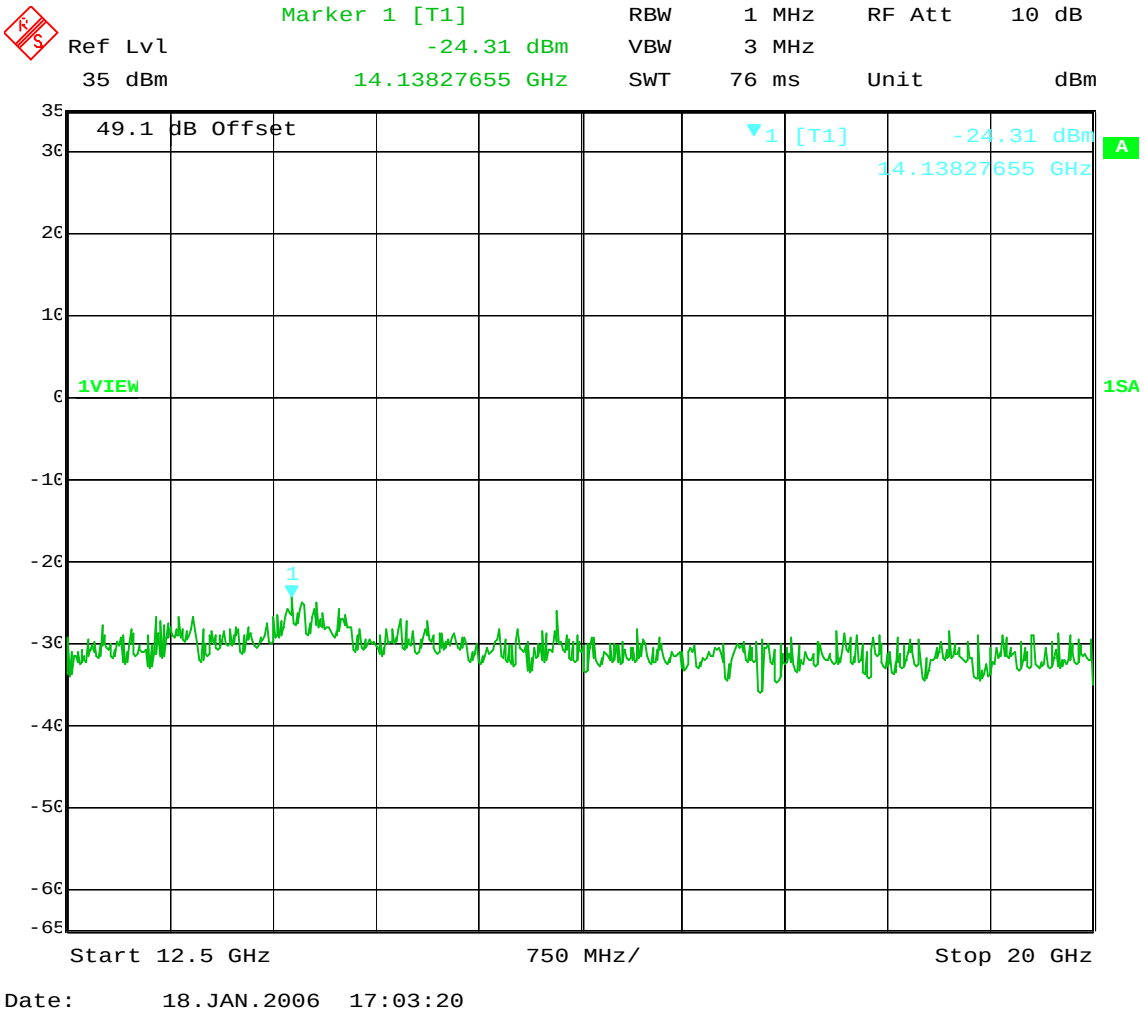


Figure 18 : Conducted Spurious Emissions - 1 Carrier, Channel 425, IS-856, 16-QAM (DOM A) Mode (Lower Adjacent 1 MHz)

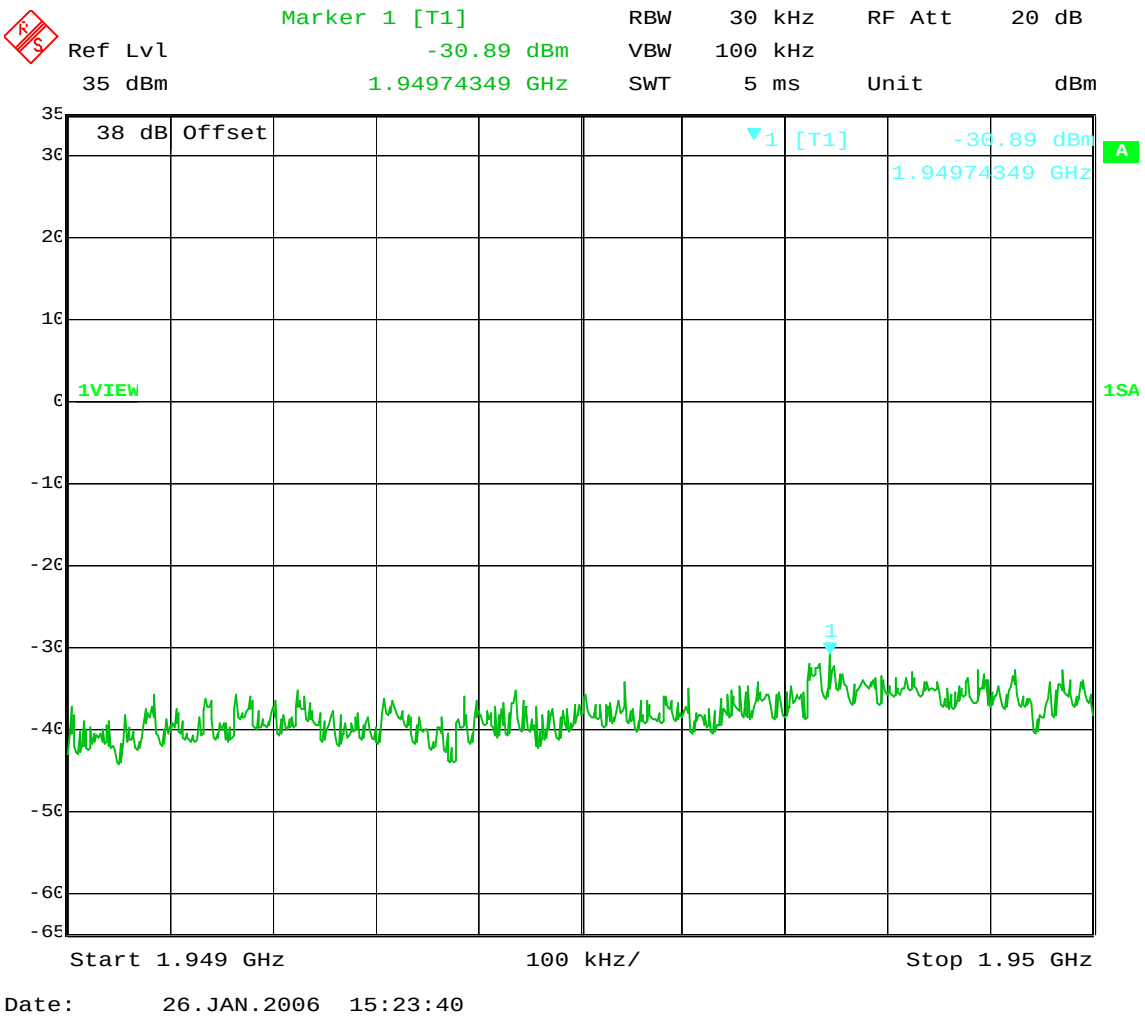


Figure 19 : Conducted Spurious Emissions - 1 Carrier, Channel 425, IS-856, 16-QAM (DOM A) Mode (Upper Adjacent 1 MHz)

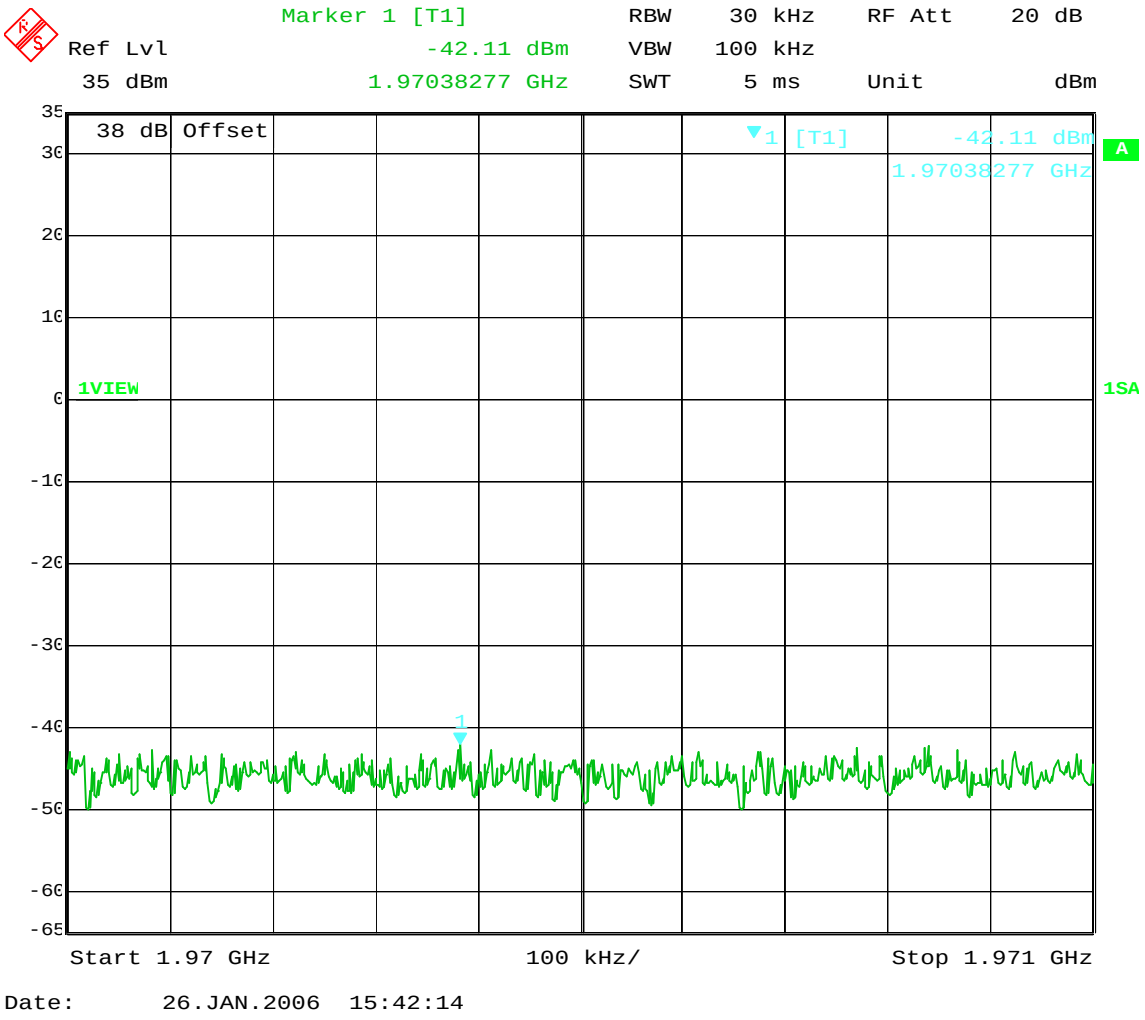


Figure 20 : Conducted Spurious Emissions - 1 Carrier, Channel 425, IS-856, 16-QAM (DOM A) Mode (9kHz -:- Lower Adjacent 1 MHz)

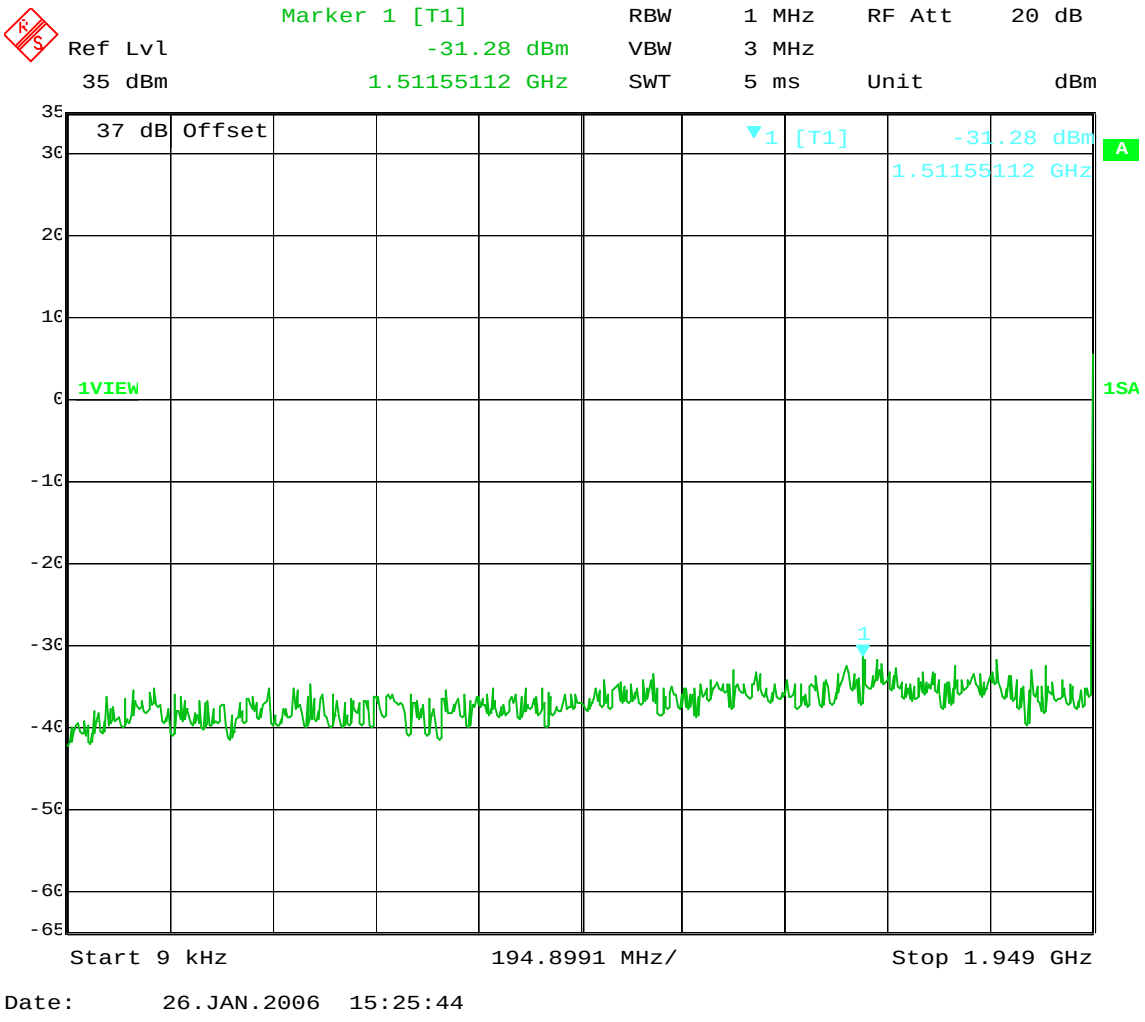


Figure 21 : Conducted Spurious Emissions - 1 Carrier, Channel 425, IS-856, 16-QAM (DOM A) Mode (Lower Adjacent 1 MHz - 1 MHz -:- Lower Adjacent 1 MHz)

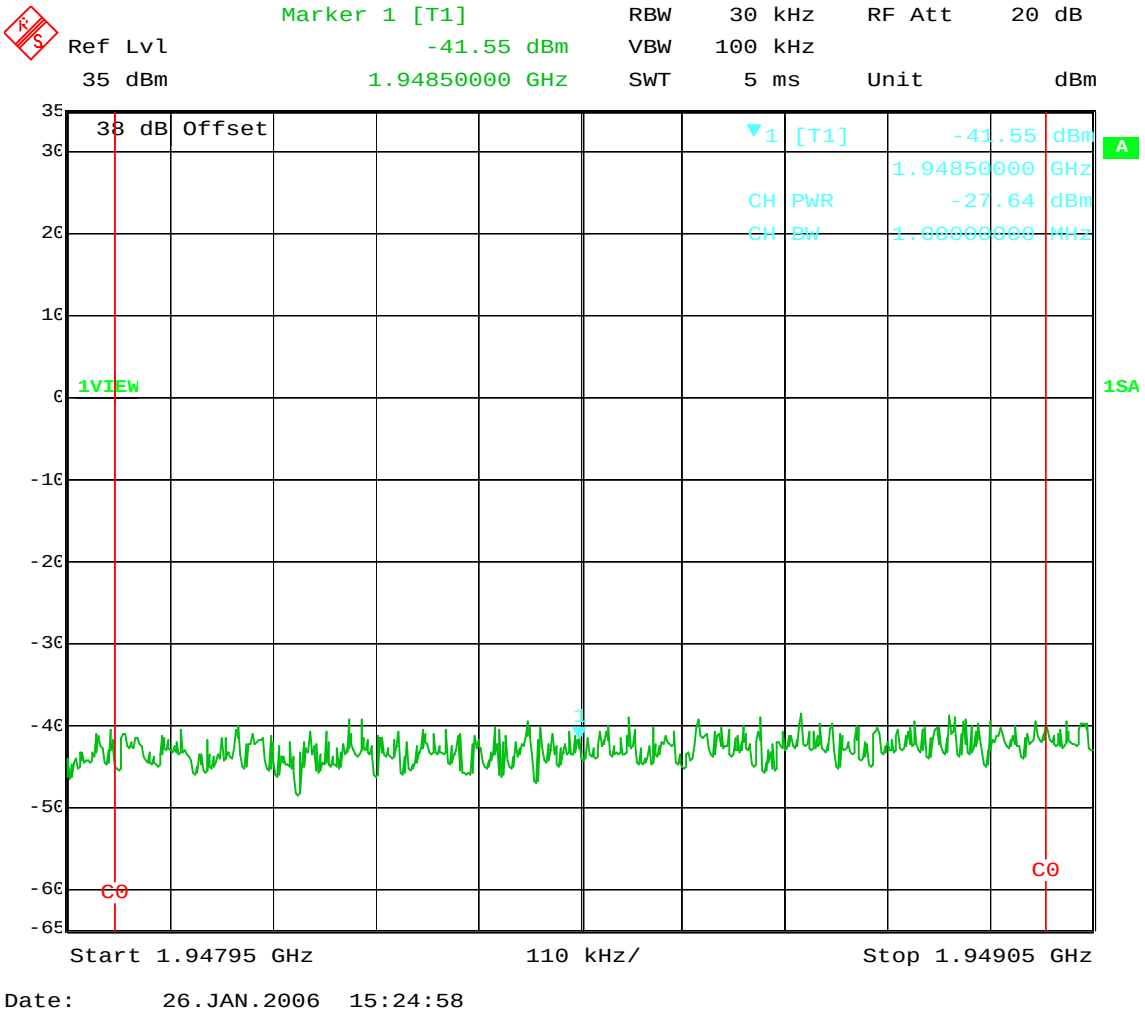


Figure 22 : Conducted Spurious Emissions - 1 Carrier, Channel 425, IS-856, 16-QAM (DOM A) Mode (Upper Adjacent 1 MHz -:- Upper Adjacent 1 MHz + 1 MHz)

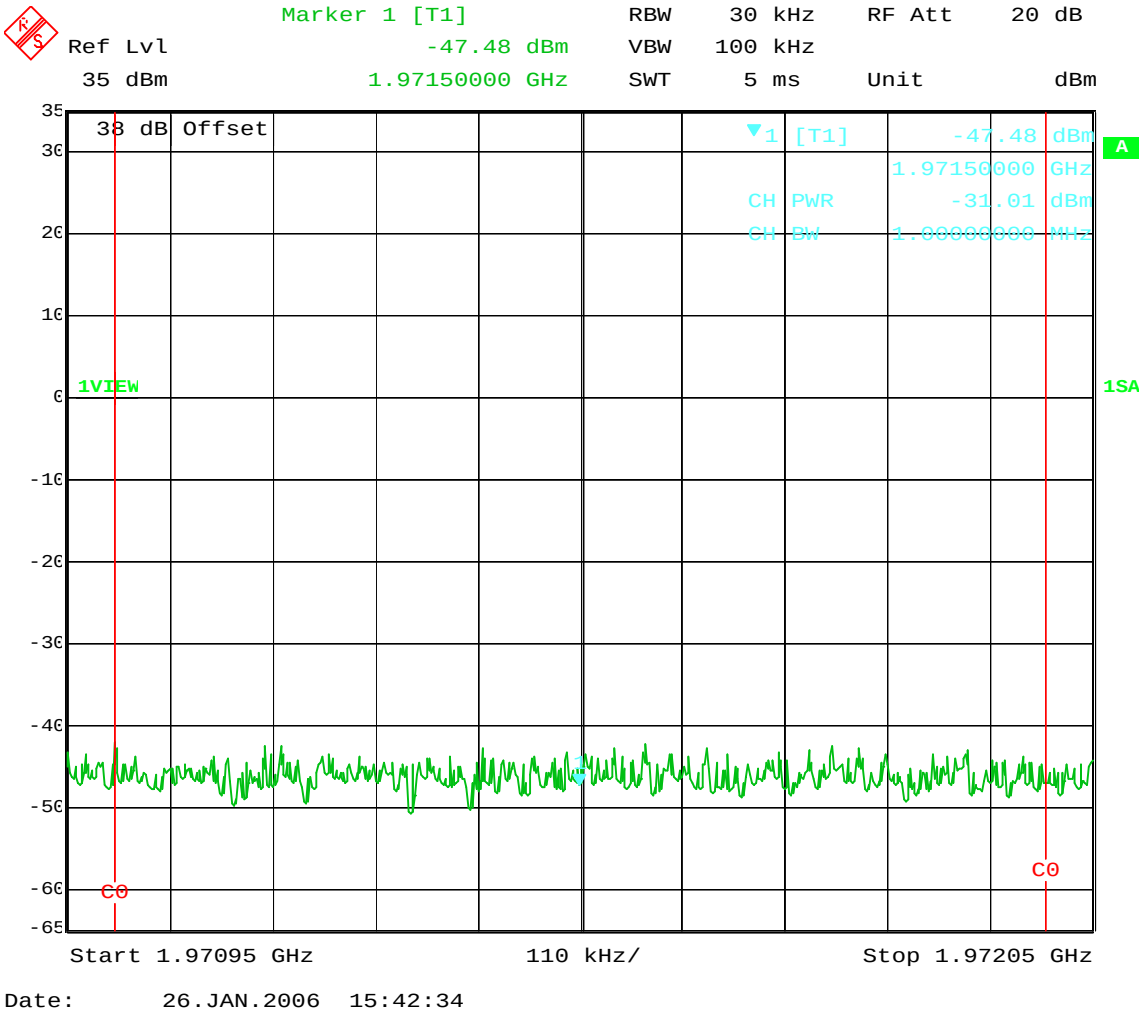


Figure 23 : Conducted Spurious Emissions - 1 Carrier, Channel 425, IS-856, 16-QAM (DOM A) Mode (Upper Adjacent 1 MHz -:- 5 GHz)

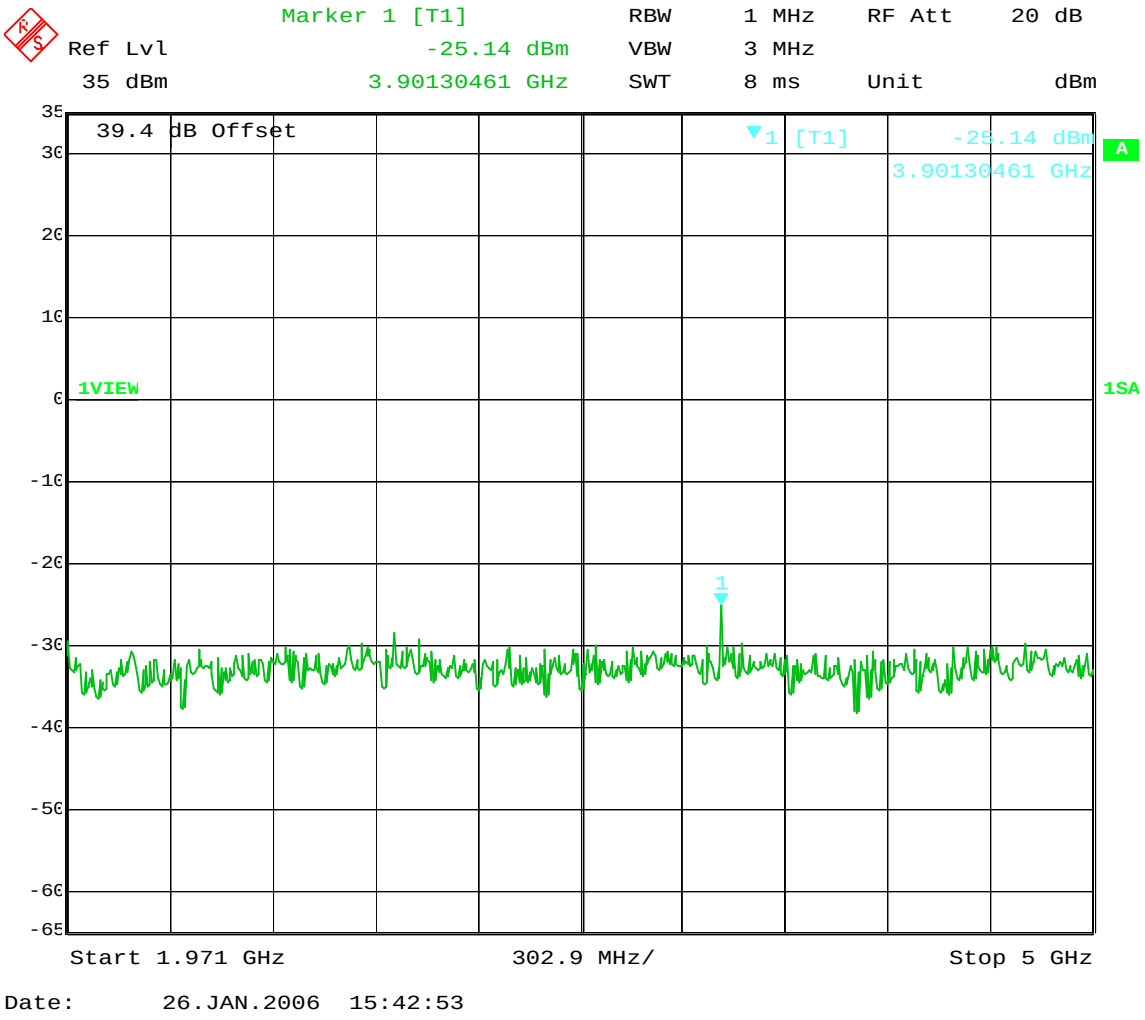


Figure 24 : Conducted Spurious Emissions - 1 Carrier, Channel 425, IS-856, 16-QAM (DOM A) Mode (5 GHz -:- 12.5 GHz)

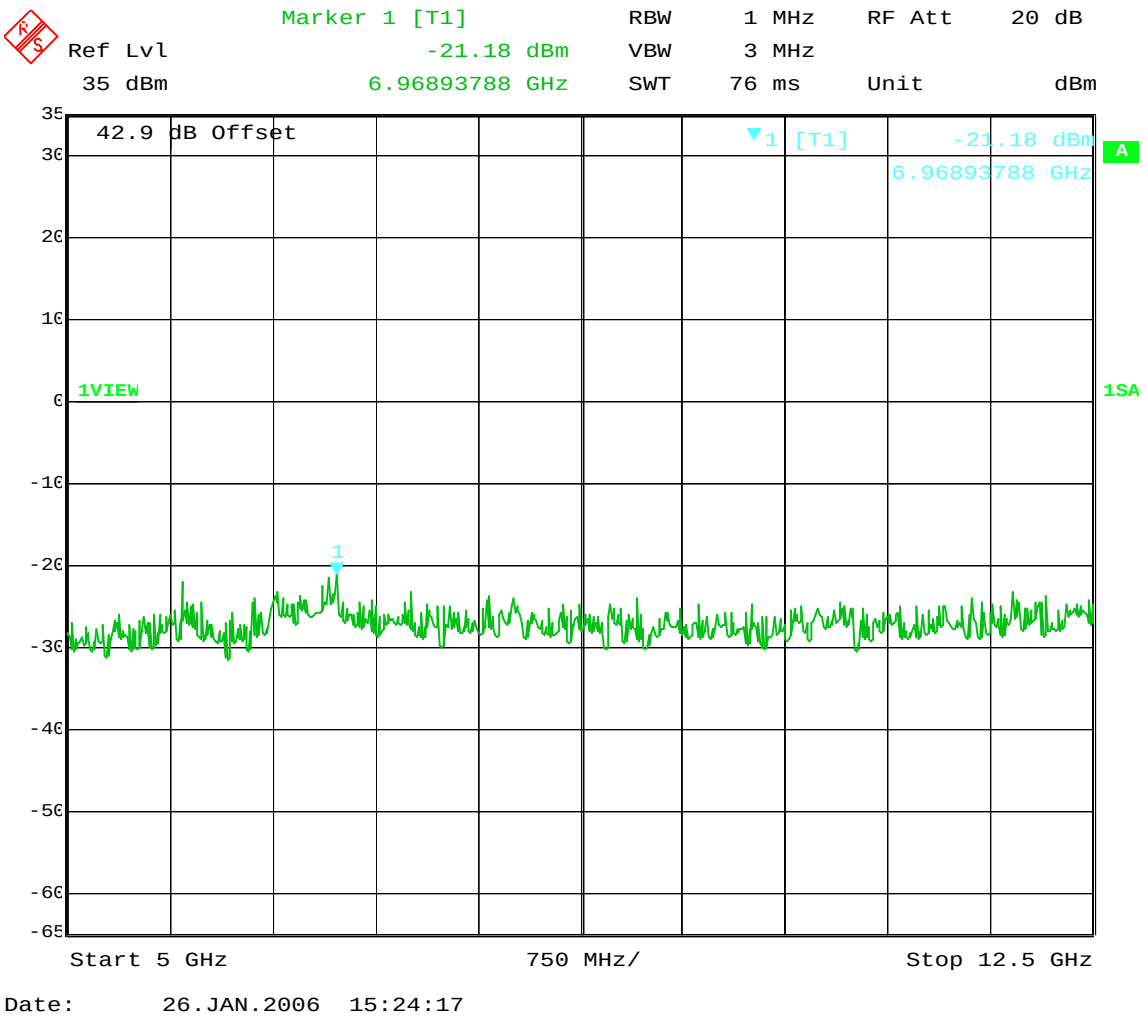


Figure 25 : Conducted Spurious Emissions - 1 Carrier, Channel 425, IS-856, 16-QAM (DOM A) Mode (12.5 GHz -:- 20.0 GHz)

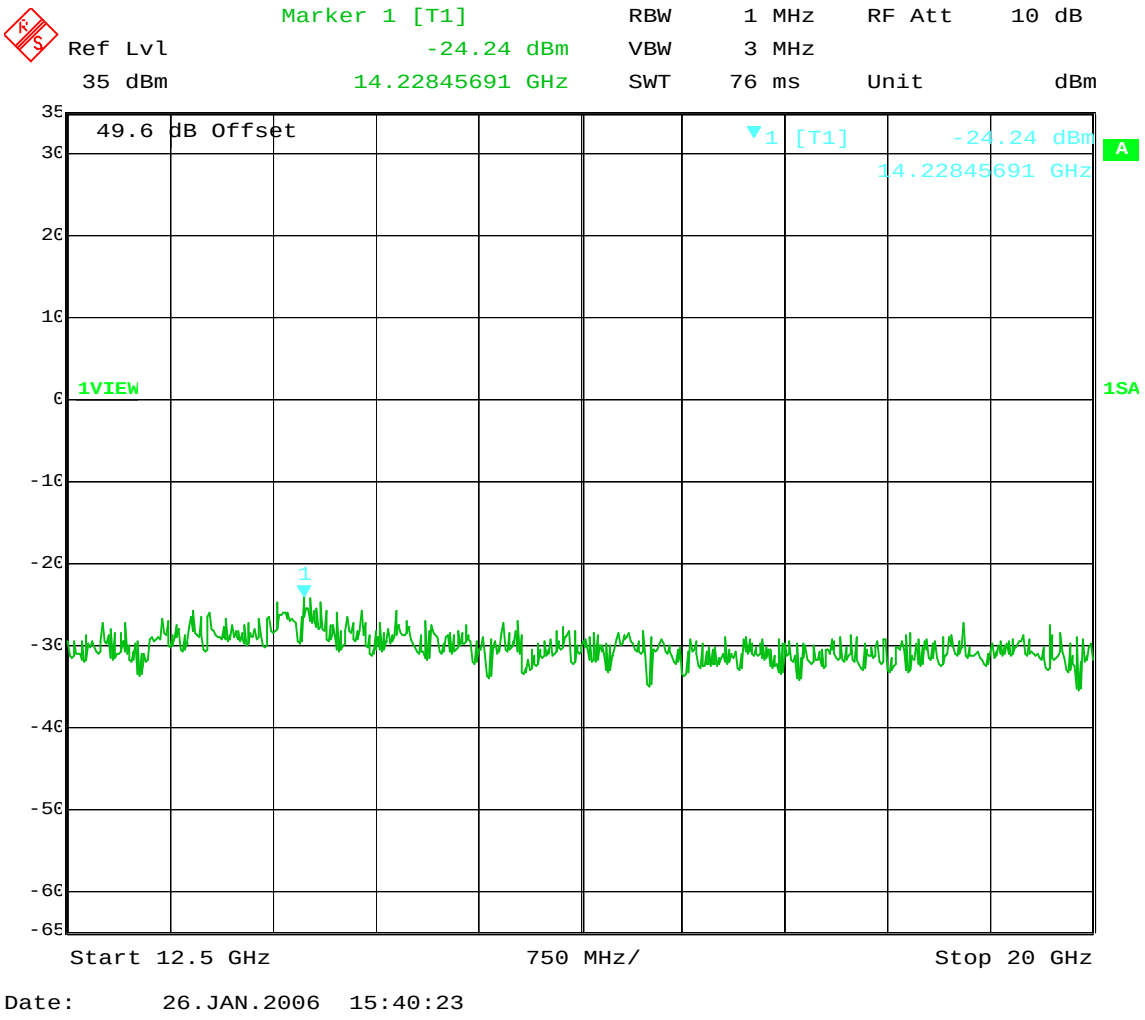


Figure 26 : Conducted Spurious Emissions - 2 Carrier, Channels 25, 50, IS-95 (Lower Adjacent 1 MHz)

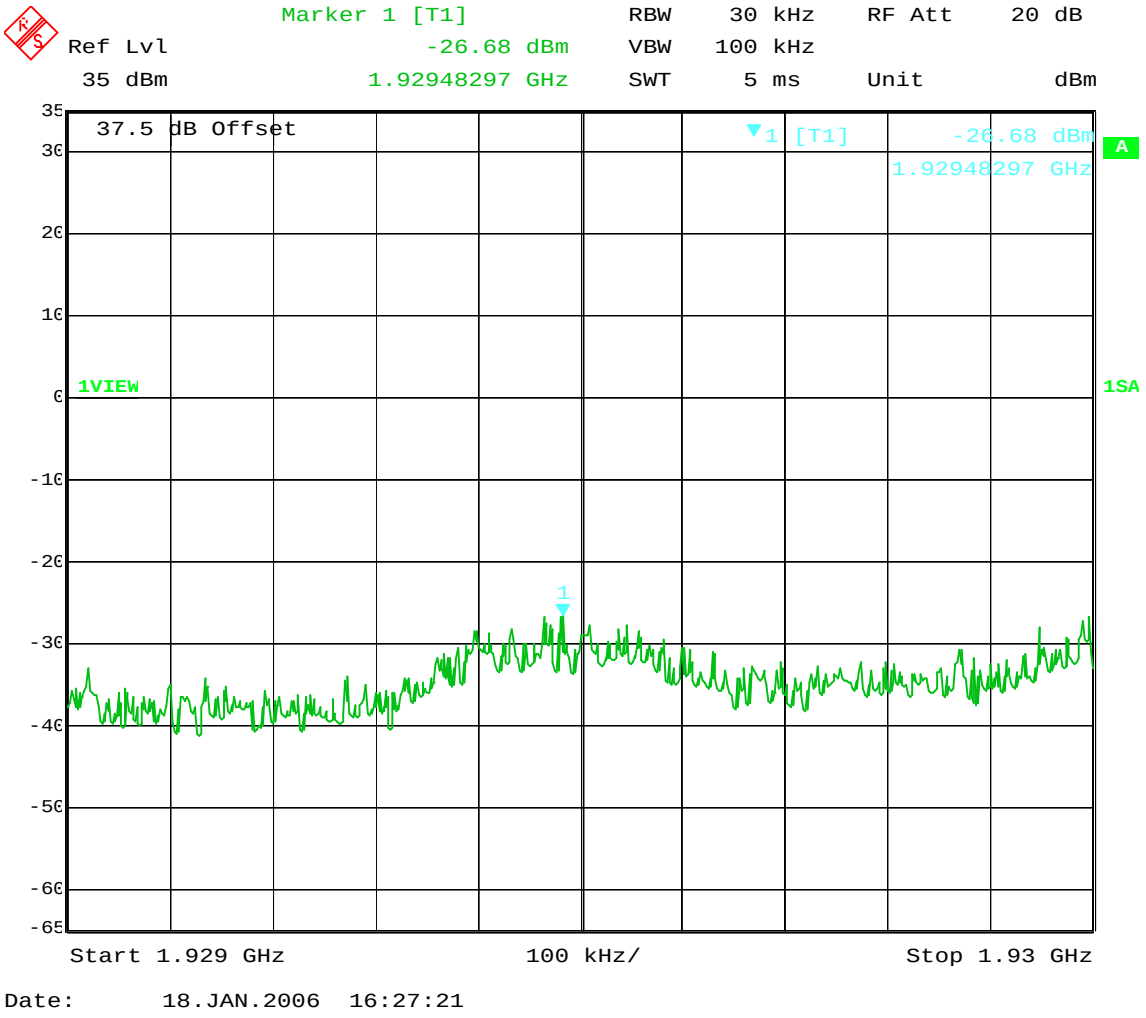


Figure 27 : Conducted Spurious Emissions - 2 Carrier, Channels 25, 50, IS-95 (Upper Adjacent 1 MHz)

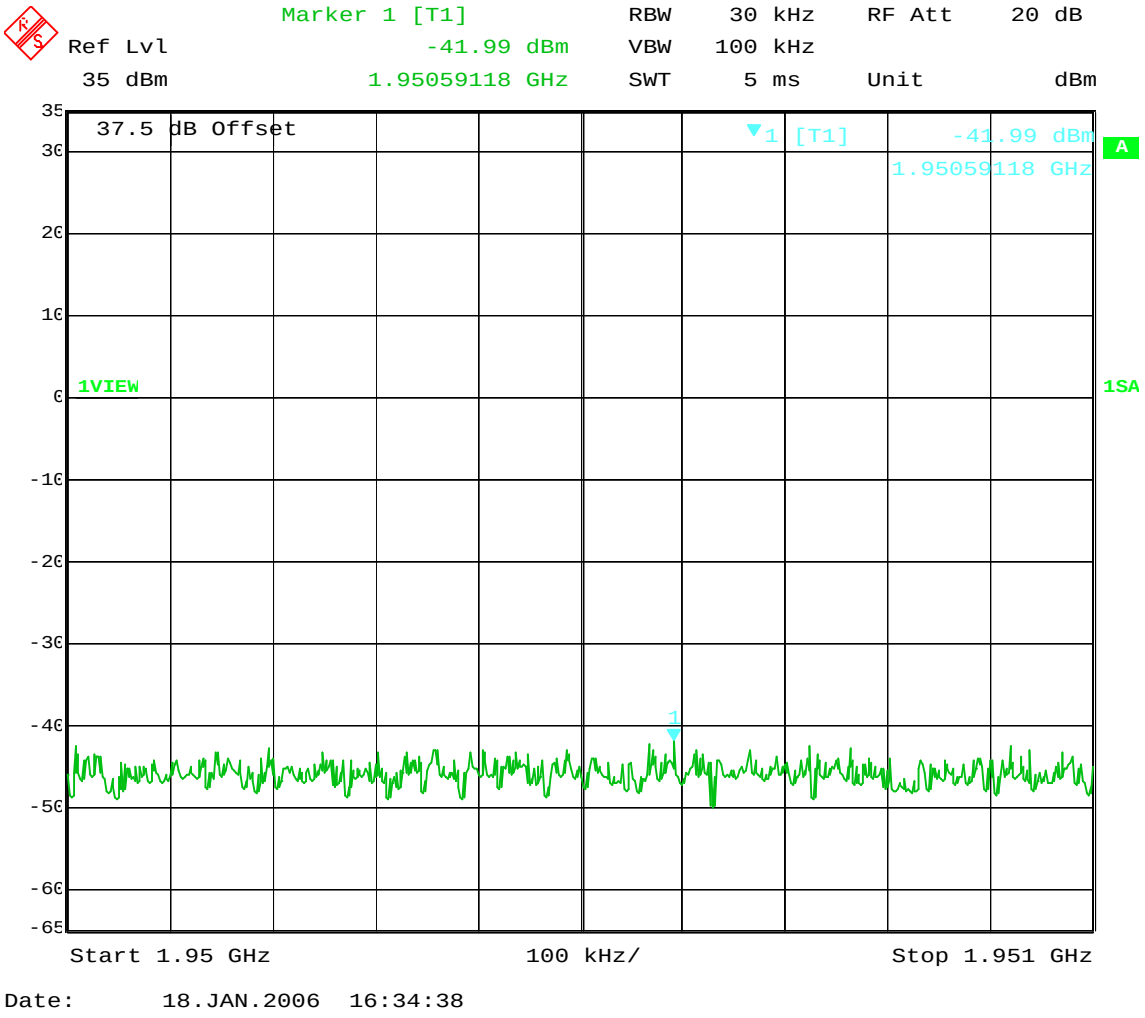


Figure 28 : Conducted Spurious Emissions - 2 Carrier, Channels 25, 50, IS-95 (9kHz -:- Lower Adjacent 1 MHz)

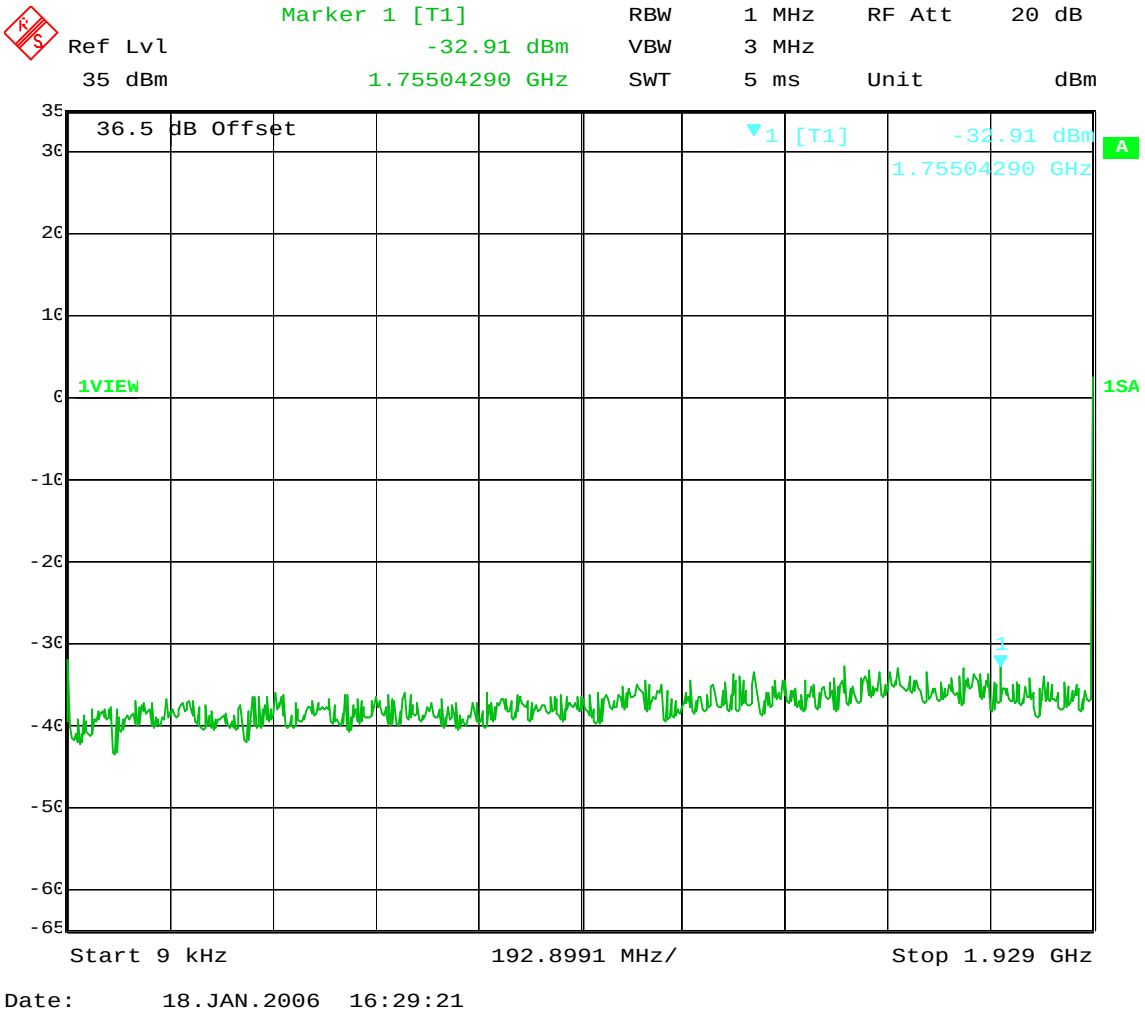


Figure 29 : Conducted Spurious Emissions - 2 Carrier, Channels 25, 50, IS-95 (Lower Adjacent 1 MHz - 1 MHz -:- Lower Adjacent 1 MHz)

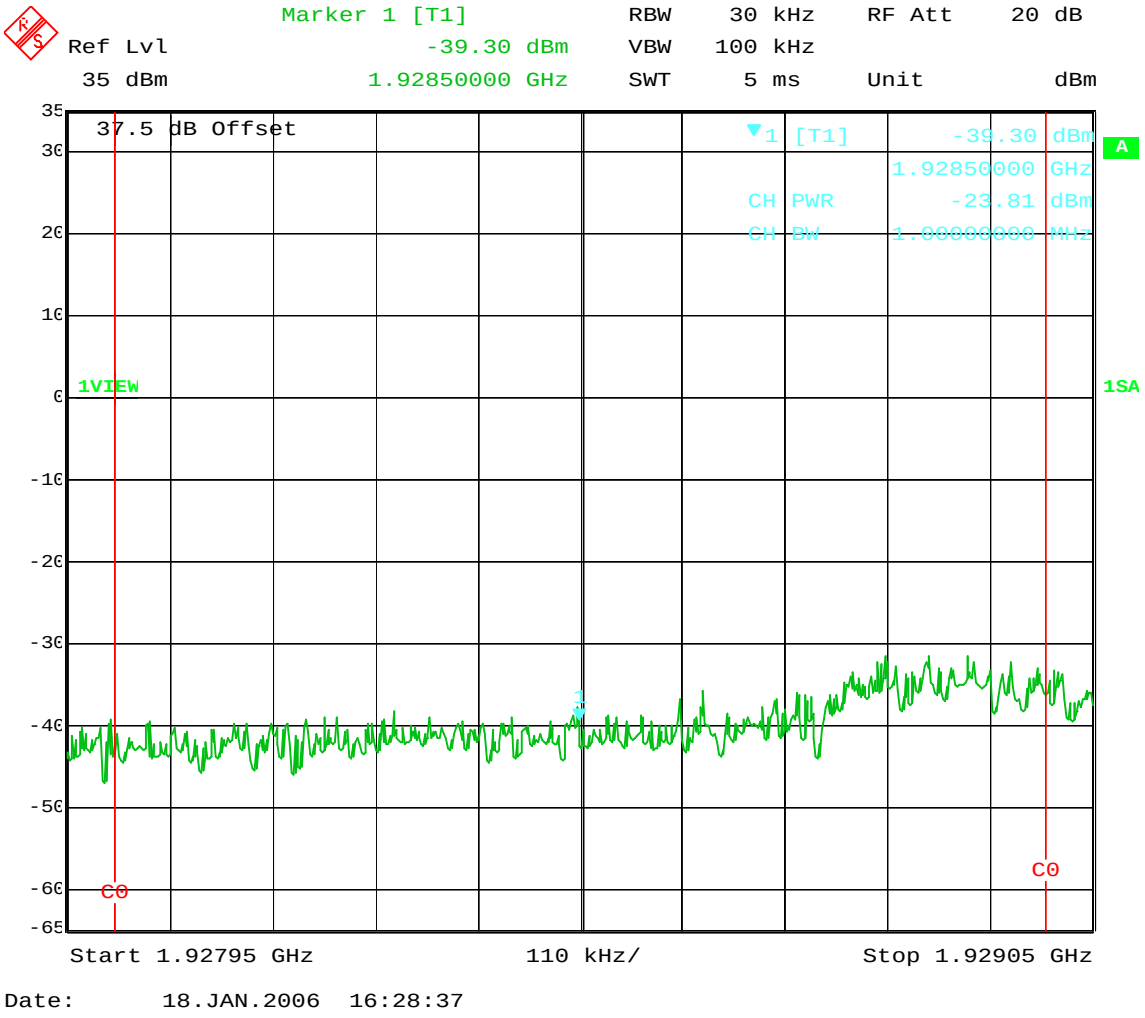


Figure 30 : Conducted Spurious Emissions - 2 Carrier, Channels 25, 50, IS-95 (Upper Adjacent 1 MHz -:- Upper Adjacent 1 MHz + 1 MHz)

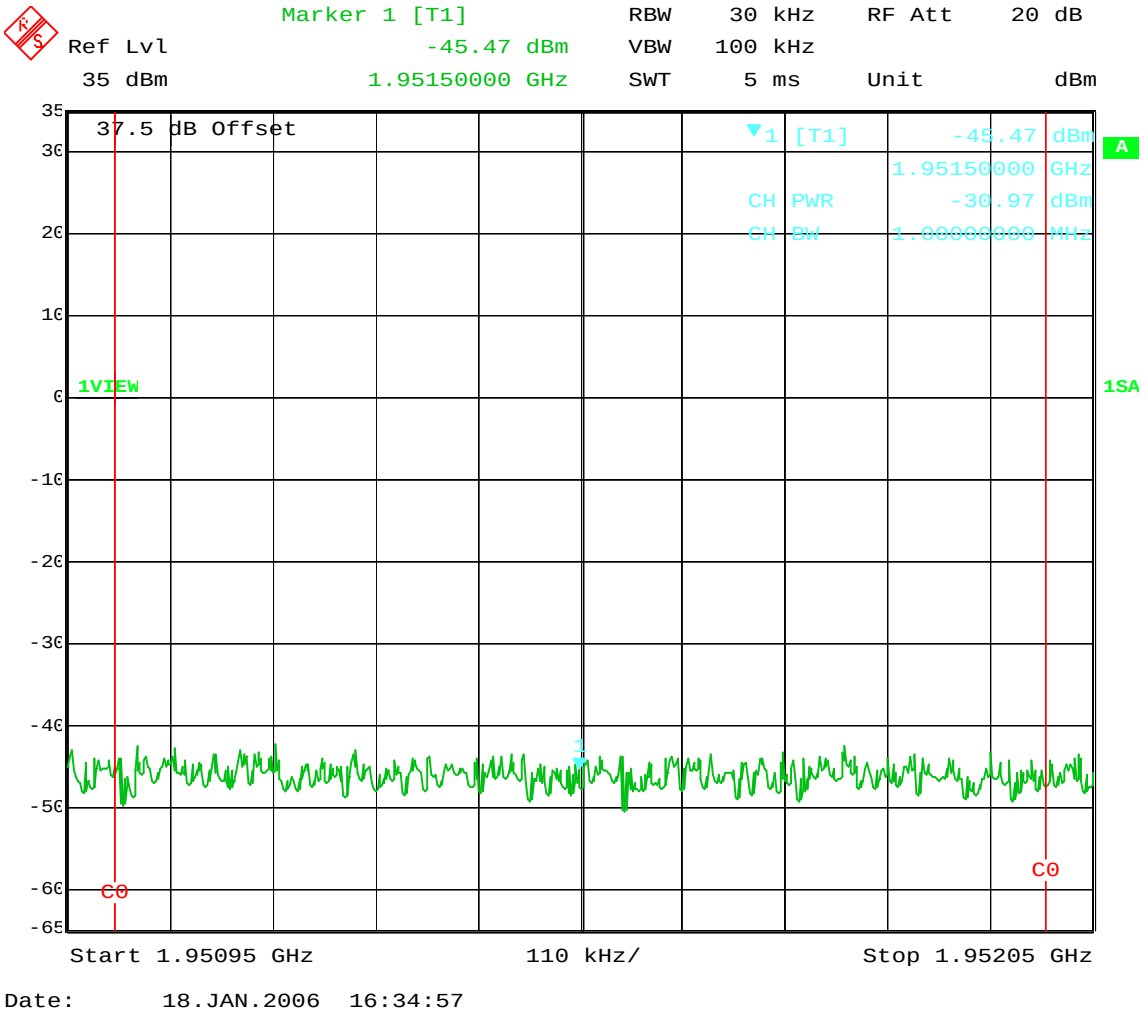


Figure 31 : Conducted Spurious Emissions - 2 Carrier, Channels 25, 50, IS-95 (Upper Adjacent 1 MHz -:- 5 GHz)

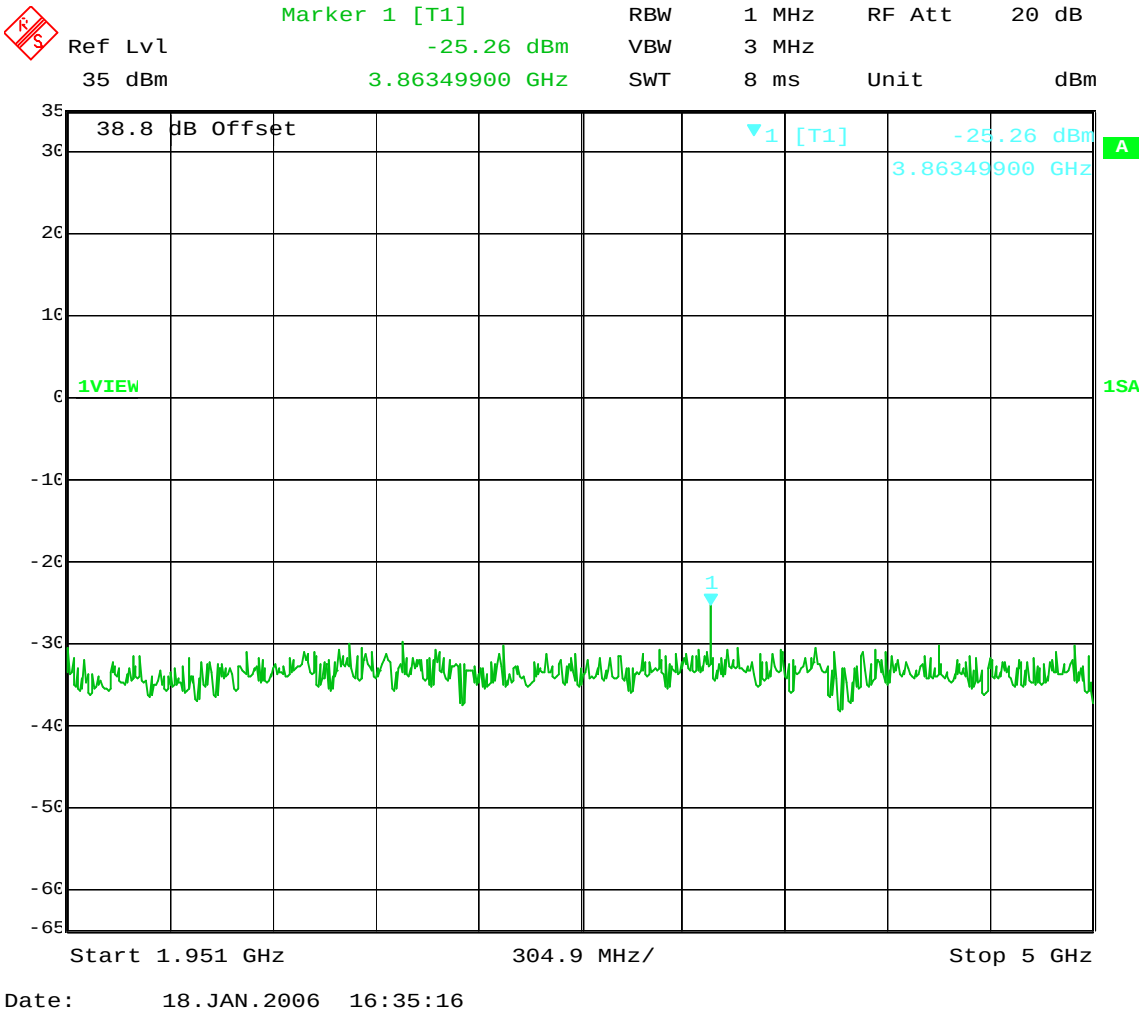


Figure 32 : Conducted Spurious Emissions - 2 Carrier, Channels 25, 50, IS-95 (5 GHz -:- 12.5 GHz)

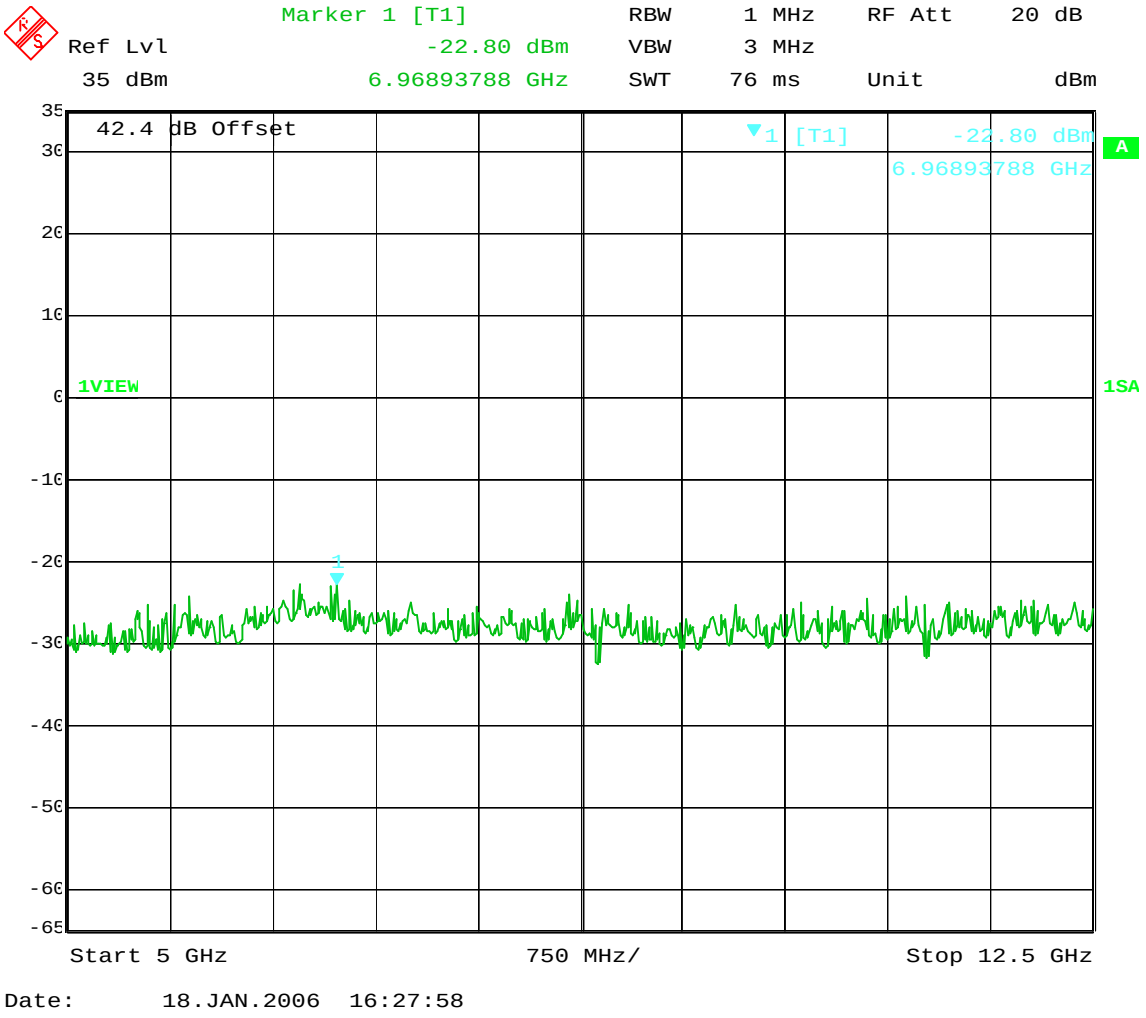


Figure 33 : Conducted Spurious Emissions - 2 Carrier, Channels 25, 50, IS-95 (12.5 GHz -:- 20 GHz)

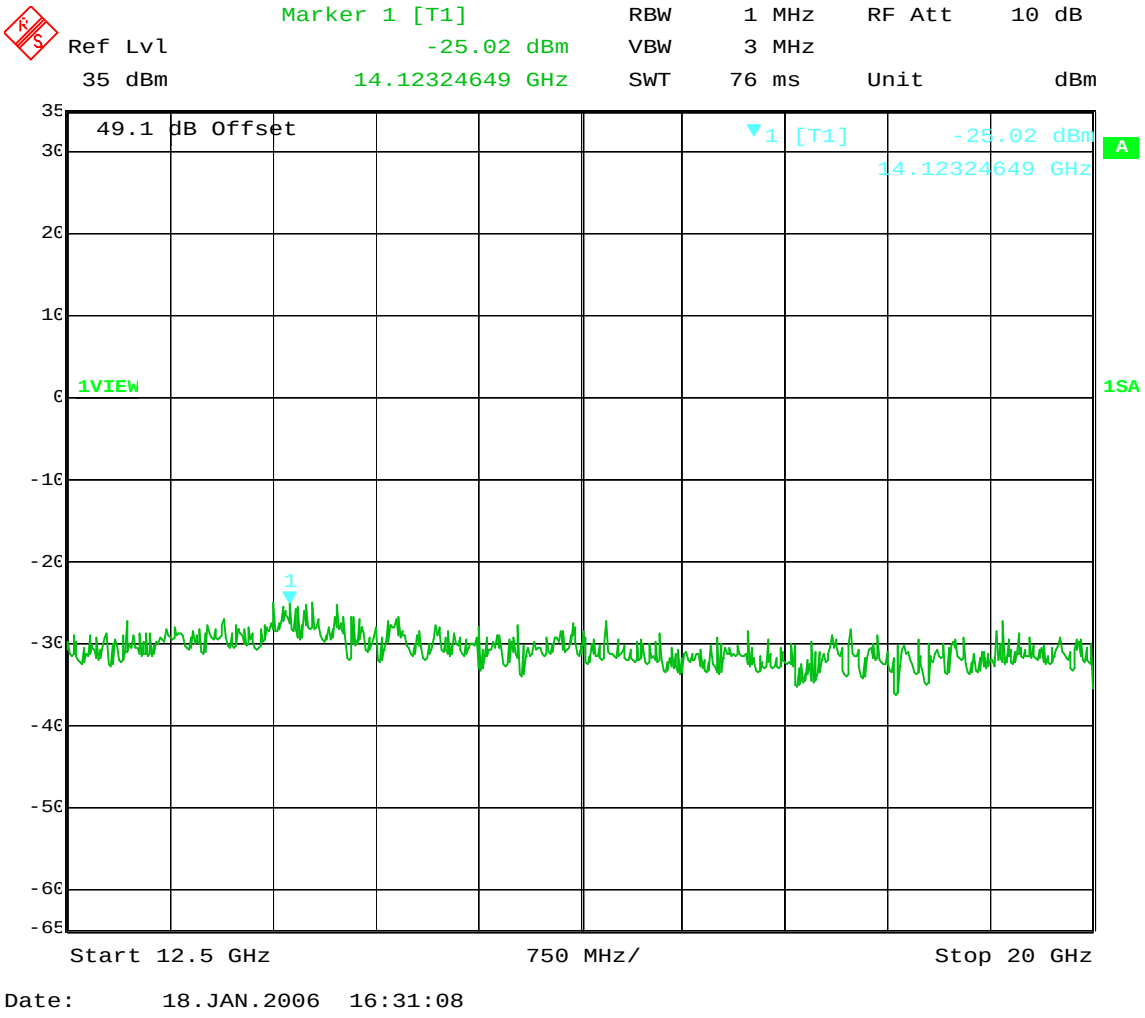


Figure 34 : Conducted Spurious Emissions - 3 Carrier, Channels 1125, 1150, 1175, IS-95 (Lower Adjacent 1 MHz)

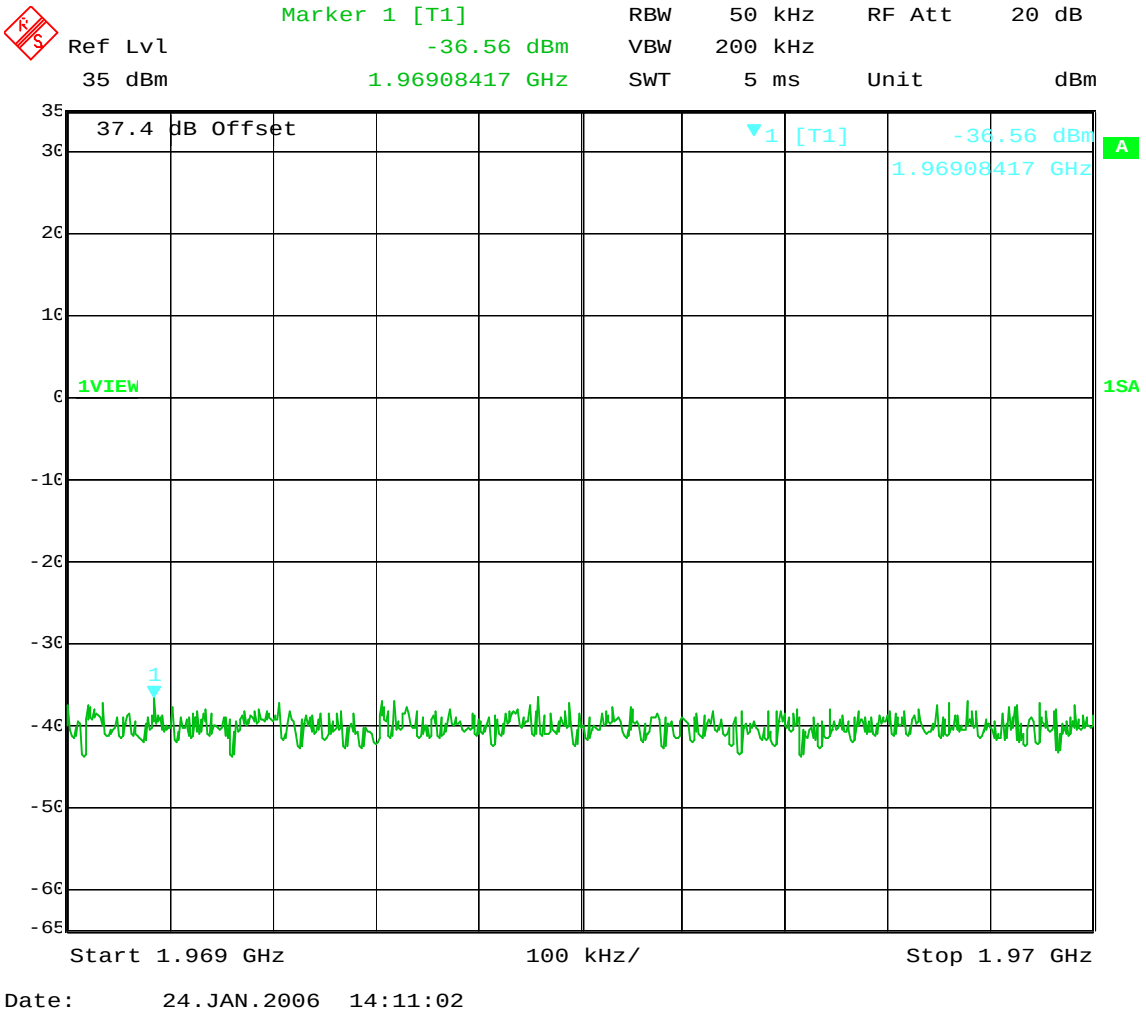


Figure 35 : Conducted Spurious Emissions - 3 Carrier, Channels 1125, 1150, 1175, IS-95 (Upper Adjacent 1 MHz)

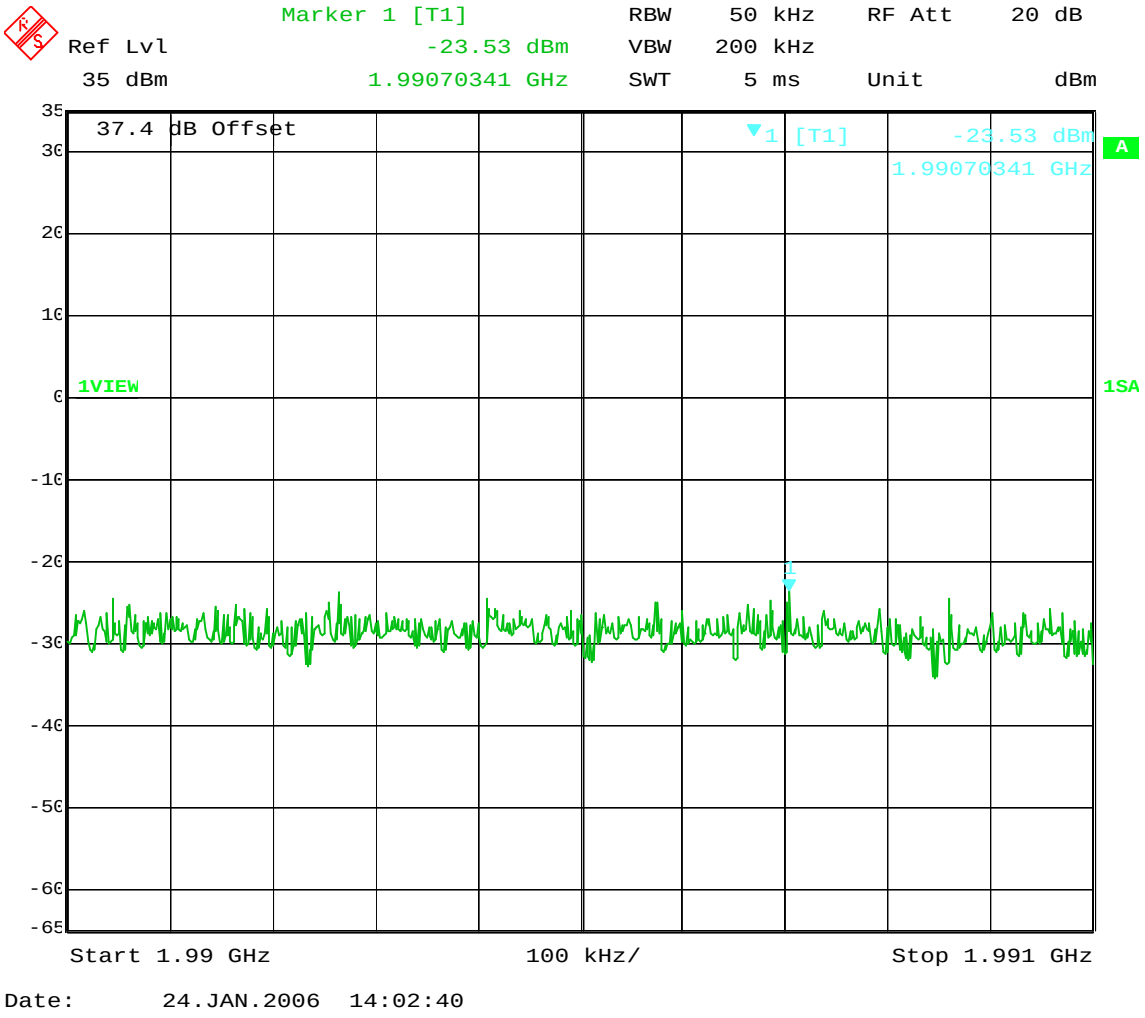


Figure 36 : Conducted Spurious Emissions - 3 Carrier, Channels 1125, 1150, 1175, IS-95 (9kHz -:- Lower Adjacent 1 MHz)

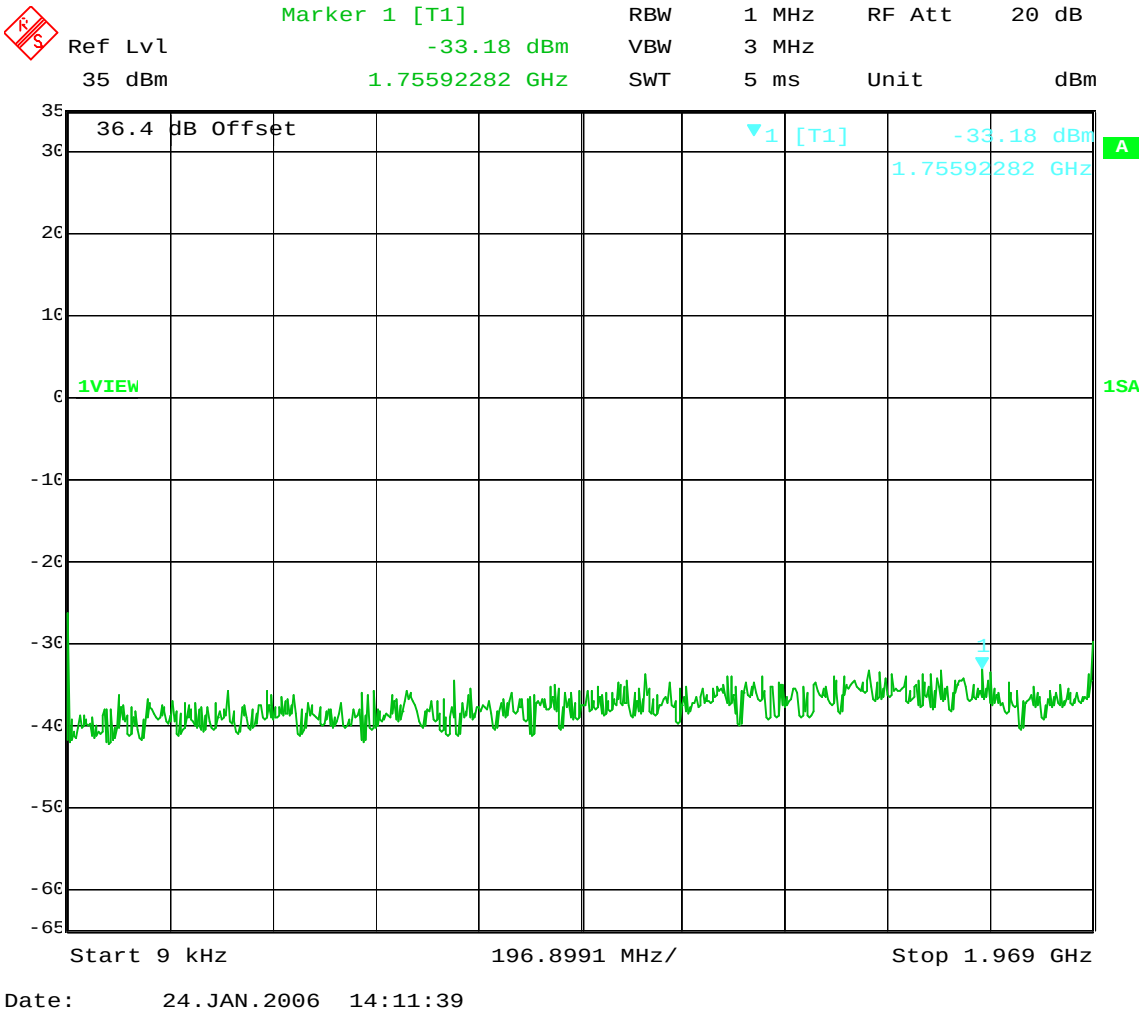


Figure 37 : Conducted Spurious Emissions - 3 Carrier, Channels 1125, 1150, 1175, IS-95 (Lower Adjacent 1 MHz - 1 MHz -:- Lower Adjacent 1 MHz)

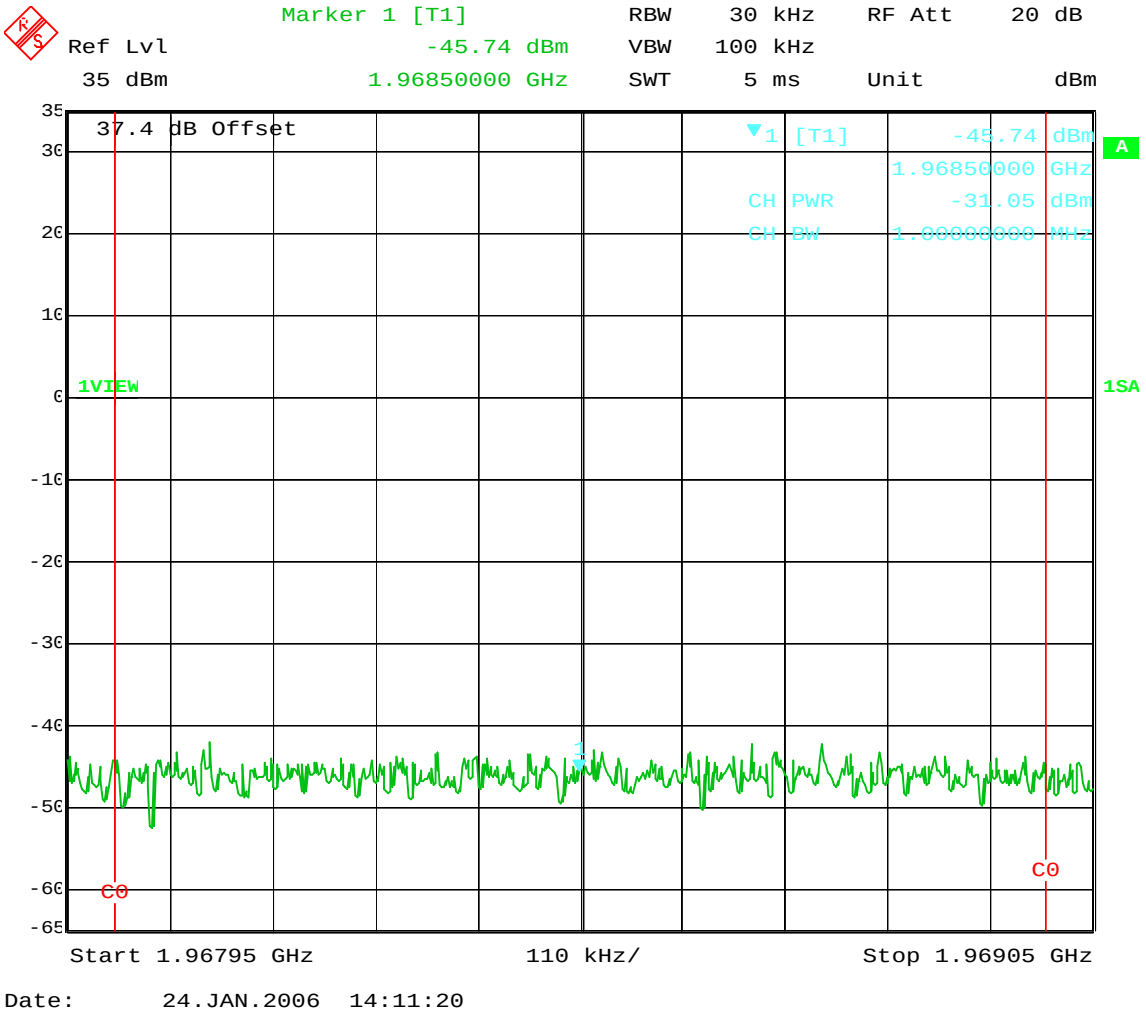


Figure 38 : Conducted Spurious Emissions - 3 Carrier, Channels 1125, 1150, 1175, IS-95 (Upper Adjacent 1 MHz -:- Upper Adjacent 1 MHz + 1 MHz)

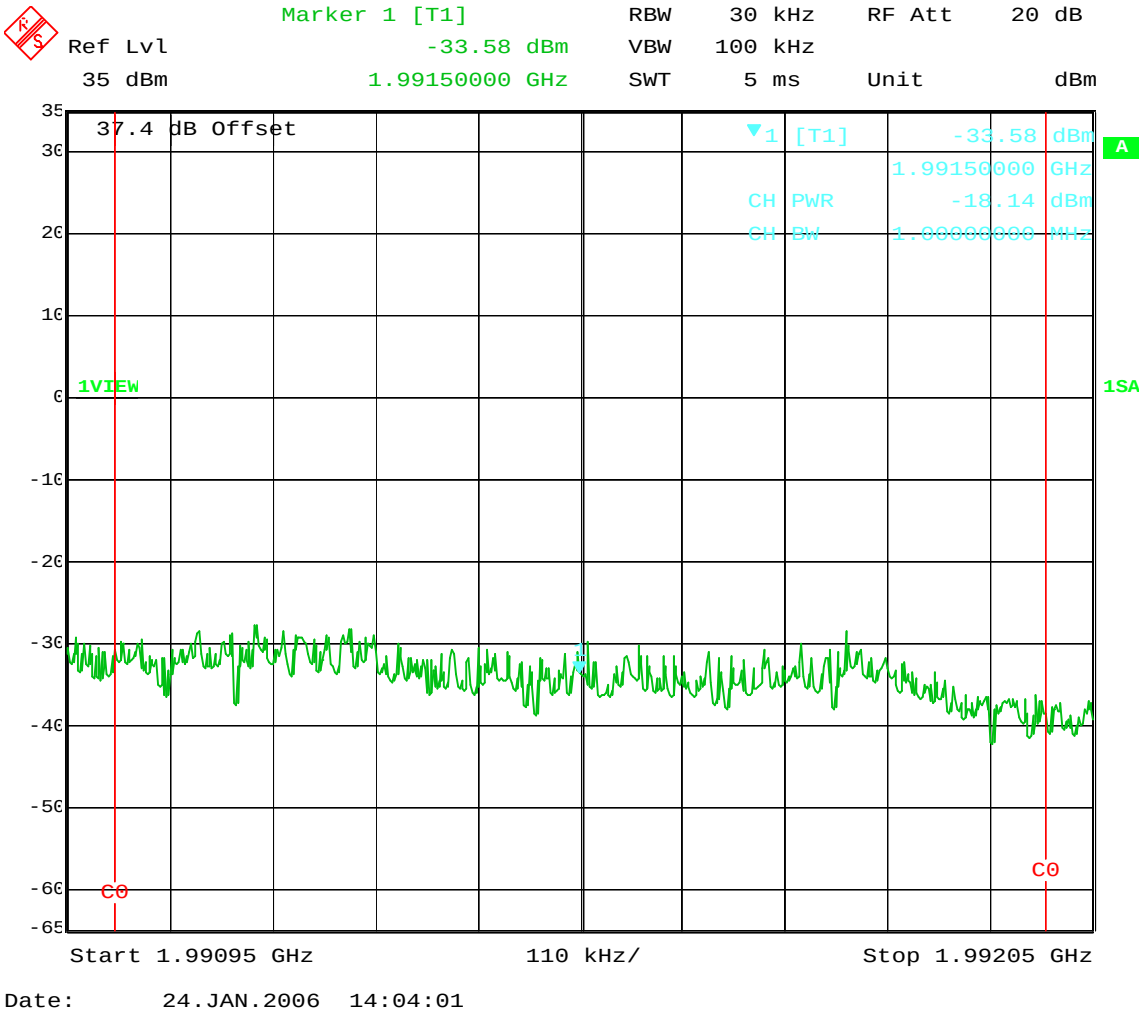


Figure 39 : Conducted Spurious Emissions - 3 Carrier, Channels 1125, 1150, 1175, IS-95 (Upper Adjacent 1 MHz -:- 5 GHz)

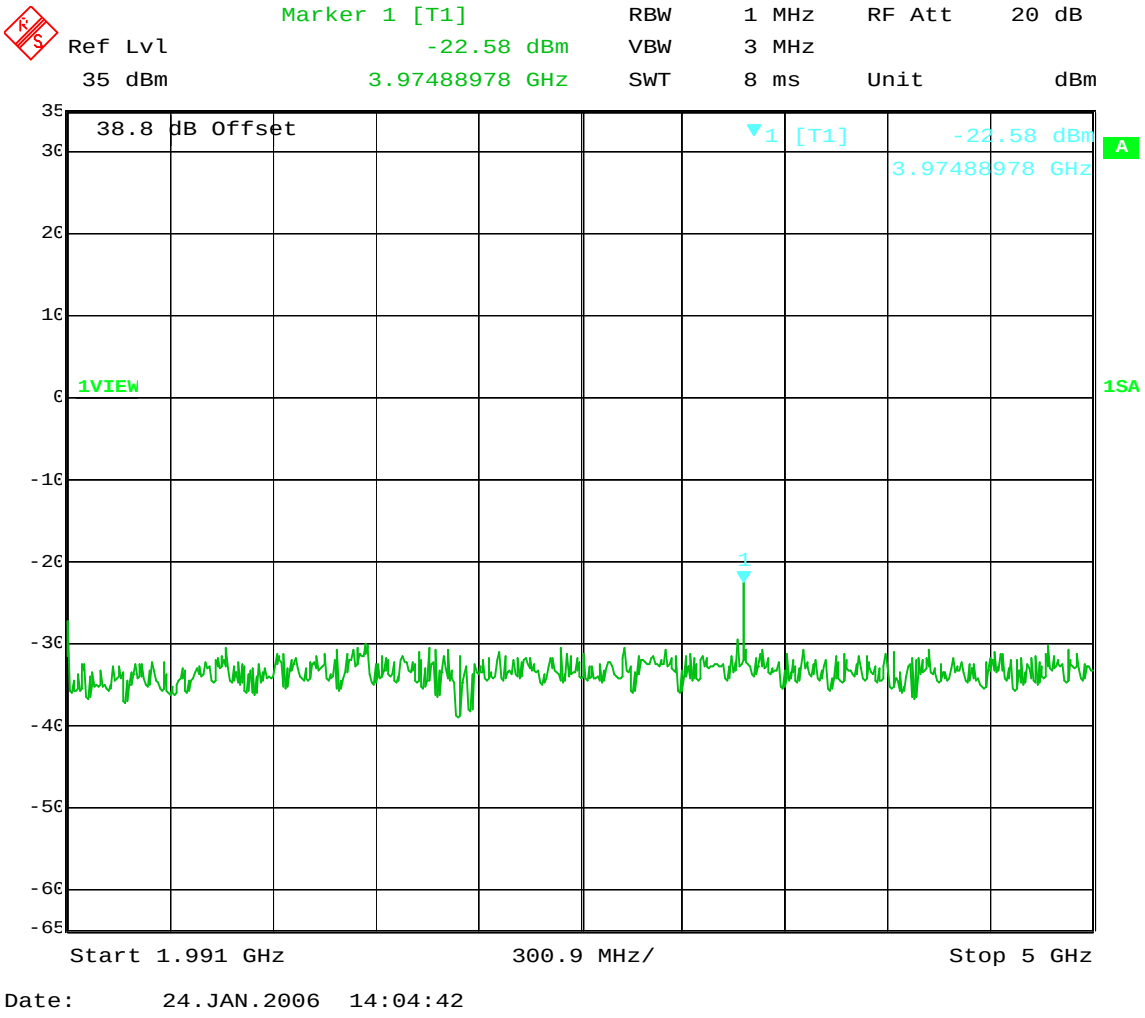


Figure 40 : Conducted Spurious Emissions - 3 Carrier, Channels 1125, 1150, 1175, IS-95 (5 GHz -:- 12.5 GHz)

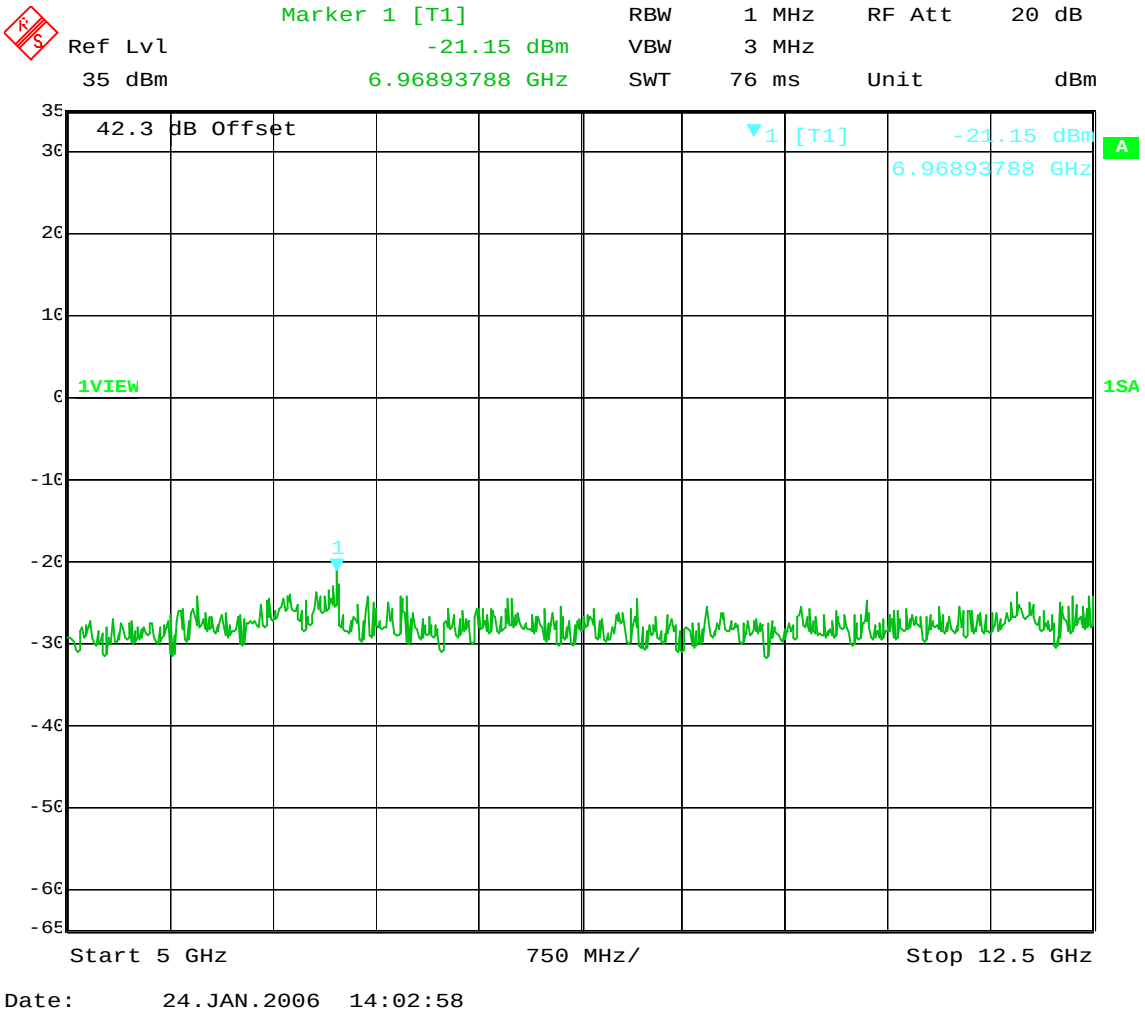


Figure 41 : Conducted Spurious Emissions - 3 Carrier, Channels 1125, 1150, 1175, IS-95 (12.5 GHz -:- 20 GHz)

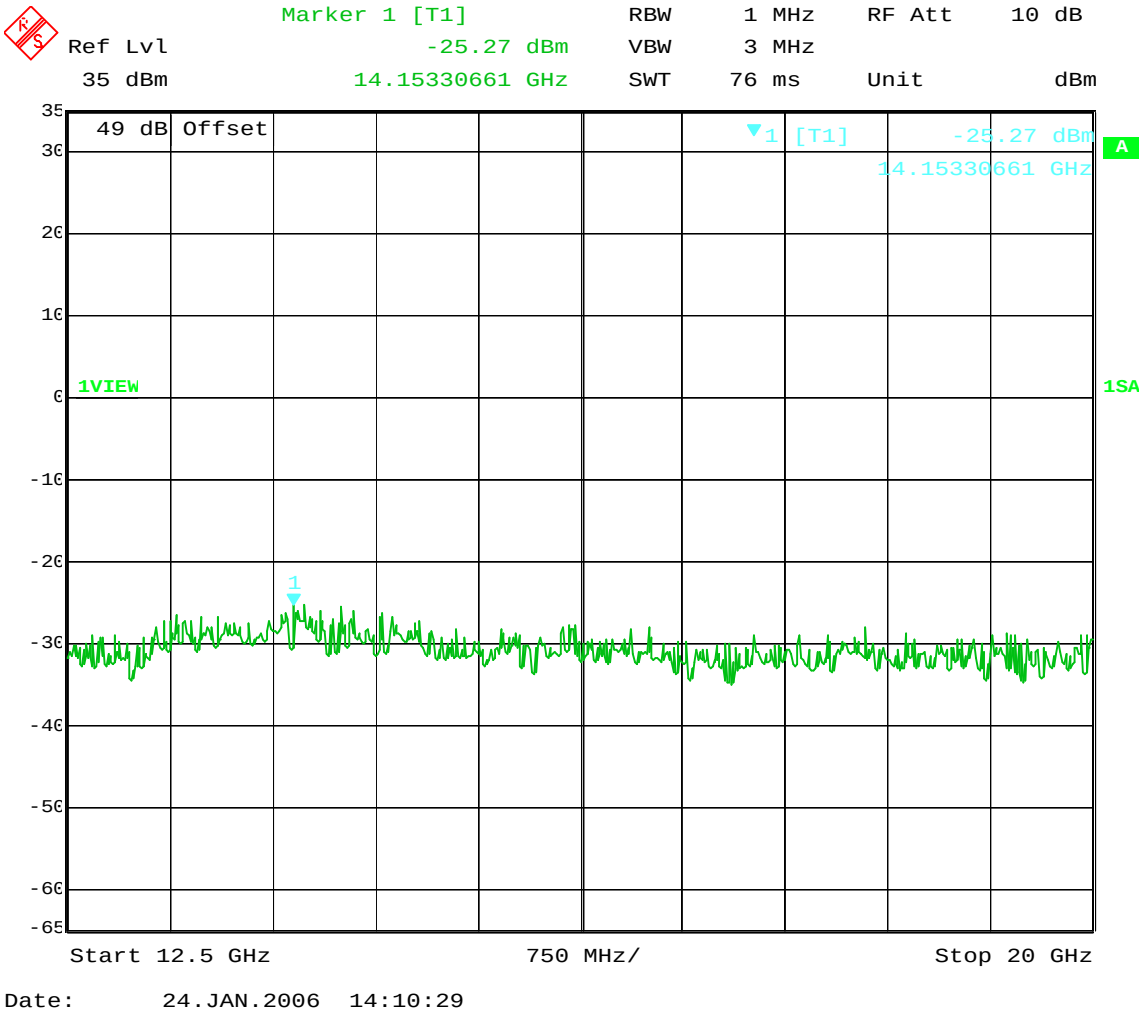


Figure 42 : Conducted Spurious Emissions - 3 Carrier, Channels 325, 350, 375, IS-856, 16-QAM (DOM A) Mode (Lower Adjacent 1 MHz)

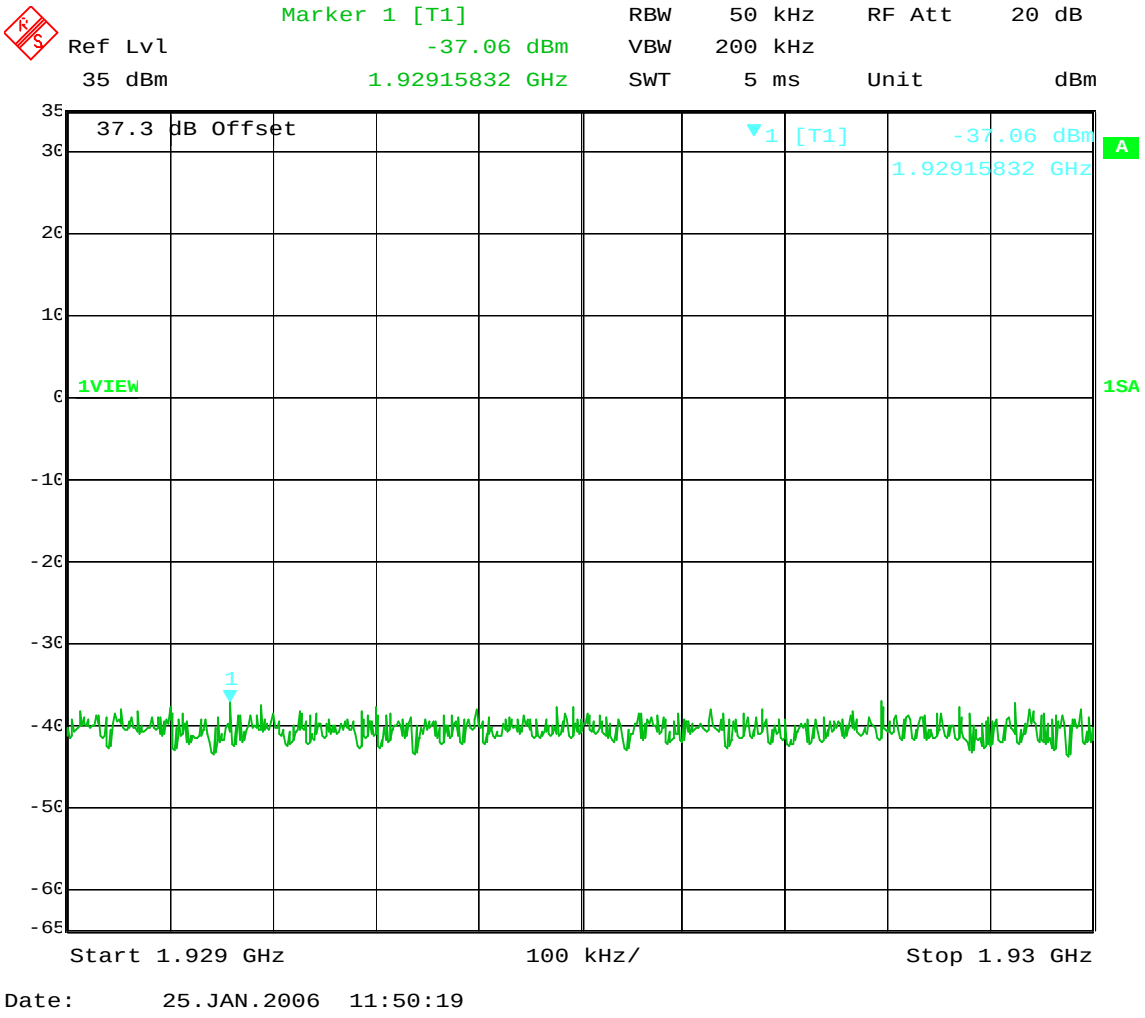


Figure 43 : Conducted Spurious Emissions - 3 Carrier, Channels 325, 350, 375, IS-856, 16-QAM (DOM A) Mode (Upper Adjacent 1 MHz)

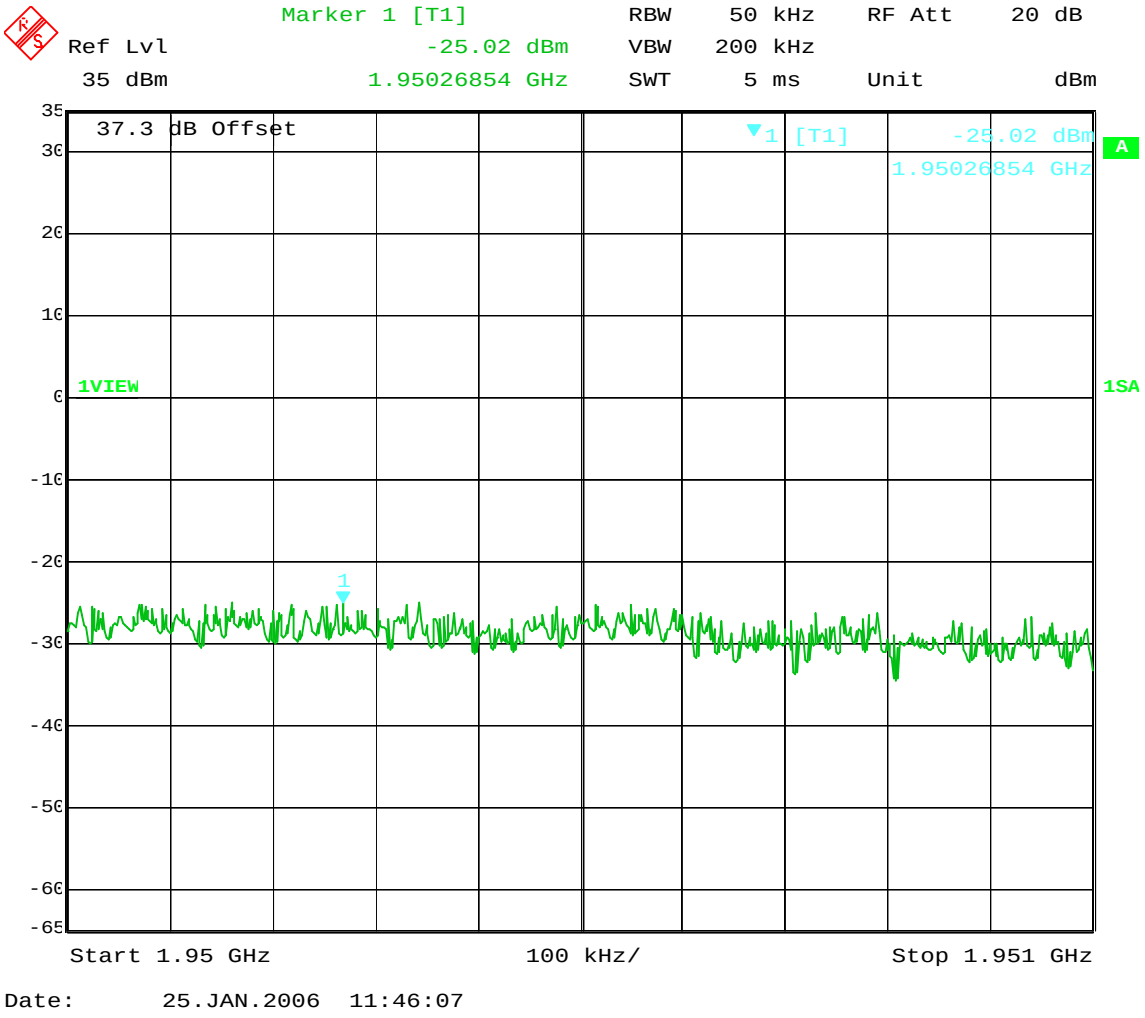


Figure 44 : Conducted Spurious Emissions - 3 Carrier, Channels 325, 350, 375, IS-856, 16-QAM (DOM A) Mode (9kHz -:- Lower Adjacent 1 MHz)

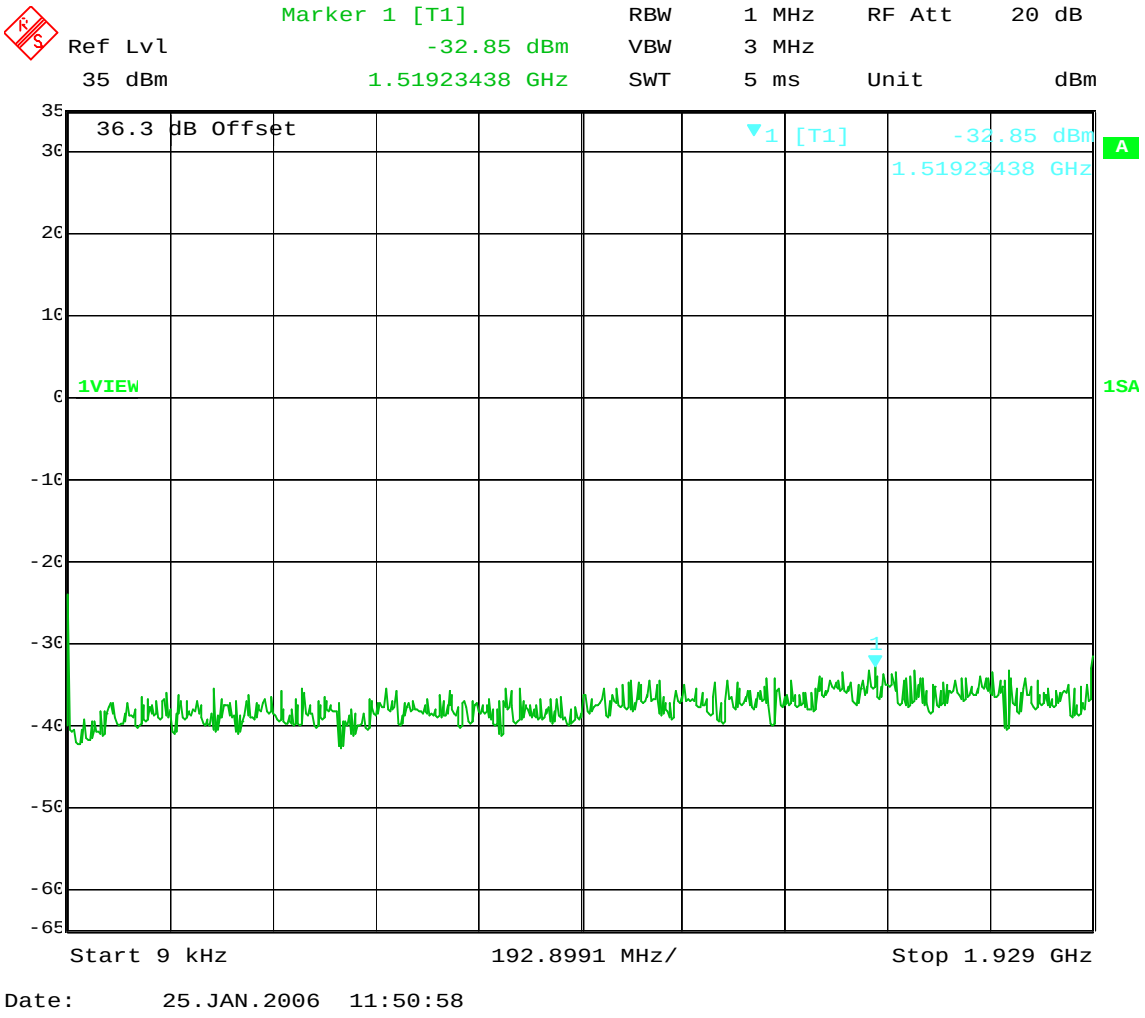


Figure 45 : Conducted Spurious Emissions - 3 Carrier, Channels 325, 350, 375, IS-856, 16-QAM (DOM A) Mode (Lower Adjacent 1 MHz - 1 MHz -:- Lower Adjacent 1 MHz)

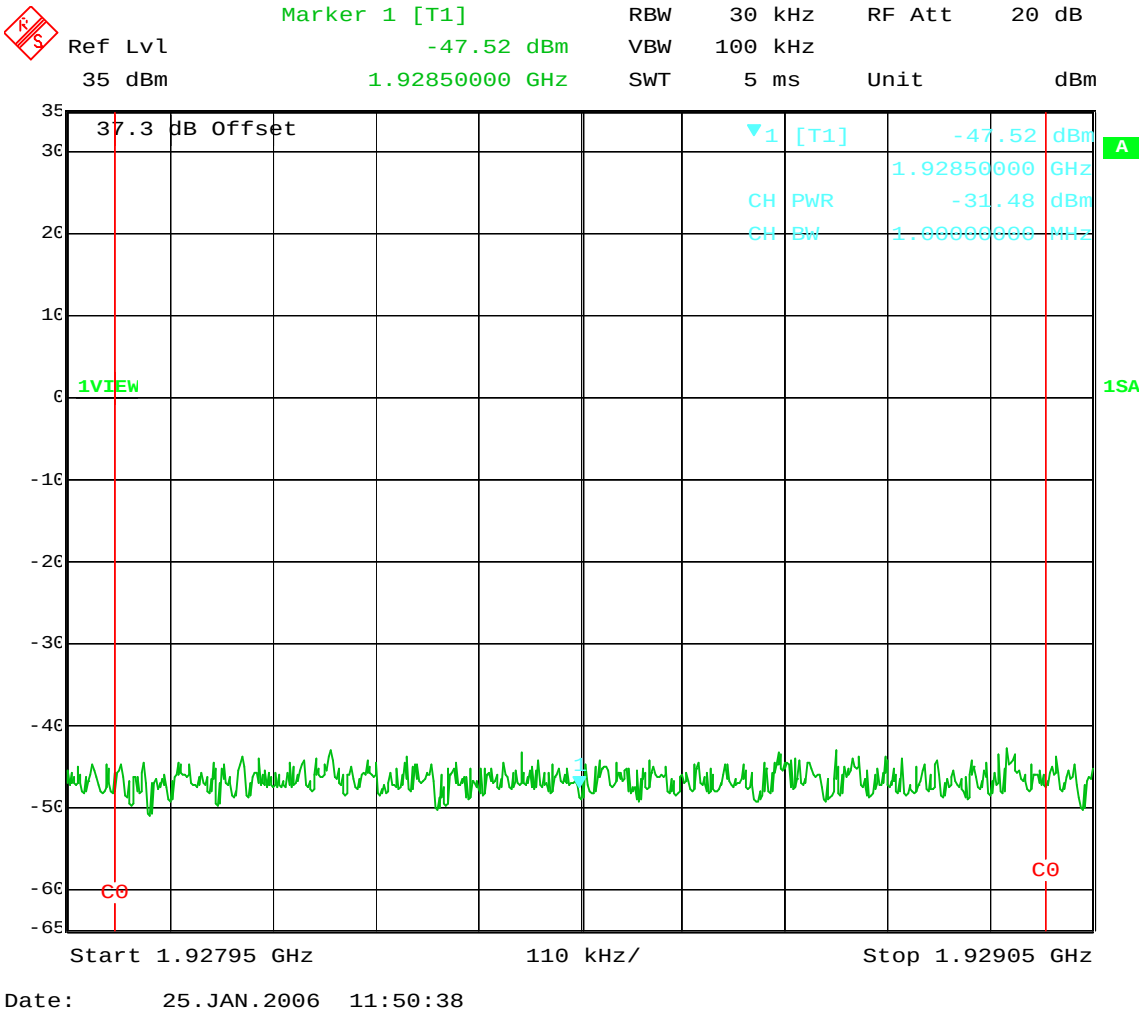


Figure 46 : Conducted Spurious Emissions - 3 Carrier, Channels 325, 350, 375, IS-856, 16-QAM (DOM A) Mode (Upper Adjacent 1 MHz -:- Upper Adjacent 1 MHz + 1 MHz)

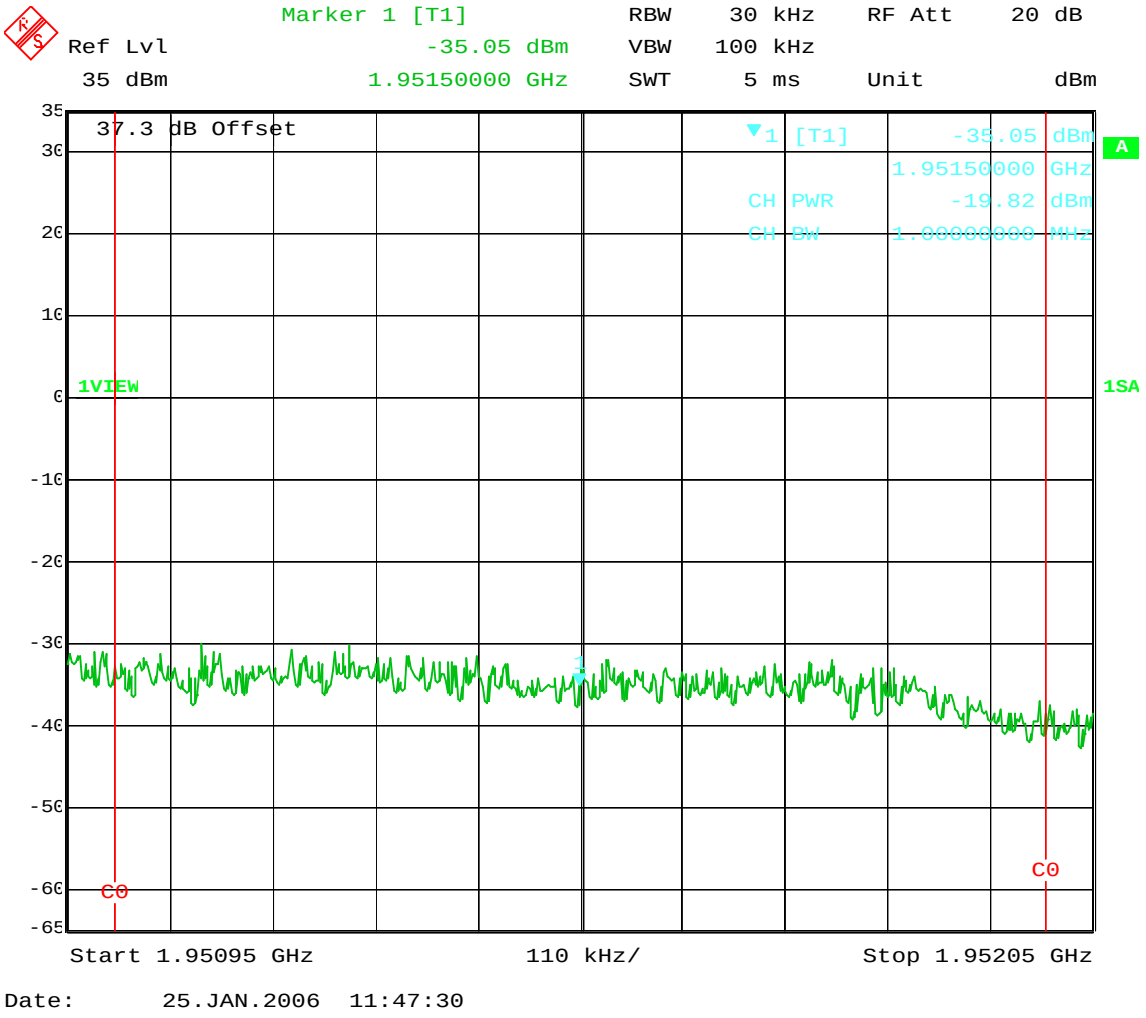


Figure 47 : Conducted Spurious Emissions - 3 Carrier, Channels 325, 350, 375, IS-856, 16-QAM (DOM A) Mode (Upper Adjacent 1 MHz -:- 5 GHz)

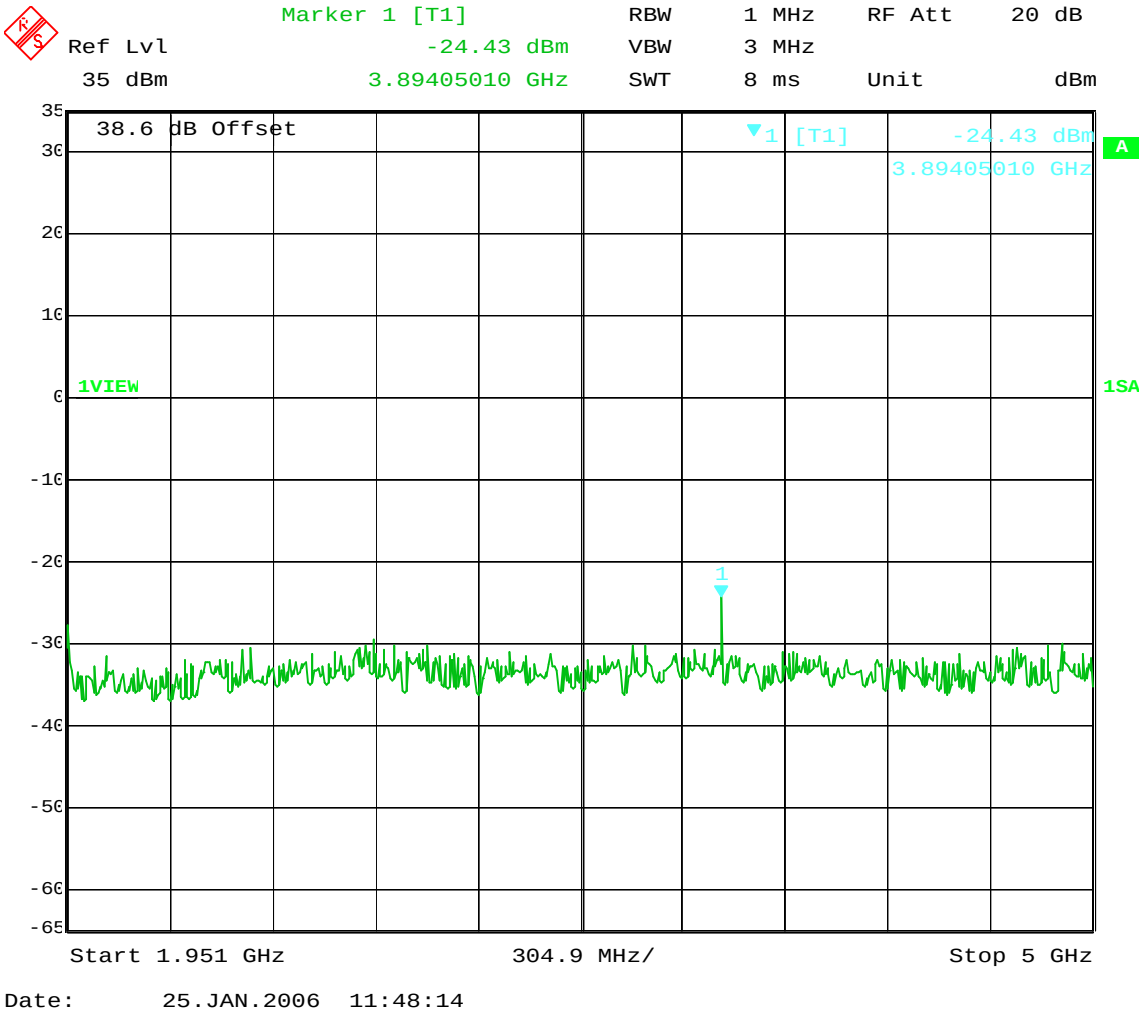


Figure 48 : Conducted Spurious Emissions - 3 Carrier, Channels 325, 350, 375, IS-856, 16-QAM (DOM A) Mode (5 GHz -:- 12.5 GHz)

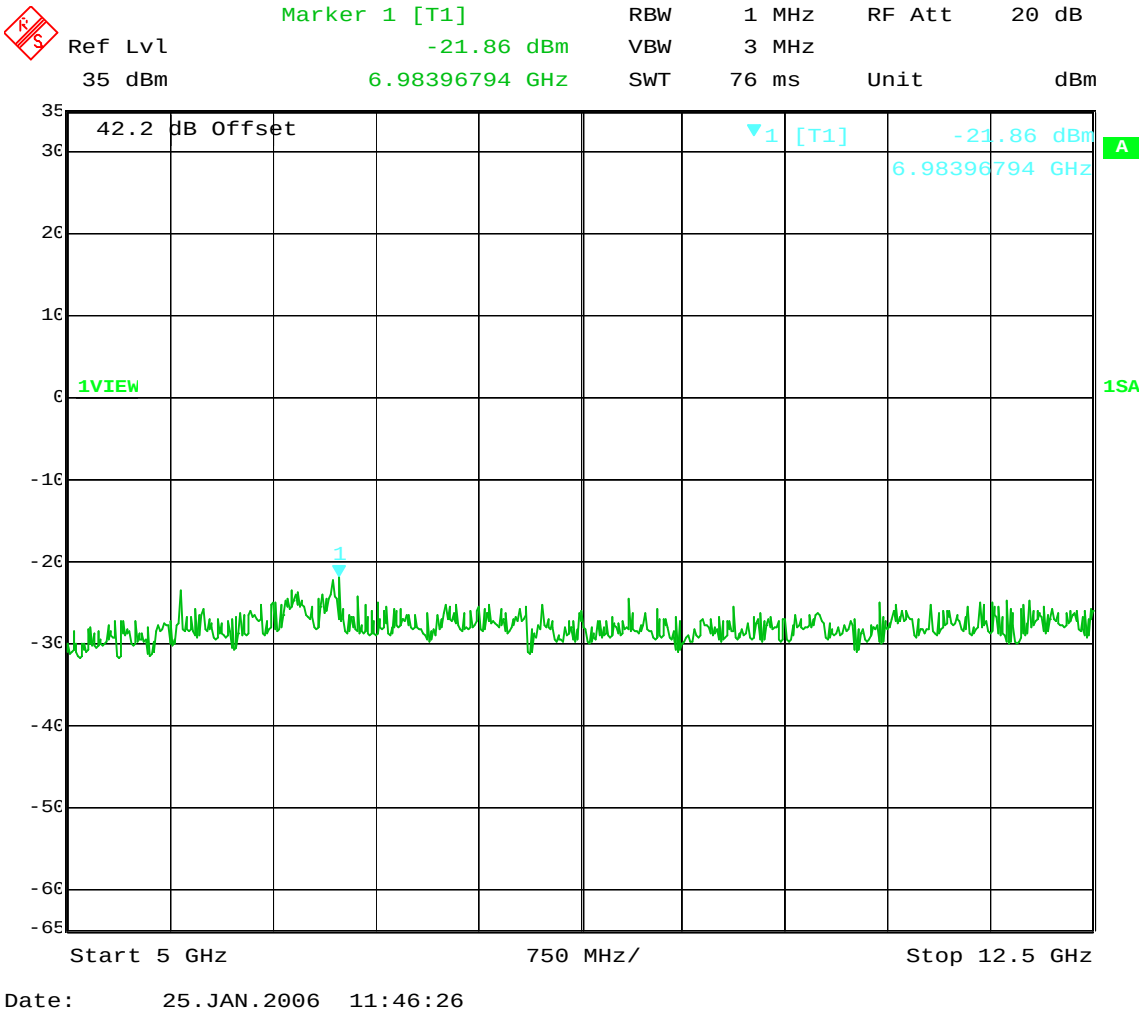


Figure 49 : Conducted Spurious Emissions - 3 Carrier, Channels 325, 350, 375, IS-856, 16-QAM (DOM A) Mode (12.5 GHz -:- 20 GHz)

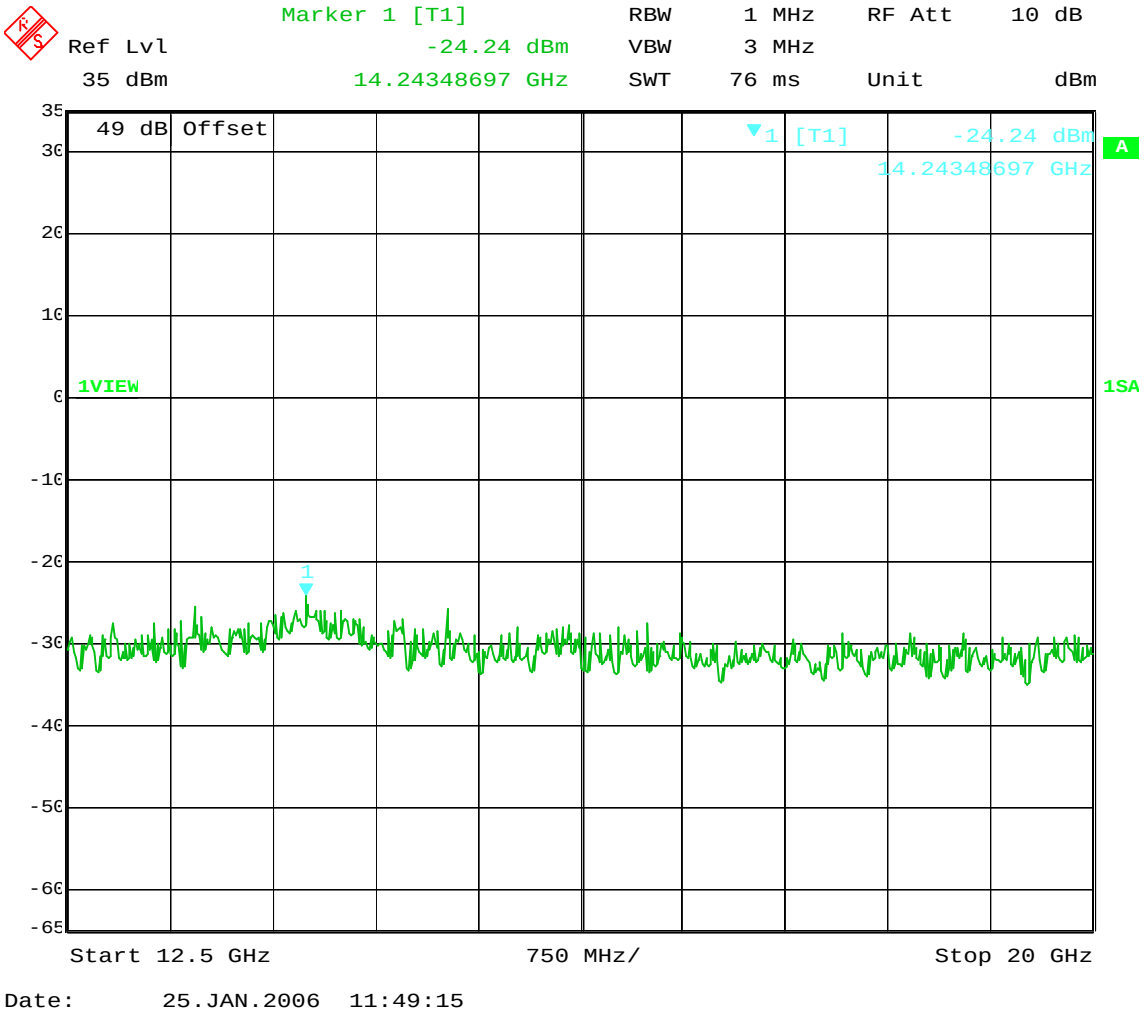


Figure 50 : Conducted Spurious Emissions - 3 Carrier, Channels 425, 450, 475, 2 Carrier IS-95 & 1 Carrier IS-856, 16-QAM (DOM A) Mode (Lower Adjacent 1 MHz)

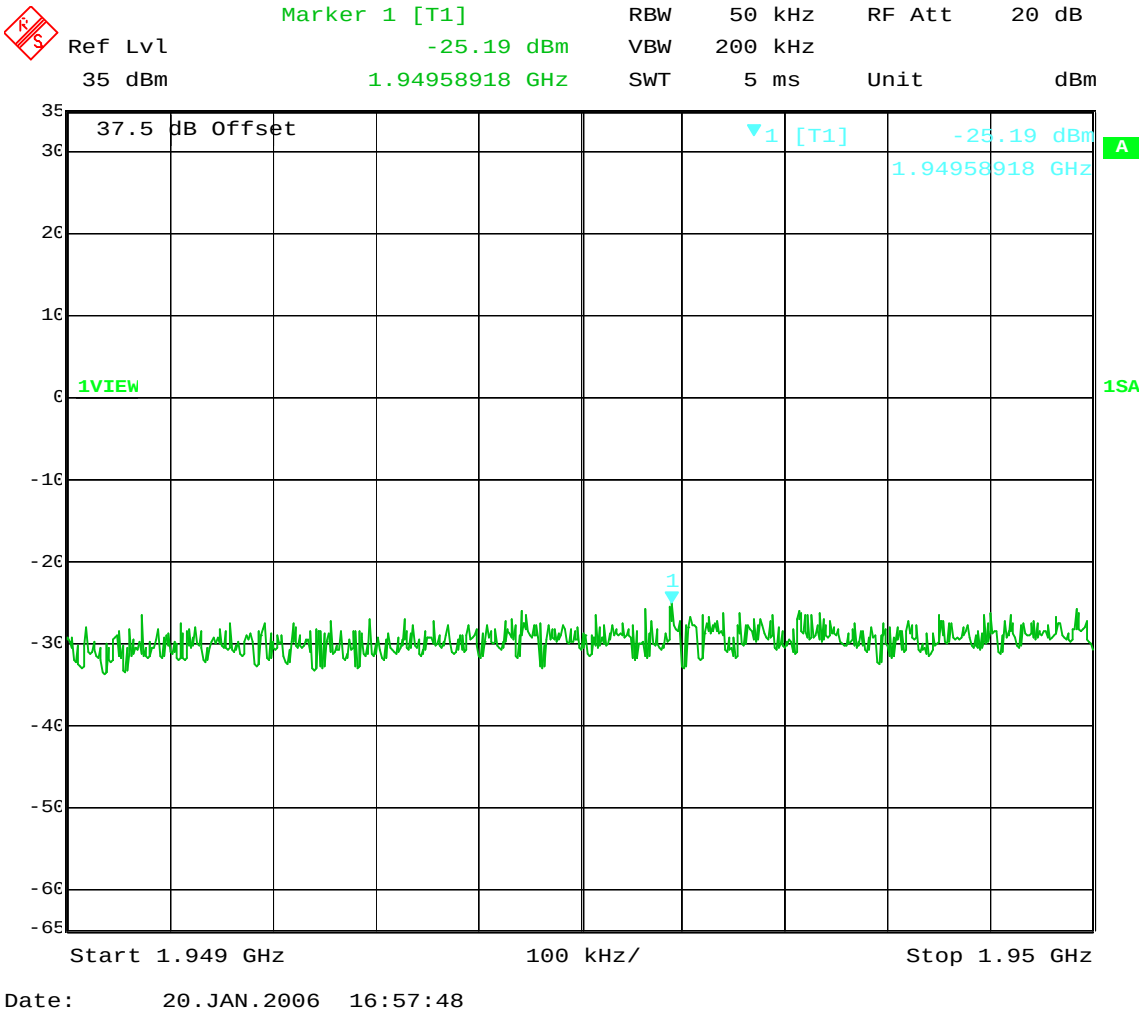


Figure 51 : Conducted Spurious Emissions - 3 Carrier, Channels 425, 450, 475, 2 Carrier IS-95 & 1 Carrier IS-856, 16-QAM (DOM A) Mode (Upper Adjacent 1 MHz)

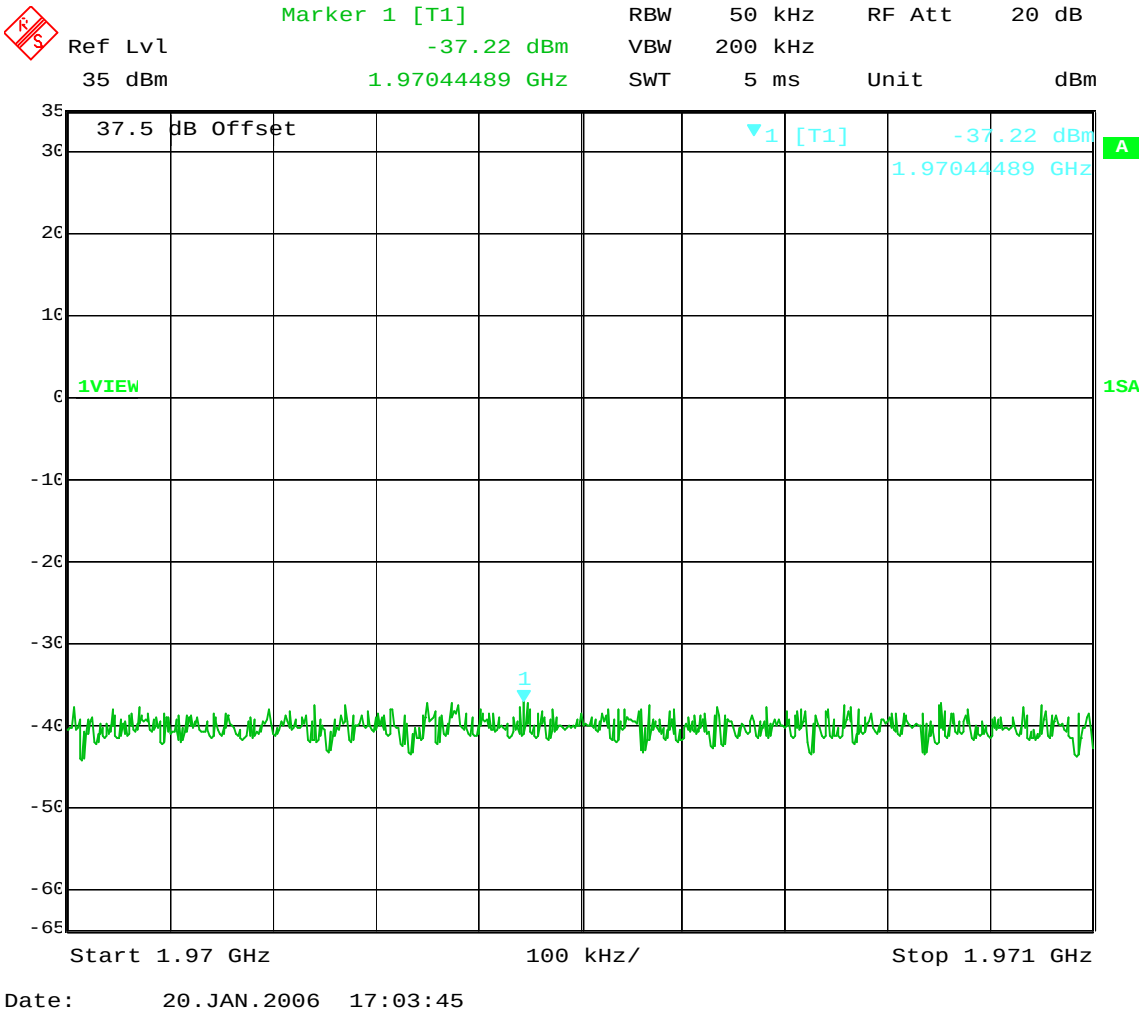


Figure 52 : Conducted Spurious Emissions - 3 Carrier, Channels 425, 450, 475, 2 Carrier IS-95 & 1 Carrier IS-856, 16-QAM (DOM A) Mode (9kHz -:- Lower Adjacent 1 MHz)

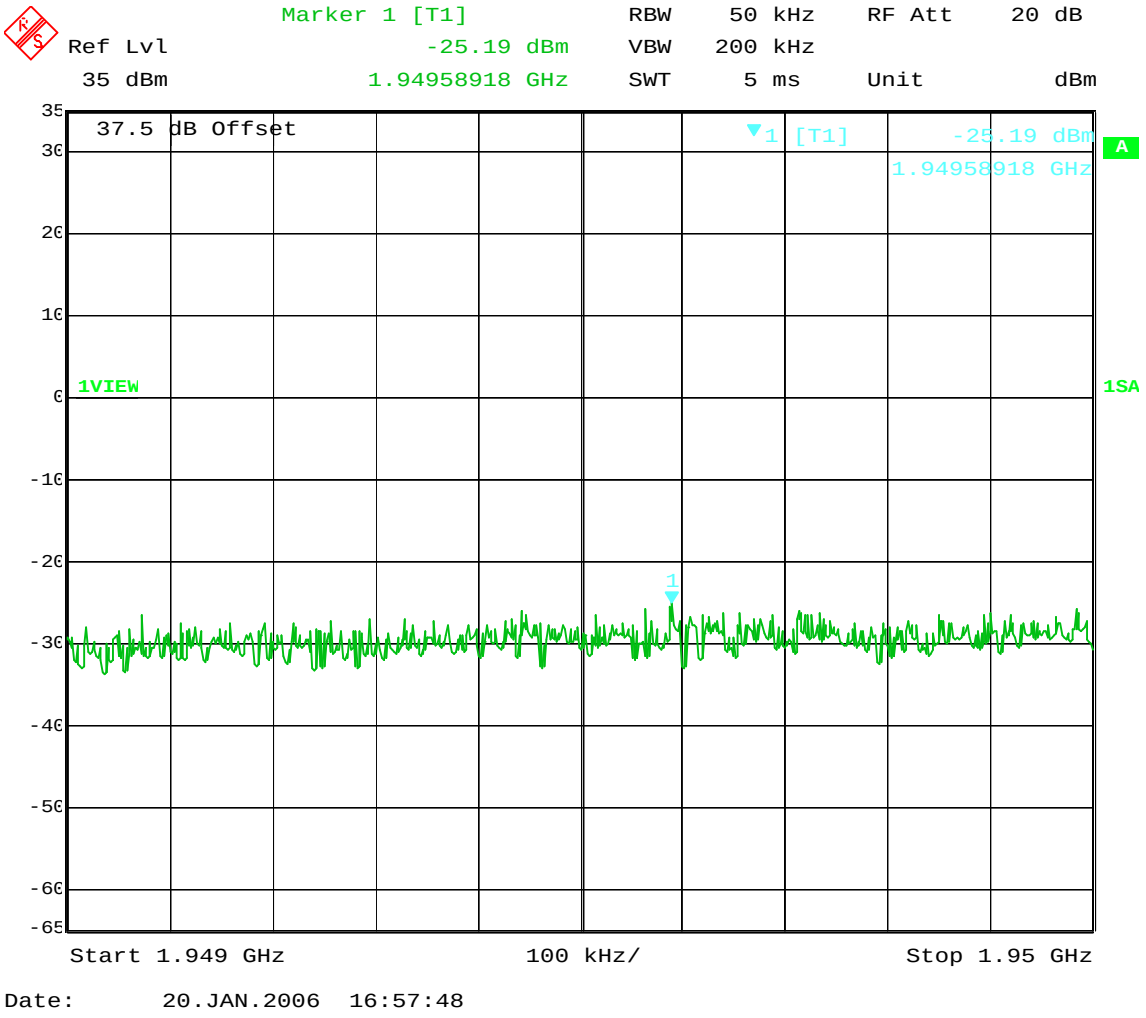


Figure 53 : Conducted Spurious Emissions - 3 Carrier, Channels 425, 450, 475, 2 Carrier IS-95 & 1 Carrier IS-856, 16-QAM (DOM A) Mode (Lower Adjacent 1 MHz - 1 MHz -:- Lower Adjacent 1 MHz)

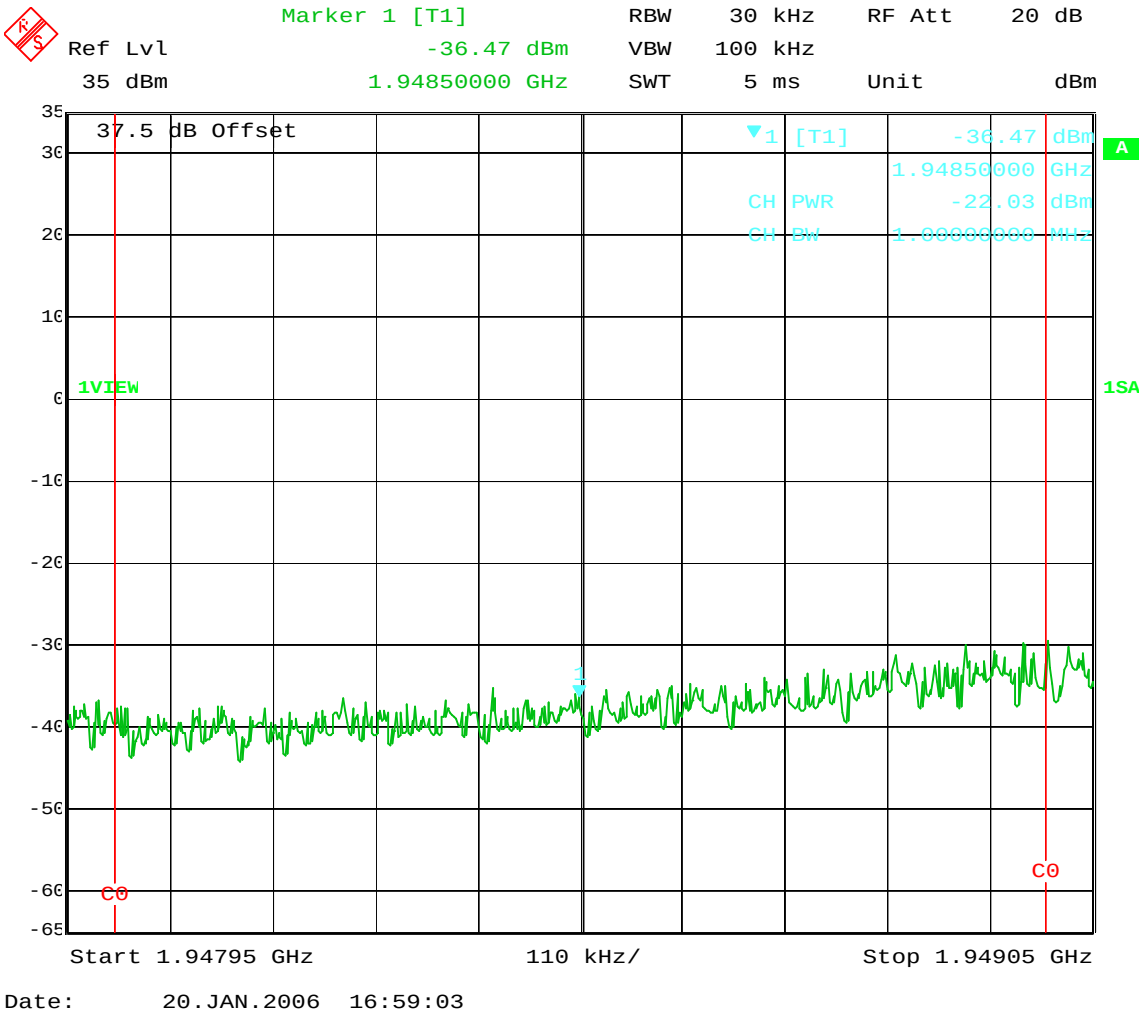


Figure 54 : Conducted Spurious Emissions - 3 Carrier, Channels 425, 450, 475, 2 Carrier IS-95 & 1 Carrier IS-856, 16-QAM (DOM A) Mode (Upper Adjacent 1 MHz -:- Upper Adjacent 1 MHz + 1 MHz)

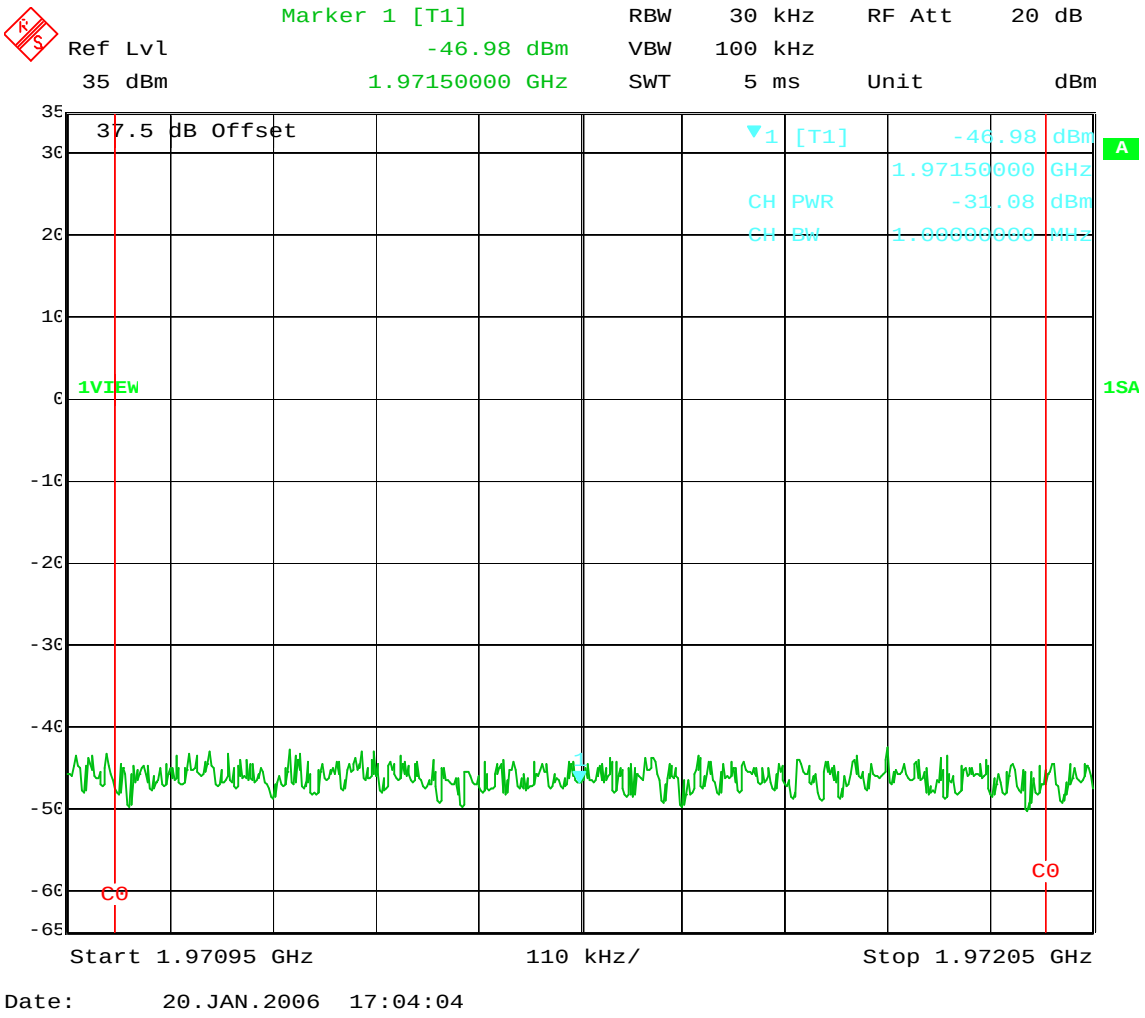


Figure 55 : Conducted Spurious Emissions - 3 Carrier, Channels 425, 450, 475, 2 Carrier IS-95 & 1 Carrier IS-856, 16-QAM (DOM A) Mode (Upper Adjacent 1 MHz -:- 5 GHz)

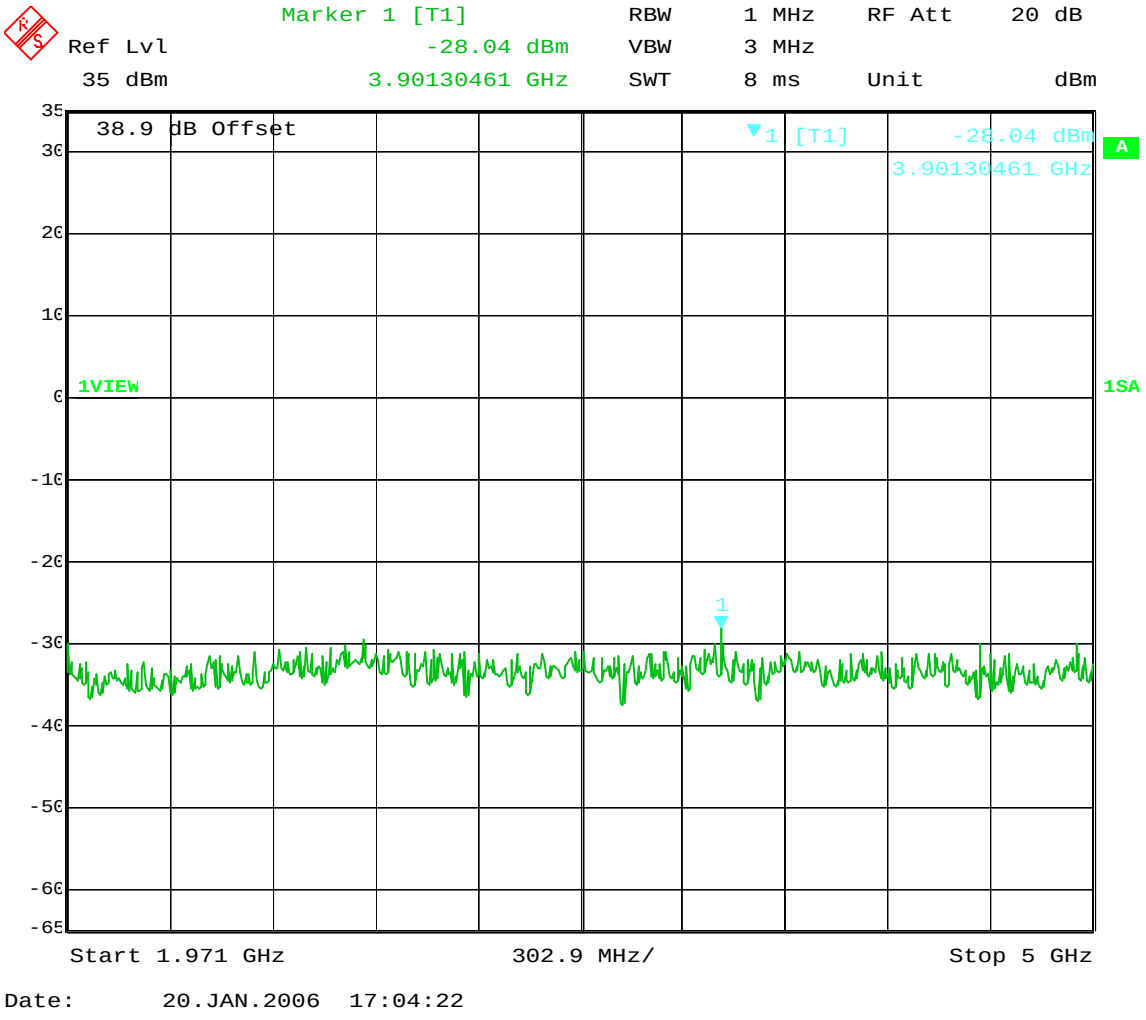


Figure 56 : Conducted Spurious Emissions - 3 Carrier, Channels 425, 450, 475, 2 Carrier IS-95 & 1 Carrier IS-856, 16-QAM (DOM A) Mode (5 GHz -:- 12.5 GHz)

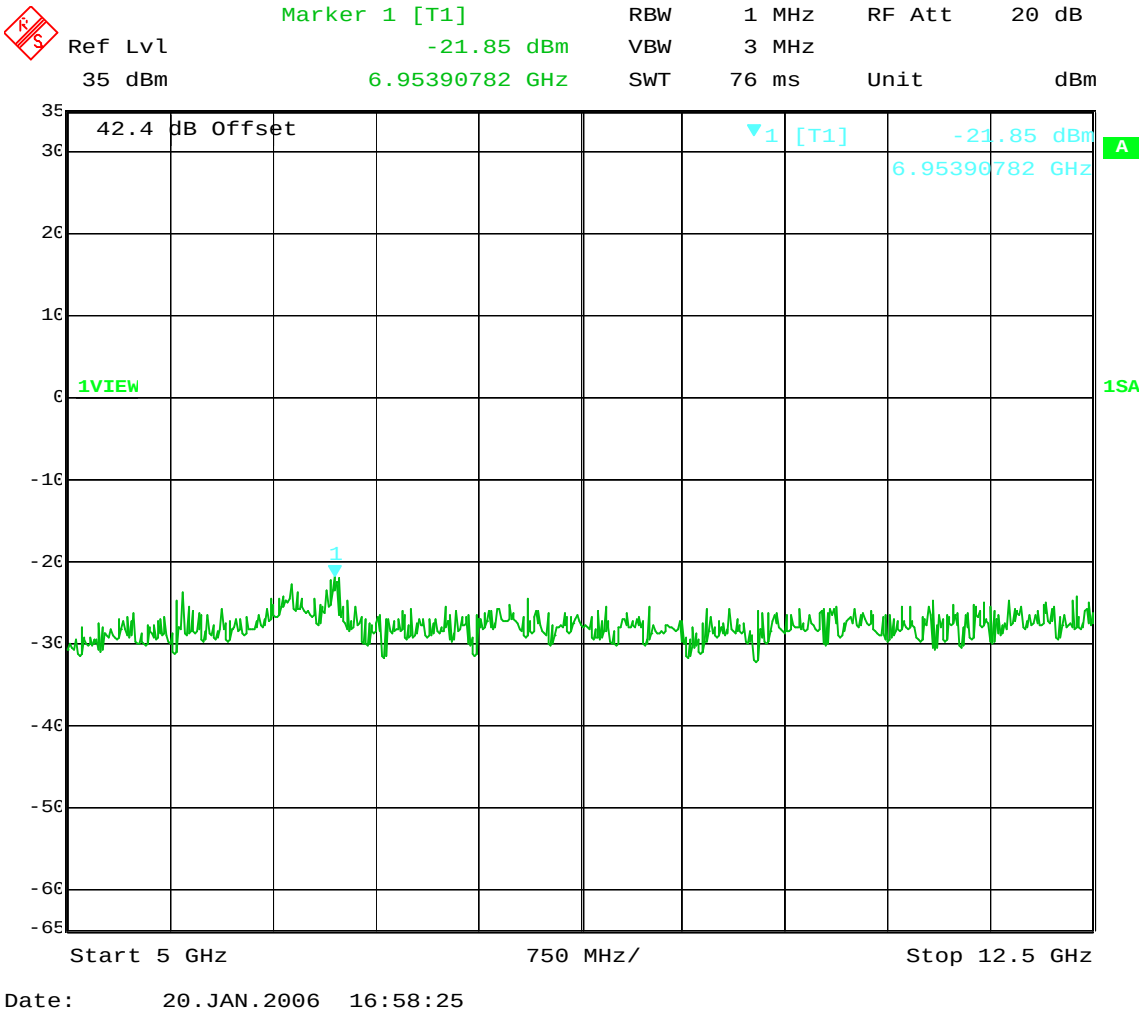
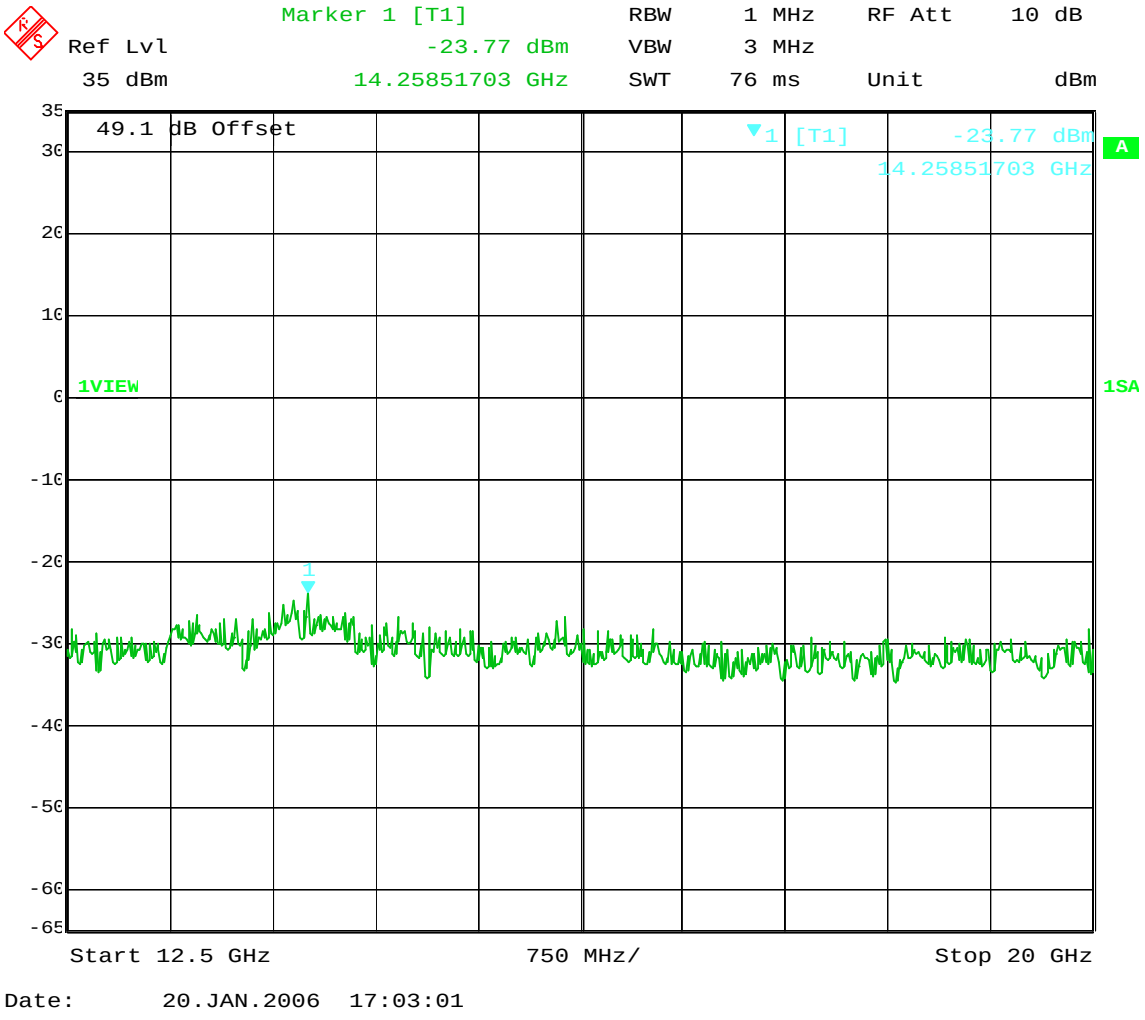


Figure 57 : Conducted Spurious Emissions - 3 Carrier, Channels 425, 450, 475, 2 Carrier IS-95 & 1 Carrier IS-856, 16-QAM (DOM A) Mode (12.5 GHz -:- 20 GHz)



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 deg. to +50 deg. centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.

(b) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10 deg. 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 24.235 Limit

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

4.5.2 Test Method

The cBTS is configured via the BTS controller to enable the cBTS 1900 MHz Radio Module to transmit at nominal output power level. Measurements are made for three carrier configuration, channels 575, 600 & 625.

The cBTS 1900 MHz Radio Module System is subjected to ambient temperatures from -5° to +50° C at intervals of 10° C. A period of at least 2 hours is allowed prior to taking measurement to ensure that all of the oscillator circuit components have stabilized.

At each of the above specified temperatures, the minimum and maximum carrier deviation is recorded from the time the transmitter is keyed-on for a period of sixty minutes using the HP 4406A VSA measurement system. Recorded data is based on processing 100 samples with 10 averages/sample.

At 25° C ambient temperature, measurements are made with the primary supply voltage set to 85%, 100% and 115% of the nominal value. The nominal primary supply voltage for the cBTS 1900 MHz Radio Module is -48 VDC. The same measurements will also be made for nominal primary supply voltage of +24 VDC.

4.5.3 Test Setup

The set-up used for the cBTS 1900 MHz Radio Module Frequency Stability test is illustrated in Figure 58. Frequency Stability measurements are referenced to the DPM antenna port.

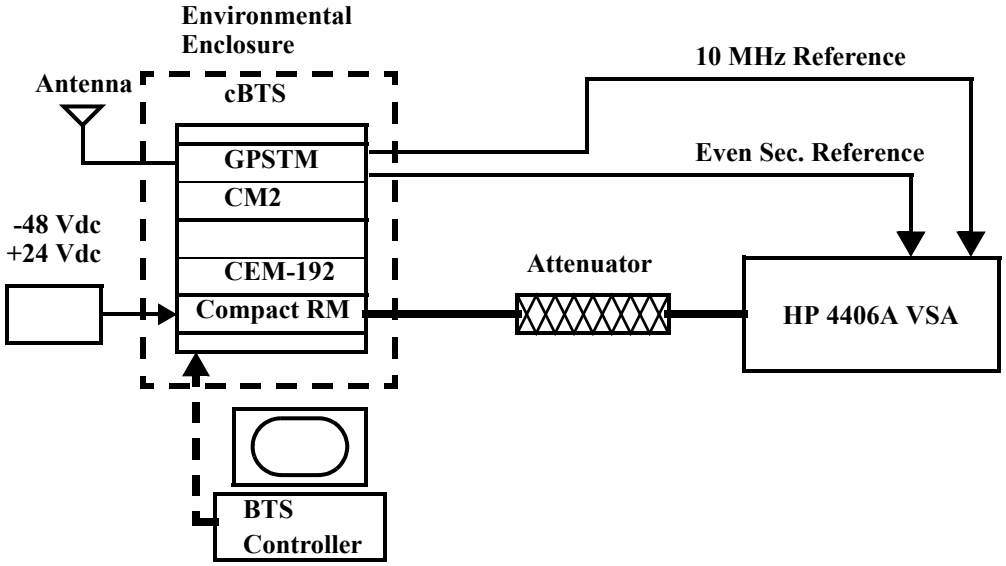


Figure 58 : Test Setup for Frequency Stability Measurement

4.5.4 Results

The cBTS 1900 MHz Radio Module System complies with the requirements. Table 27 and Table 28 show the results for Frequency Stability versus Temperature Variation of the cBTS 1900 MHz Radio Module for 3 carrier configuration, channels 575, 600 & 625. Table 29 and Table 30 show the results for Frequency Stability versus Power Supply Voltage of the cBTS 1900 MHz Radio Module for 3 carrier configuration, channels 575, 600 & 625.

Table 27 : Frequency Stability versus Temperature Variation, 3 Carrier Mode, -48vDC

Temperature (°C)	Carrier Frequency Deviation (Hz)	
	Minimum	Maximum
-5	-8.715	5.336
0	-3.486	9.259
10	-8.101	5.326
20	-2.881	7.231
30	-4.61	4.107
40	-3.191	6.617
50	-5.779	3.087

Table 28 : Frequency Stability versus Temperature Variation, 3 Carrier Mode, +24vDC

Temperature (°C)	Carrier Frequency Deviation (Hz)	
	Minimum	Maximum
-5	-4.918	3.983
0	-5.777	5.115
10	-8.95	6.151
20	-3.828	4.082
30	-2.66	5.511
40	-6.822	8.042
50	-3.74	6.899

Table 29 : Frequency Stability versus Power Supply Voltage, 3 Carrier Mode, -48 VDC

Power Supply Voltage	Carrier Frequency Deviation (Hz)	
	Minimum	Maximum
-40.8 VDC	-2.342	6.894
-48.0 VDC	-3.85	4.941
-55.2 VDC	-2.47	5.536

Table 30 : Frequency Stability versus Power Supply Voltage, 3 Carrier Mode, +24 VDC

Power Supply Voltage	Carrier Frequency Deviation (Hz)	
	Minimum	Maximum
+20.4 VDC	-4.586	9.438
+24.0 VDC	-5.992	5.095
+27.6 VDC	-5.056	7.064

References

[1] FCC Part 24 Subpart E, “Personal Communication Services”, http://www.access.gpo.gov/nara/cfr/waisidx_00/47cfr24_00.html

[2] FCC Part 2 Subpart J, “Frequency allocations and radio treaty matters; general rules and regulations”, http://www.access.gpo.gov/nara/cfr/waisidx_00/47cfr2_00.html

[3] Industry Canada RSS-133, “2 GHz Personal Communication Services”, http://strategis.ic.gc.ca/SSG/sf01520e.html

[4] ANSI-97-E “Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations”, December 2002

[5] Industry Canada “Information on the 99% Bandwidth measurement” Author Brain Kasper. http://strategis.ic.gc.ca/epic/internet/inceb-bhst.nsf/vwapj/occupied-bandwidth.pdf/$FILE/occupied-bandwidth.pdf

[6] Indoor Compact Metro Cell Systems Design Specification, Dataset Name: NTGY00AA, Document Status: Approved, Stream: 01 Issue: 03, Issue Date: September 4, 2003, Original Owner: Roman Nemish, Wes Mundy.

[7] Nortel Networks BTS Development Group 800MHz / 1900MHz Compact Metro Cell Radio Module General Specifications, Dataset Name: GSRZ71AA_CA, Document Status: Update, Stream: 00 Issue: 02.2, Issue date: Feb 19, 2004, Originator: Feng Gao

[8] Test Report for FCC Equipment Authorization, TR_AB6NT1900RM-CBTS, Document Status: Approved, Stream: 01, Issue: 00, Issue date: September 14, 2005, Originator: Borislav Todorov,

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