



EXHIBIT 2A

Test Report Provided by Nortel Networks

Applicant: Nortel Networks

**For Original Equipment
Certification on:**

FCC: AB6NT800MFRM3

IC: 332D-800MFRM3



Restricted

Test Report for FCC Equipment Authorization

FCC Test Report

Dataset Name: AB6NT800MFRM3

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Acronyms and Abbreviations

ASIC	Application Specific Integrated Circuit
BBW	Breathing, Blossoming and Wilting
BPF	Bandpass Filter
BTS	Base Station Transceiver Subsystem
BW	Bandwidth
CDMA	Code Division Multiple Access
CR	Cost Reduced
dBFS	dB relative to Full Scale
DDS	Direct Digital Synthesizer
DPM	Duplexer Preselector Module
EEPROM	Electrically Erasable and Programmable ROM
EC	Engineering Change
ERLCE	Excess Reverse Link Capacity Estimate
HSSPC	High-Speed Serial Protocol Controller
HW	Hardware
IF	Intermediate Frequency
IIC	Inter-Integrated Circuit Bus
IS	Interim Standard
LO	Local Oscillator
LPF	Lowpass Filter
MFRM-3	Multi-Carrier Flexible Radio Module
NF	Noise Figure
OCNS	Orthogonal Channel Noise Source
OH	OverHead
PA	Power Amplifier
PC	Personal Computer
PPR	Peak Power Reduction
PSA	Product Specification Agreement
RBW	Resolution BandWidth
RF	Radio Frequency

Rx	Receive
SA	Spectrum Analyzer
SFRM	Single Carrier Flexible Radio Module
SW	Software
TBD	To Be Determined
TDM	Tri-sector Duplexer Module
TM	Triplexer Module
TPTL	Transmit Power Tracking Loop
TRM	Transmitter Receiver Module
Tx	Transmit

Publication History

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List of Consultants

The following people have reviewed this document prior to its release and have recommended its approval:

Table 1: Consultants

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Hossein Yektaii	Systems Design	2M40
Brian Racey	Systems Design	2M40
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Decision Maker

Table 2: Decision maker

Ratifier's Name	Signature	Date
Thomas Wong		

Decision Ratifier

The release of this document has been reviewed and approved for distribution and use by the following:

Table 3: Ratifier

Ratifier's Name	Signature	Date
Mark Willetts		

Revision History

Table 4: History

Stream/Issue	Revision Date	Reason for Change	Author
00/0.1	January 5, 2007	Initial Release	Igor Acimovic, 2M40
00/0.2	January 16, 2007	Note about DOMA/DOM0 usage is added Details regarding the MFRM-3 800 Verification Report are updated Suggestions and corrections received from Peter Goussev, Pierre Melancon, and Thomas Wong are included	Igor Acimovic, 2M40
00/0.3			

1 Introduction

This test report supports FCC filing for MFRM-3 800. This filing shall include single, two, three carrier modes, BB' split carrier and A' single carrier modes for the 800MHz cellular band. The following test results will include; RF Power Output, Occupied Bandwidth, Spurious Emissions at Antenna Terminals, and Transmitter Test (CDMA Mode Transmitter). Frequency tolerance over voltage and temperature test results will be included. Emissions testing shall be conducted at -48VDC at room temperature. Both IS95 and IS856 modulation schemes will be included in this report.

This test report will be 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' CDMA 800 MHz Multi carrier Flexible Radio Module 3 (MFRM-3).

The 800 MHz MFRM3 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-F, Recommended Minimum Performance Standards for Base Stations Supporting Dual Mode Spread Spectrum Systems [4]*
- *Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network C.S0032-0, Version 2.0 [7]*

The MFRM3 is capable of transmitting simultaneously on three sectors. Data collected on all sectors are combined together.

1.1 Required Tests

Table summarizes the required tests for the CDMA 800 MHz MFRM-3.

Table 5: Required Tests

FCC Measurement Specification	FCC Limit Specification	Description	Test to be Performed?
2.1033		PA current specification	Yes
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

Table 5: Required Tests

FCC Measurement Specification	FCC Limit Specification	Description	Test to be Performed?
2.1055	22.355	Frequency Stability	Yes

2 Engineering Declaration

The CDMA 800MHz Multi carrier Flexible Radio Module3 has been tested in accordance with the requirements contained in the Federal Communications Commission Rules and Regulations Part 2 and 22.

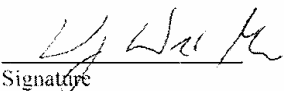
To the best of my knowledge, these tests were performed in accordance with good engineering practices using measurement procedures consistent with industry or commission standards or previous Commission correspondence or guidance and demonstrate that this equipment complies with the appropriate standards.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

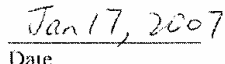
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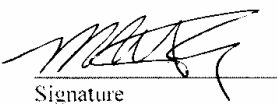

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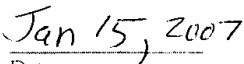
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 Thomas Wong
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 Nortel Networks
 Calgary, Canada


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 Date

Approved by:
 Mark Willetts
 Systems Manager
 Nortel Networks
 Ottawa, Canada


 Signature


 Date

3 Equipment Authorization Application Requirements

3.1 Standard Test Conditions and Test Equipment

The MFRM3 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 (nominal)
- Input modulation: IS-95 and IS-856 (QPSK, 8PSK, 16QAM)

3.2 EUT Identification List

Table shows the identification of the components required for testing.

Table 6: EUT Identification List

Equipment Description	Model / Part Number	Release Number	Serial Number
800 MHz Multi-carrier Flexible Radio Module (MFRM-3)	NTGZ70AA	N6	NNTMEEH00008
800 TDM Band A	NTGZ80AA	01	ANDWMA000380
800 TDM Band B	NTGZ80BA	N1	ANDWMA000470
800 FAM3	NTGZ85AA	N2	NNTM84G027V1
DOM rel A Modem	NTBW89DA	01	NNTM536G3VRH
DOM rel 0 Modem	NTBW99DO	05	ARVN31820051
XCEM-192 Modem	NTRZ80BA	51	NNTM74X1F71W
TDM Power/Data Cable	NTGS8001	-	-
TDM to RX Cable	NTGZ8106E6	-	-
TDM to TX Cable	NTGZ8020	-	-

3.3 Test Equipment List

Table shows the identification of the test equipment required.

Table 7: Test Equipment List

Description	Manufacturer	Model	Serial Number	Cal. Due Date
9kHz to 26.5 GHz Spectrum Analyzer	Rhode & Schwarz	FSEM - 30	DE25425	14, Nov 2007
RF Power Meter	Agilent	HP438A	3513U04169	19, Sep 2007
RF Power Sensor Head	Agilent	8482A	MY41093314	09, Jun 2007
30dB Attenuator (>100W)	RES-NET	RFA250NFF30	-	verified
RF Cables	-	-	-	verified

4 Transmitter Tests

4.1 Certification Requirements

4.1.1 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.

4.1.2 Test Method

This information required for this section is available from:

Title: MFRM-3 800 Verification Report

Dataset Name: VNGZ70AA

Document Status: Approved

Stream: 00 Issue: 01

Issue Date:

Document Prime: Pierre Melançon

4.1.3 Test Setup

The description of a test setup for each measurement will be given in a section dedicated to that particular measurement.

4.1.4 Test Results

The MFRM-3 800 has three PA pallet. Each of them with 2 main output transistors. The average

current below is identical for all PA pallets.

Table 8: Average Current Values for Pout = 50.3dBm at antenna port

Average Current Values @ Pout = 50.3 dBm (SPP = 3 dB)		
	25 °C	
	Q1	Q2
Mean	3.5A	3.5A

4.2 RF Power Output

4.2.1 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.

4.2.2 Test Method

Setup the DE via the BTS controller to enable the MFRM3 to transmit at the maximum rated power for each of the carrier configurations one, two, three carrier, BB' split mode and A' single carrier mode in each of the Baseband modulation formats IS-95 and IS-856. Measurements will be made on channels at the lower and upper edge of the operator bands with the MFRM-3 operating with -48Vdc. The RF output power will be measured using the power meter. Part 22.913(a): The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts.

4.2.3 Test Setup

The set-up required for the MFRM3 RF output power test is illustrated in Figure 1. RF output power measurements will be referenced to the antenna port of the TDM.

4.2.4 DOM

The conducted spurious emissions of the MFRM-3, with IS-856 (1xEVDO) waveforms will be tested at maximum rated power. The results for all supported modulations of EVDO (QPSK, 8PSK, 16QAM) are grouped together. In the case of the single carrier configuration DOMA modem is used. In the case of the two (three) carrier configuration one DOMA and one (two) DOM0 modems are used.

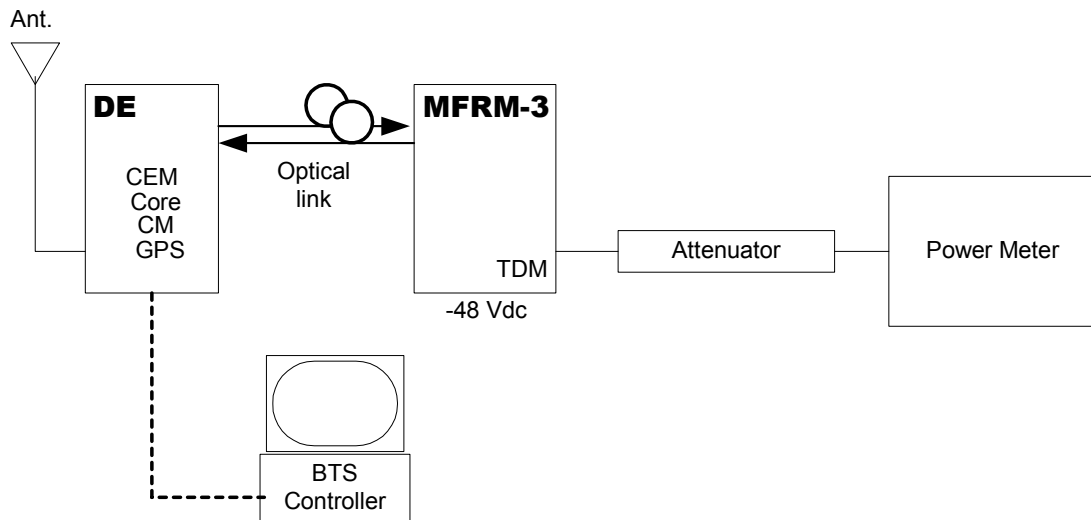


Figure 1 : Test Setup for RF Power Output Measurement

4.2.5 RF Output Power Test Results

Table 9: RF Output Power 800 MHz MFRM3, 1-Carrier, IS95

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	Power 50.3+/-0.25 (dBm)
1019 (A'')	869.88	50.27	50.30	PASS
304 (A)	879.12	50.28	50.30	PASS
363 (B)	880.89	50.30	50.30	PASS
637 (B)	889.11	50.22	50.30	PASS
692 (A')	890.76	50.25	50.30	PASS
746 (B')	892.38	50.24	50.30	PASS
770 (B')	893.10	50.29	50.30	PASS

Table 10: RF Output Power 800 MHz MFRM3 2-Carrier IS95

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	Power 50.3+/-0.25 (dBm)
363, 404 (B)	880.89, 882.12	50.26	50.30	PASS
596, 637 (B)	887.88, 889.11	50.24	50.30	PASS

Table 11: RF Output Power of 800 MHz MFRM3 3-Carrier IS95

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	Power 50.3+/-0.25 (dBm)
1019, 37, 78 (A'', A)	869.88, 871.11, 872.34	50.33	50.30	PASS

Table 11: RF Output Power of 800 MHz MFRM3 3-Carrier IS95

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	Power 50.3+/-0.25 (dBm)
222, 263, 304 (A)	876.66, 877.89, 879.12	50.23	50.30	PASS
363, 404, 445 (B)	880.89, 882.12, 883.35	50.22	50.30	PASS
555, 596, 637 (B)	886.65, 887.88, 889.11	50.23	50.30	PASS

Table 12: RF Output Power 800 MHz MFRM3 BB' IS95

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	Power 50.3+/-0.25 (dBm)
630, 758	888.90, 892.74	50.24	50.30	PASS

Table 13: RF Output Power 800 MHz MFRM3, 1-Carrier^a, IS856 (QPSK)

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	Power 50.3+/-0.25 (dBm)
363 (B)	880.49	50.25	50.30	PASS
637 (B)	889.11	50.27	50.30	PASS

a. DQSS modem was used for 1-Carrier configuration

Table 14: RF Output Power of 800 MHz MFRM3, 3-Carrier^a, IS856 (8-PSK)

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	Power 50.3+/-0.25 (dBm)
363, 404, 445 (B)	880.89, 882.12, 883.35	50.40	50.30	PASS
555, 596, 637 (B)	886.65, 887.88, 889.11	50.28	50.30	PASS

a. One DOMA and two DOM0 modems were used in 3-Carrier configuration

Table 15: RF Output Power 800 MHz MFRM3 Combination 3-Carrier: IS856 (16-QAM) and IS95

Channel Number (Band)	Frequency (MHz)	Measured RF Output Power (dBm)	Typical Maximum Rated Power (dBm)	Power 50.3+/-0.25 (dBm)
363, 404, 445* (B)	880.89, 882.12, 883.35	50.27	50.30	PASS
555, 596, 637* (B)	886.65, 887.88, 889.11	50.22	50.30	PASS

Note: First two channels in this configuration are configured with 16-QAM modulation on DOMA and DOM0 modems. Third channel indicated by (*) is configured as IS-95 on XCEM-192 modem.

4.3 Occupied Bandwidth

4.3.1 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.

4.3.2 Test Method

Setup the DE via the BTS controller to enable the MFRM3 to transmit at maximum rated power for each of the carrier configurations one, two, three carrier, BB' split mode and A' single carrier mode in each of the Baseband modulation formats IS-95 and IS-856 (16 QAM). Measurements were made on channels at the bottom and top edge of each of the sub bands.

The Occupied Bandwidth is measured using the 99% channel power feature of the spectrum analyzer.

4.3.3 Test Setup

The set-up required for the MFRM3 Occupied bandwidth test is illustrated in Figure 2.

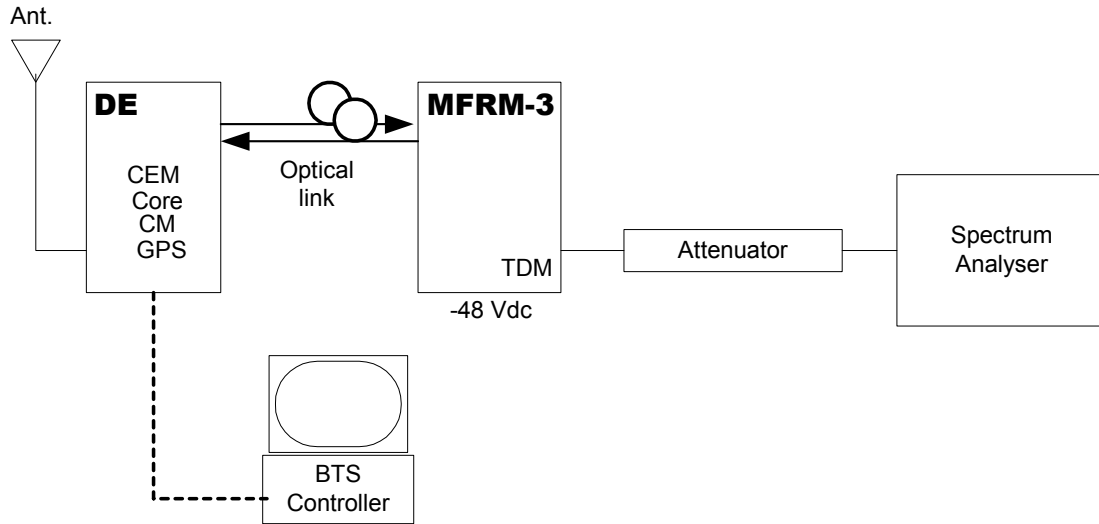


Figure 2 : Test Setup for Occupied Bandwidth Measurement

4.3.4 Test Result

The measured results for the occupied bandwidth are tabulated and sample plots are provided.

Table 16: Measured Occupied Bandwidth 800 MHz MFRM3 1-Carrier IS95

Channel Number (Band)	Frequency (MHz)	Measured Occupied Bandwidth (MHz) (1-Carrier)	Occupied Bandwidth (OBW<1.48MHz)
1019 (A'')	869.88	1.292	PASS
304 (A)	879.12	1.292	PASS
363 (B)	880.89	1.292	PASS
637 (B)	889.11	1.292	PASS
692 (A')	890.76	1.297	PASS
746 (B')	892.38	1.292	PASS
770 (B')	893.10	1.292	PASS

Table 17: Measured Occupied Bandwidth 800 MHz MFRM3 2-Carrier IS95

Channel Number (Band)	Frequency (MHz)	Measured Occupied Bandwidth (MHz)	Occupied Bandwidth (OBW<2.71MHz)
363, 404 (B)	880.89, 882.12	2.475	PASS
596, 637 (B)	887.88, 889.11	2.475	PASS

Table 18: Measured Occupied Bandwidth of 800 MHz MFRM3 3-Carrier IS95

Channel Number (Band)	Frequencies (MHz)	Measured Occupied Bandwidth (MHz)	Occupied Bandwidth (OBW<3.94MHz)
1019, 37, 78 (A", A)	869.88, 871.11, 872.34	3.683	PASS
222, 263, 304 (A)	876.66, 877.89, 879.12	3.683	PASS
363, 404, 445 (B)	880.89, 882.12, 883.35	3.683	PASS
555, 596, 637 (B)	886.65, 887.88, 889.11	3.683	PASS

Table 19: Measured Occupied Bandwidth 800 MHz MFRM3 BB' IS95

Channel Number (Band) ^a	Frequencies (MHz)	Measured Occupied Bandwidth (MHz)	Occupied Bandwidth (OBW<1.48MHz)
630, 758	888.90, 892.74	ch 630: 1.282 ch 758: 1.282	PASS PASS

a. This is tested as two single channels.

Table 20: Measured Occupied Bandwidth 800 MHz MFRM3 1-Carrier IS856 QPSK

Channel Number (Band)	Frequency (MHz)	Measured Occupied Bandwidth (MHz)	Occupied Bandwidth (OBW<1.48MHz)
363 (B) ^a	880.89	1.292	PASS
637 (B) ^b	889.11	1.292	PASS

a. The channel is configured with QPSK

b. The channel is configured with 8-PSK

Table 21: Measured Occupied Bandwidth 800 MHz MFRM3 3-Carrier IS856 8-PSK

Channel Number (Band)	Frequencies (MHz)	Measured Occupied Bandwidth (MHz)	Occupied Bandwidth (OBW<3.94MHz)
363, 404, 445 (B) ^a	880.89, 882.12, 883.35	3.683	PASS
555, 596, 637 (B) ^b	886.65, 887.88, 889.11	3.683	PASS

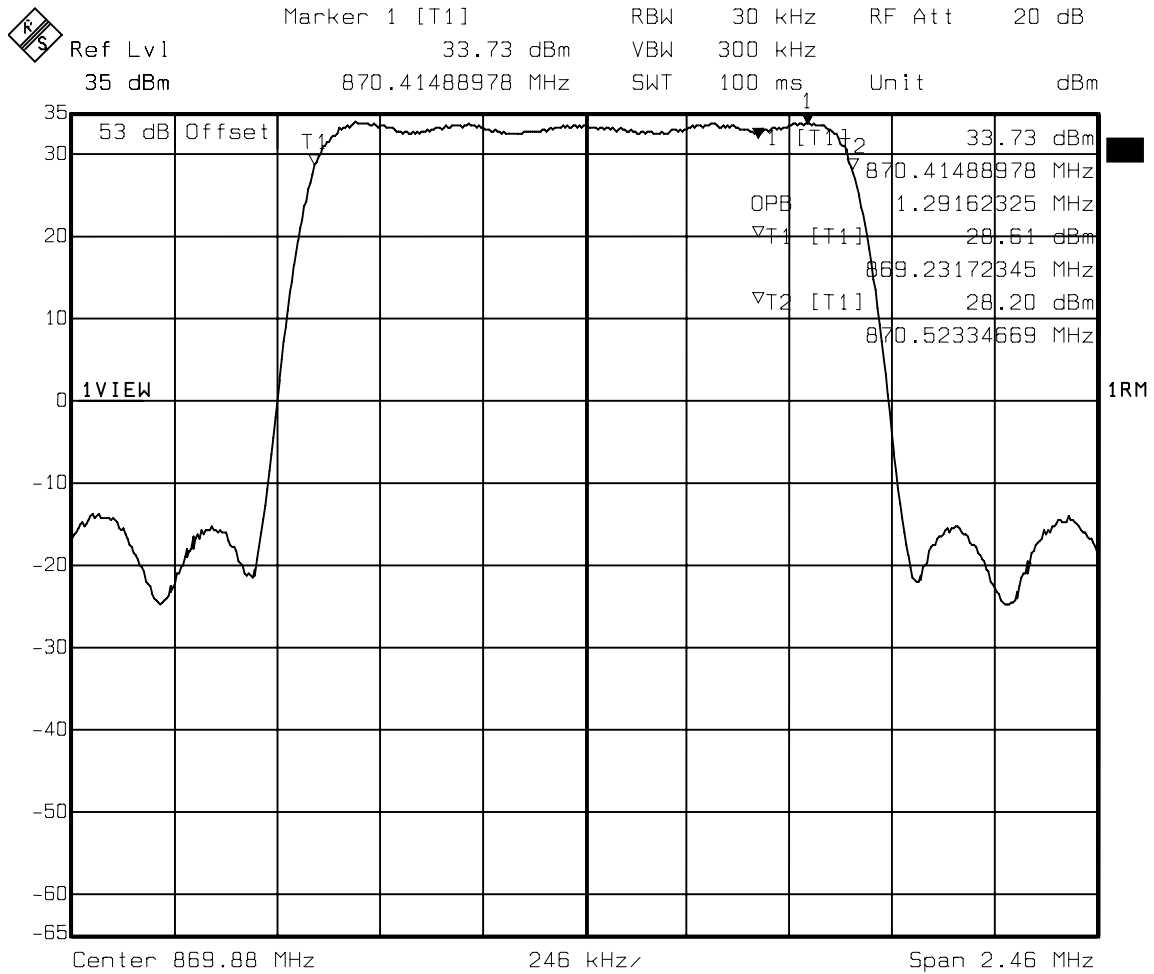
- a. All three channels in this 3-Carrier mode are configured with 8-PSK on one DOMA and two DOM0 modems
- b. All three channels in this 3-Carrier mode are configured with 16-QAM on one DOMA and two DOM0 modems

Table 22: Measured Occupied Bandwidth 800 MHz MFRM3, Combination 3-Carrier, IS856, IS95

Channel Number (Band)	Frequencies (MHz)	Measured Occupied Bandwidth (MHz)	Occupied Bandwidth (OBW<3.94MHz)
363, 404, 445* (B) ^a	880.89, 882.12, 883.35	3.683	PASS
555, 596, 637* (B) ^b	886.65, 887.88, 889.11	3.683	PASS

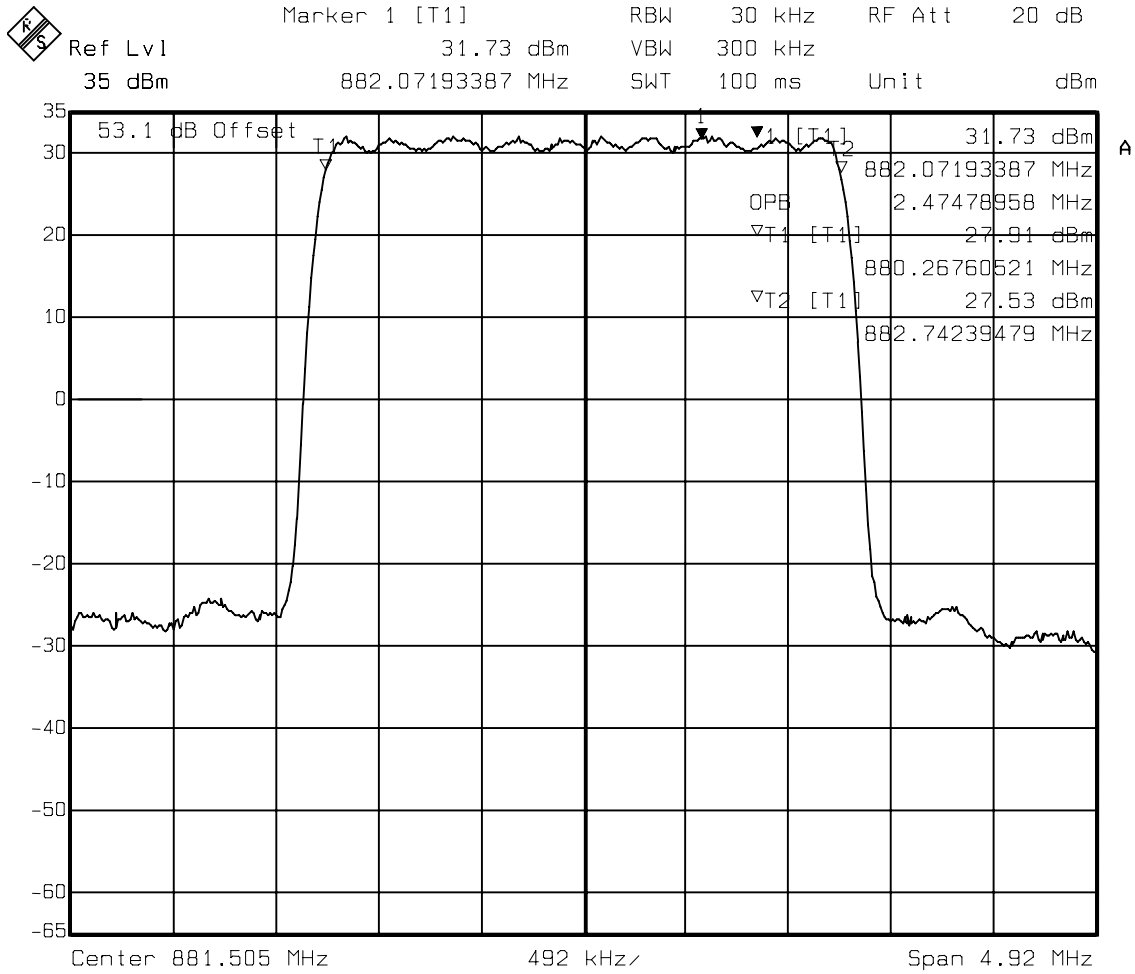
- a. The first two channels in this configuration are configured with 8-PSK modulation on DOMA and DOM0 modems. The third channel indicated by (*) is configured as IS-95 on XCEM-192 modem.
- b. The first two channels in this configuration are configured with QPSK modulation on DOMA and DOM0 modems. The third channel indicated by (*) is configured as IS-95 on XCEM-192 modem.

Figure 3 : Occupied Bandwidth, 1-Carrier, Channel 1019 IS-95



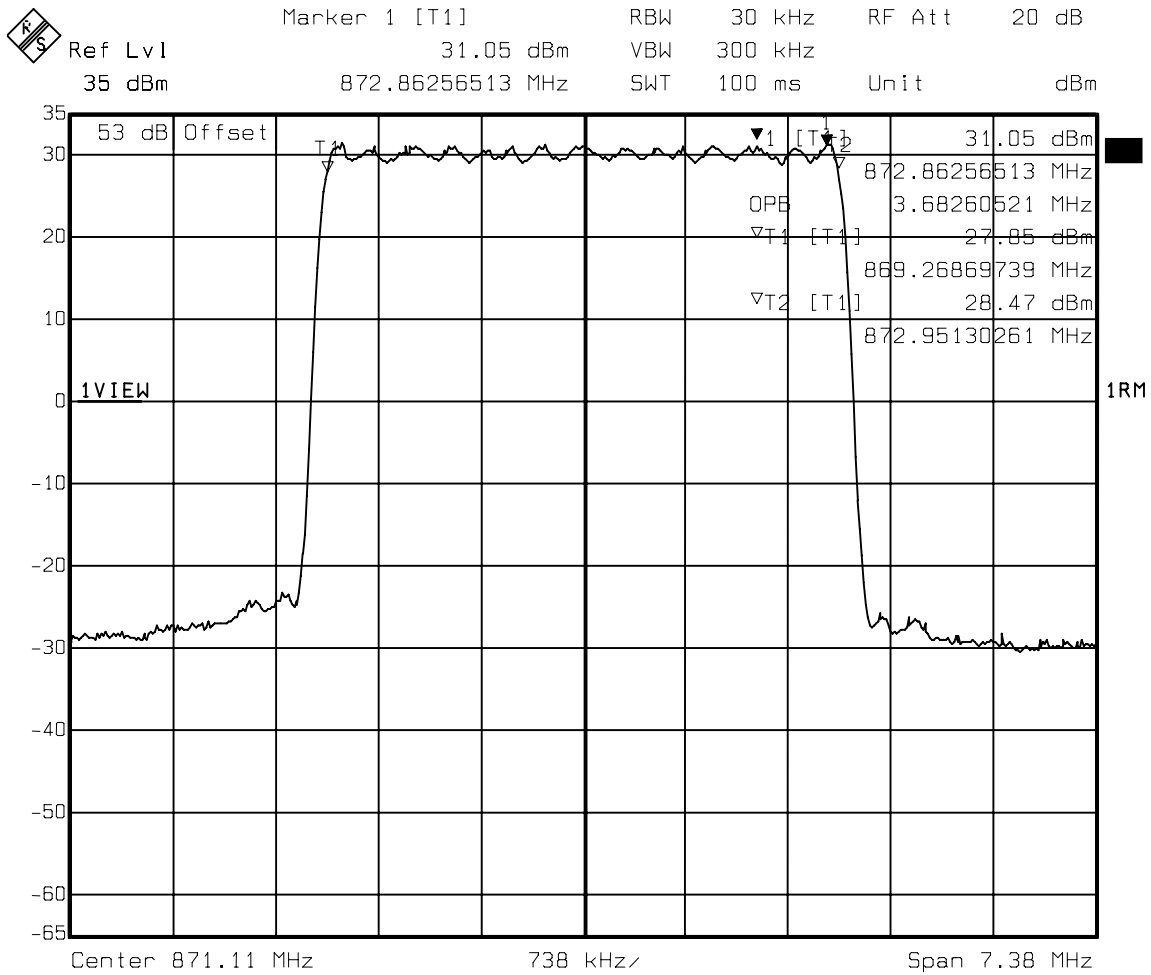
Title: Channel 1019, OBW
 Comment A: Temp C 25
 Date: 14.DEC.2006 11:30:35

Figure 4 : Occupied Bandwidth, 2-Carriers, Channels 363, 404, IS-95



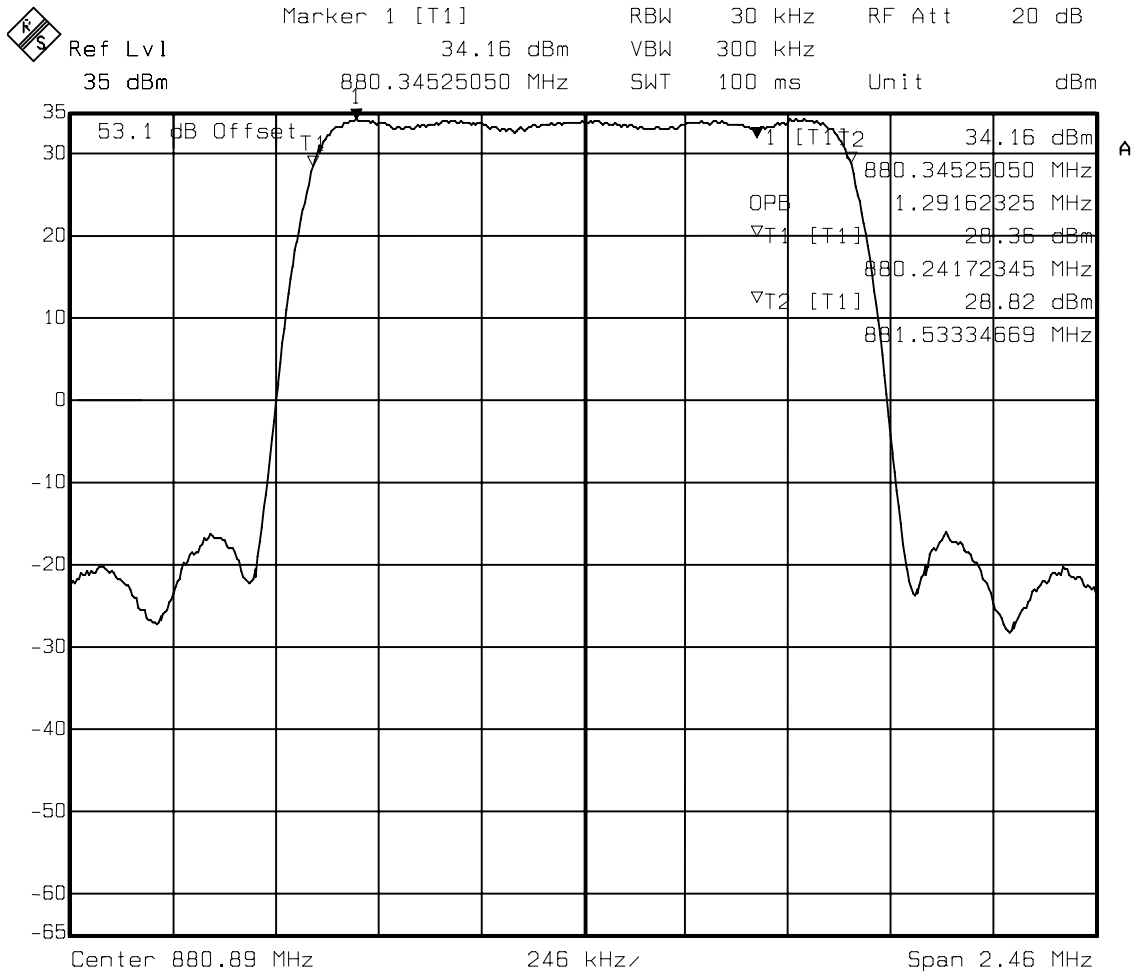
Title: Channels 363, 404, OBW
 Comment A: Temp C 25
 Date: 05.DEC.2006 16:10:03

Figure 5 : Occupied Bandwidth, 3-Carriers, Channels 1019, 37, 78, IS-95



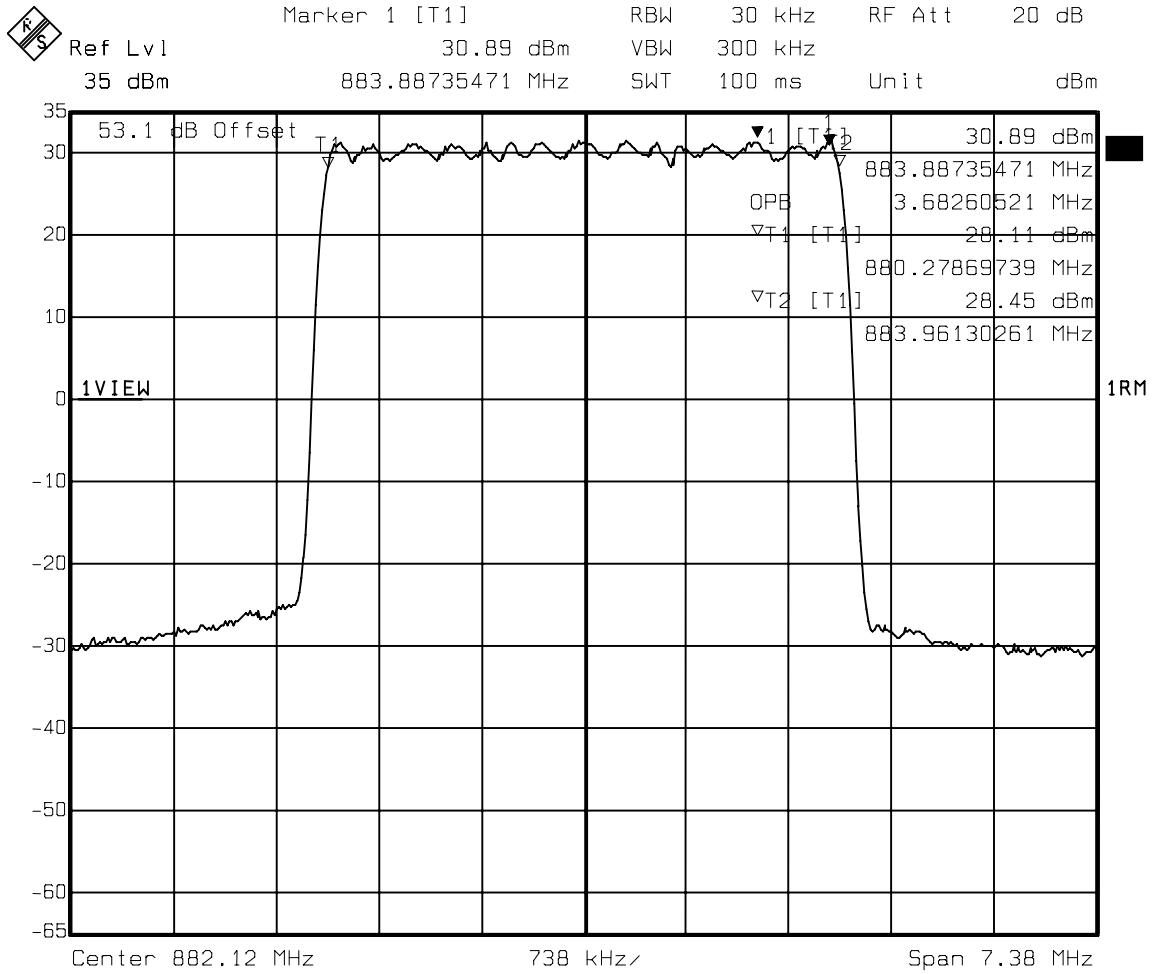
Title: Channels 1019, 37, 78, OBW
 Comment A: Temp C 25
 Date: 14.DEC.2006 12:11:24

Figure 6 : Occupied Bandwidth, 1-Carrier, Channel 363, IS-856 (QPSK)



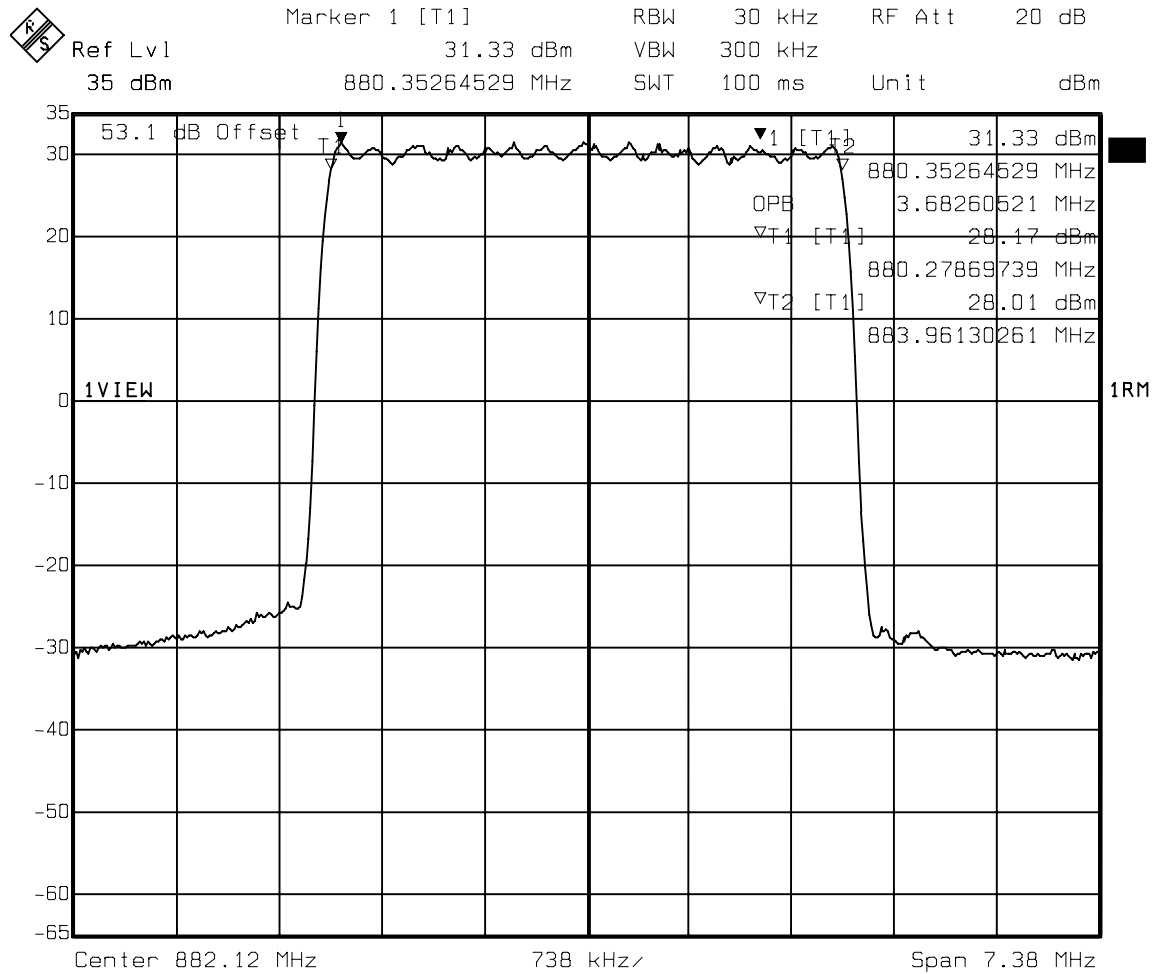
Title: Channel 363, OBW
 Comment A: Temp C 25
 Date: 11.DEC.2006 15:02:31

Figure 7 : Occupied Bandwidth, 3-Carriers, Channels 363, 404, 445, IS-856 (8-PSK)



Title: Channels 363, 404, 445, OBW
 Comment A: Temp C 25
 Date: 12.DEC.2006 12:02:04

Figure 8 : Occupied Bandwidth, 3-Carriers, Channels 363, 404 IS-856 (16-QAM), and 445 IS-95



Title: Channels 363, 404, 445, OBW
 Comment A: Temp C 25
 Date: 13.DEC.2006 12:41:30

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 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, without going below 9kHz, 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

4.4.2 Test Method

Configure the BTS via the BTS controller to enable the MFRM3 to transmit at maximum rated power for each of the carrier configurations one, two, three carrier, BB' split mode and A' single carrier mode in each of 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. The following spectrum analyzer settings are to be used for the measurement of the antenna port (TDM) spurious emissions:

4.4.2.1 Noise Floor

Table 23 lists the noise floor of the measurement system with no signal present.

Table 23: Spectrum Analyzer Noise Floor averaged over all measurement bands

Range	RBW	Noise Floor
9kHz to (f_L -1MHz)	100kHz	-26.85dBm
(f_L -1MHz) to f_L	30kHz	-34.60dBm
f_U to (f_U +1MHz)	30kHz	-34.20dBm
(f_U +1MHz) to 3 GHz	100kHz	-23.17dBm
3 GHz - 9GHz	100kHz	-26.06dBm

f_L - Lower edge of the band: 869MHz (A''A), 880MHz (B), 890MHz (A'), 891.5MHz (B')

f_U - Upper edge of the band: 880MHz (A''A), 890MHz (B), 891.5MHz (A'), 894MHz (B')

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

Table 24: Adjacent 1MHz Spectrum Analyzer Settings

Setting	1 Carrier and BB'	2 Carrier	3 Carrier
Resolution Bandwidth ^a :	30 kHz	30 kHz	30 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	Set accordingly	Set accordingly	Set accordingly
Ref. Level	Set accordingly	Set accordingly	Set accordingly
Ref. Level Offset	Set accordingly	Set accordingly	Set accordingly

- a. If the spectrum analyzer cannot 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 cannot be set to the specified Video Bandwidth the next highest Video Bandwidth should be used.
- c. 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.

4.4.2.3 All other Spurious Emissions up to 9 GHz

Table 25: All other Emission Spectrum Analyzer Settings

Setting	1 Carrier and BB'	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	Set accordingly	Set accordingly	Set accordingly
Ref. Level	Set accordingly	Set accordingly	Set accordingly
Ref. Level Offset	Set accordingly	Set accordingly	Set accordingly

- 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 9 GHz (the 10th harmonic of the fundamental emission) for all carrier configurations (1, 2, 3) as per FCC Part 22.

4.4.3 Test Requirements

Table 26: Spurious emission level limit

Range	RBW	Spurious Emission Level Limit
9kHz to (f_L -1MHz)	100kHz	-13dBm
(f_L -1MHz) to f_L	30kHz	-13dBm
f_U to (f_U +1MHz)	30kHz	-13dBm
(f_U +1MHz) to 3 GHz	100kHz	-13dBm
3 GHz - 9GHz	100kHz	-13dBm

f_L - Lower edge of the band: 869MHz (A''A), 880MHz (B), 890MHz (A'), 891.5MHz (B')

f_U - Upper edge of the band: 880MHz (A''A), 890MHz (B), 891.5MHz (A'), 894MHz (B')

Table 27: Spurious Emissions Requirements

Frequency Offset	1 Carrier and BB'	2 Carrier	3 Carrier	A'
+/- 880 kHz ^a	< -13 dBm / 12.5kHz	< -13 dBm / 25kHz	< -13 dBm / 37.5kHz	
+/- 740 kHz				< -13 dBm / 12.5kHz

a. This is the smallest offset required for all the configurations, except for A'.

4.4.4 Test Setup

The set-up required for the MFRM3 Antenna Port (DPM) Spurious Emission test is illustrated in Figure 9.

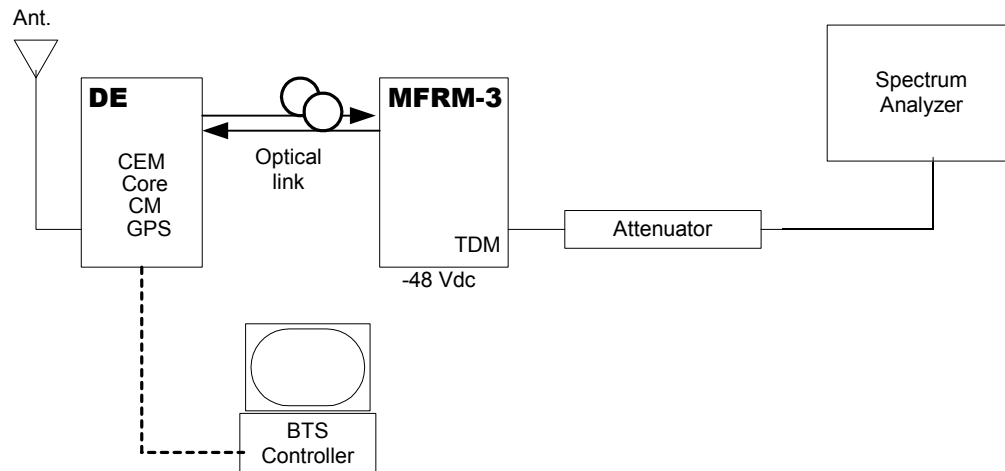


Figure 9 : Test Setup for Spurious Emissions Measurement

4.4.5 Test Results IS95

Table 28: Spurious Emissions at the 800 MHz MFRM3 Ant. Port, A”A Band, 1-Carrier, IS95

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		1Carrier IS-95	1Carrier
868MHz to 869MHz (Lower edge of band A”) Ch 1019	30kHz	-16.78	3.78
880MHz (Upper edge of band A) to 881MHz Ch 304	30kHz	-17.47	4.47
9kHz to 868MHz (Lower Edge of band A” - 1MHz)	100kHz	-25.75	12.75
881MHz (Upper Edge of A band + 1 MHz) to 3GHz	100kHz	-23.27	10.27
3GHz to 9GHz	100kHz	-25.96	12.96

Table 29: Spurious Emissions at the 800 MHz MFRM3 Ant. Port, B Band, 2-Carrier, IS95

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		2Carrier IS-95	2Carrier
879MHz to 880MHz (Lower edge of band B) Ch 363,404	30kHz	-28.13	15.13
890MHz (upper edge of band B) to 891MHz Ch 596,637	30kHz	-31.34	18.34
9kHz to 879MHz (Lower Edge of band A” - 1 MHz)	100kHz	-23.4	10.4
891MHz (Upper Edge of A band + 1MHz) to 3GHz	100kHz	-23.4	10.4
3GHz to 9GHz	100kHz	-24.72	11.72

Table 30: Spurious Emissions at the 800 MHz MFRM3 Ant. Port, A” A Band, 3-Carrier, IS-95

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		3Carrier IS-95	3Carrier
868MHz to 869MHz (Lower edge of band A”) Ch 1019, 37, 78	30kHz	-26.2	13.2
880MHz (Upper edge of band A) to 881MHz Ch 222,263,304	30kHz	-27.25	14.25
9kHz to 868MHz (Lower Edge of band A” - 1MHz)	100kHz	-18.29	5.29
881MHz (Upper Edge of A band + 1 MHz) to 3GHz	100kHz	-23.09	10.09
3GHz to 9GHz	100kHz	-25.89	12.89

Table 31: Spurious Emissions at the 800 MHz MFRM3 Ant. Port, B Band, 1-Carrier, IS-95

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		1Carrier IS-95	1Carrier
879MHz to 880MHz (Lower edge of band B) Ch 363	30kHz	-18.01	5.01
890MHz (Upper edge of band B) to 891MHz Ch 637	30kHz	-17.88	4.88
9kHz to 879MHz (Lower Edge of band B - 1MHz)	100kHz	-23.3	10.3
891MHz (Upper Edge of B band + 1 MHz) to 3GHz	100kHz	-23.3	10.3
3GHz to 9GHz	100kHz	-24.79	11.70

Table 32: Spurious Emissions at the 800 MHz MFRM3 Ant. Port, B Band, 3-Carrier, IS-95

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		3Carrier IS-95	3Carrier
879MHz to 880MHz (Lower edge of band B) Ch 363,404,445	30kHz	-25.86	12.86
890MHz (Upper edge of band B) to 891MHz Ch 555,596,637	30kHz	-30.48	17.48
9kHz to 879MHz (Lower Edge of band B - 1MHz)	100kHz	-27.31	14.31
891MHz (Upper Edge of B band + 1MHz) to 3GHz	100kHz	-23.44	10.44
3GHz to 9GHz	100kHz	-24.85	11.85

Table 33: Spurious Emissions at the 800 MHz MFRM3 Ant. Port, A' Band, 1-Carrier, IS-95

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		1Carrier IS-95	1Carrier
889MHz to 890MHz (Lower edge of band A') Ch 692	30kHz	-16.37	3.37
891.5MHz (upper edge of band A') to 892.5MHz Ch 692	30kHz	-16.43	3.43
9kHz to 889MHz (Lower Edge of band A' - 1MHz)	100kHz	-21.49	8.49
892.5MHz (Upper Edge of A' band + 1MHz) to 3GHz	100kHz	-23.14	10.14
3GHz to 9GHz	100kHz	-24.76	11.76

Table 34: Spurious Emissions at the 800 MHz MFRM3 Ant. Port, B' Band, 1-Carrier, IS-95

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		1Carrier IS-95	1Carrier
894MHz to 895MHz (upper edge of band B') Ch 770	30kHz	-24.17	11.17

Table 34: Spurious Emissions at the 800 MHz MFRM3 Ant. Port, B' Band, 1-Carrier, IS-95

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		1Carrier IS-95	1Carrier
890.5MHz (lower edge of band B') to 891.5MHz Ch 746	30kHz	-23.25	10.25
9 kHz to 890.5MHz (Lower Edge of band B' - 1 MHz)	100kHz	-25.29	12.29
895MHz (Upper Edge of B' band + 1 MHz) to 3GHz	100kHz	-23.14	10.14
3GHz to 9GHz	100kHz	-24.67	11.67

Table 35: Spurious Emissions at the 800 MHz MFRM3 Ant. Port, BB' Band, 2-Carrier, IS-95^a

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		1Carrier IS-95	1Carrier
879MHz to 880MHz (lower edge of B Band) ch 630	30kHz	-33.33	20.33
889MHz to 890MHz (lower edge of A' Band) ch 630	30kHz	-16.39	3.39
890.5MHz to 891.5MHz (lower edge of B' Band) ch 758	30kHz	-15.43	2.43
894MHz (upper edge of band B') to 895MHz ch 758	30kHz	-24.57	11.27
9kHz to 879MHz (lower edge of B Band - 1 MHz)	100kHz	-26.49	13.49
895MHz (Upper Edge of B' band + 1MHz) to 3GHz	100kHz	-23.22	10.22
3GHz to 9GHz	100kHz	-26.03	13.03

a. BB' case is consired as two individual carriers

4.4.6 Test Results IS856

Table 36: Spurious Emissions at the 800 MHz MFRM-3, Ant. Port, Band B, 1-Carrier, IS-856 (QPSK)

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		1Carrier QPSK	1Carrier
879MHz to 880MHz (Lower edge of B Band) ch 363	30kHz	-23.01	10.01
890MHz (Upper edge of B Band) to 891MHz ch 637	30kHz	-26.59	13.59
9kHz to 879MHz (Lower Edge of B Band - 1MHz)	100kHz	-20.12	7.12
891MHz (Upper Edge of B Band + 1MHz) to 3GHz	100kHz	-23.22	10.22
3GHz to 9GHz	100kHz	-24.72	11.72

Table 37: Spurious Emissions at the 800 MHz MFRM-3 Ant. Port, B Band, 3-Carrier, IS-856 (8-PSK)

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		3Carrier 8-PSK	3Carrier
879MHz to 880MHz (Lower edge of B Band) Ch 363,404,445	30kHz	-26.78	13.78
890MHz (Upper edge of B Band) to 891MHz Ch 555,596,637	30kHz	-26.95	13.95
9 kHz to 879MHz (Lower Edge of B Band - 1MHz)	100kHz	-22.85	9.85
891MHz (Upper Edge of B Band + 1 MHz) to 3GHz	100kHz	-23.07	10.07
3GHz to 9GHz	100kHz	-24.70	11.70

Table 38: Spurious Emissions at the 800 MHz MFRM-3 Ant. Port, B Band, 3-Carrier, Combined Ch 363, 404 (IS-856 16-QAM) and Ch 445 (IS95), and Ch 555, 596 (IS-856 16-QAM), 637 (IS-95)

Frequency	RBW	Spurious Emissions Level (dBm)	Margin to FCC Limit of -13 dBm (dB)
		3Carrier 16-QAM/ IS95	3Carrier
879MHz to 880MHz (Lower edge of band B) Ch 363,404,445	30kHz	-28.09	15.09
890MHz (Upper edge of band B) to 891MHz Ch 555,596,637	30kHz	-29.65	16.65
9kHz to 879MHz (Lower Edge of band B - 1MHz)	100kHz	-24.21	11.21
891MHz (Upper Edge of B band + 1MHz) to 3GHz	100kHz	-23.16	10.16
3GHz to 9GHz	100kHz	-24.75	11.75

4.5 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.

4.5.1 Test Method

Configure the BTS via the BTS controller to enable the MFRM3 to transmit at maximum rated power for each of the carrier configurations one, two and three carrier in each of the Baseband modulation formats IS-95, and IS-856 (16 QAM). 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:

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

Table 39: Adjacent 750 KHz and 1.98 MHz Spectrum Analyzer 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 dB	31-34 dB	31-34 dB

a. If the spectrum analyzer cannot 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.

4.5.2 Test Setup

The set-up required for the MFRM3 Antenna Port (TDM) Spurious Emission test is illustrated in Figure 9.

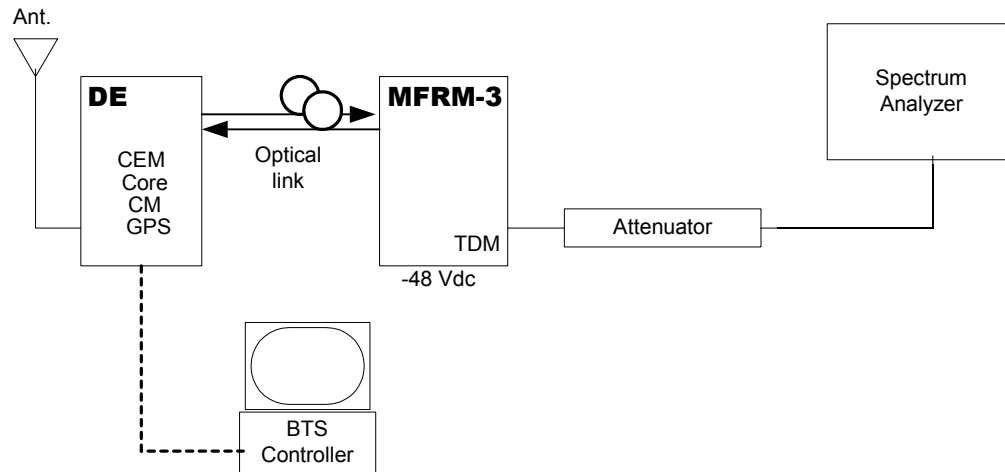


Figure 10 : Test Setup for Spurious Emissions Measurement

4.5.3 Test Results

Table 40: Industry Canada Suppression inside cellular band 800 MHz MFRM3 Antenna Port IS95, 1 Carrier band A”

Channel Configuration/ Frequency Offset	Tx Power (dBm)	Spurious Emissions Level (dBm)	Spurious Emission Level (dBc/30kHz)	Margin to IC Limit of -45 dBc/30kHz (dB)
		1Carrier IS-95	1Carrier IS-95	
Ch1019 750KHz offset at lower band edge	50.32	-19.53	-69.85	24.85
Ch1019 750KHz offset at upper band edge	50.32	-19.37	-69.69	24.69
			Spurious Emission Level (dBc/ 30kHz)	Margin to IC Limit of -60 dBc/30kHz (dB)
Ch1019 1.98MHz offset at lower band edge	50.26	-29.15	-79.41	19.41
Ch1019 1.98MHz offset at upper band edge	50.26	-28.15	-78.41	18.41

Table 41: Industry Canada Suppression inside cellular band 800 MHz MFRM3 Antenna Port IS95, 3 Carrier band A” and A

Channel Configuration/ Frequency Offset	Tx Power (dBm)	Spurious Emissions Level (dBm)	Spurious Emission Level (dBc/30kHz)	Margin to IC Limit of -45 dBc/30kHz (dB)
		3Carrier IS-95	3Carrier IS-95	
Ch1019, 37, 79 750KHz offset at lower band edge	50.33	-15.63	-65.96	20.96
Ch1019, 37, 79 750KHz offset at upper band edge	50.33	-15.27	-65.60	20.60
			Spurious Emission Level (dBc/30kHz)	Margin to IC Limit of -60 dBc/30kHz (dB)
Ch1019, 37, 79 1.98MHz offset at lower band edge	50.35	-25.18	-75.43	15.43
Ch1019, 37, 79 1.98MHz offset at upper band edge	50.35	-21.99	-72.24	12.24

Table 42: Industry Canada Suppression inside cellular band 800 MHz MFRM3 Antenna Port IS856, 1 Carrier band A'

Channel Configuration/ Frequency Offset	Tx Power (dBm)	Spurious Emissions Level (dBm)	Spurious Emission Level (dBc/30kHz)	Margin to IC Limit of -45 dBc/30kHz (dB)
		1Carrier IS-856	1Carrier IS-856	
Ch 363 750KHz offset at lower band edge	50.26	-20.46	-70.72	25.72
Ch 363 750KHz offset at upper band edge	50.26	-19.62	-69.88	24.88
			Spurious Emission Level (dBc/30kHz)	Margin to IC Limit of -60 dBc/30kHz (dB)
Ch 363 1.98MHz offset at lower band edge	50.32	-31.88	-82.20	22.20
Ch 363 1.98MHz offset at upper band edge	50.32	-33.15	-83.47	23.47

Table 43: Industry Canada Suppression inside cellular band 800 MHz MFRM3 Antenna Port IS95, 1 Carrier band B'

Channel Configuration/ Frequency Offset	Tx Power (dBm)	Spurious Emissions Level (dBm)	Spurious Emission Level (dBc/30kHz)	Margin to IC Limit of -45 dBc/30kHz (dB)
		1Carrier IS-95	1Carrier	1Carrier
Ch 746 750KHz offset at lower band edge	50.25	-19.77	-70.02	25.02
Ch 746 750KHz offset at upper band edge	50.25	-19.44	-69.69	24.69
			Spurious Emission Level (dBc/ 30kHz)	Margin to IC Limit of -60 dBc/30kHz (dB)
Ch 746 1.98MHz offset at lower band edge	50.38	-34.87	-85.25	25.25
Ch 746 1.98MHz offset at upper band edge	50.38	-33.79	-84.17	24.17

Table 44: Industry Canada Suppression inside cellular band 800 MHz MFRM3 Antenna Port Combination IS856(363,404) and IS95 (445) 3 Carrier band A and A”

Channel Configuration/ Frequency Offset	Tx Power (dBm)	Spurious Emissions Level (dBm)	Spurious Emission Level (dBc/30kHz)	Margin to IC Limit of -45 dBc/30kHz (dB)
		1Carrier IS-95	1Carrier	1Carrier
Ch 363,404,445 750KHz offset at lower band edge	50.27	-17.7	-67.97	22.97
Ch 363,404,445 750KHz offset at upper band edge	50.27	-16.37	-66.64	21.64
			Spurious Emission Level (dBc/ 30kHz)	Margin to IC Limit of -60 dBc/30kHz (dB)
Ch 363,404,445 1.98MHz offset at lower band edge	50.26	-26.14	-76.40	16.40
Ch 363,404,445 1.98MHz offset at upper band edge	50.26	-28.4	-78.66	18.66

4.6 Frequency Stability

4.6.1 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) 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.

4.6.2 Test Procedure

The test equipment was configured as shown in figure 11.

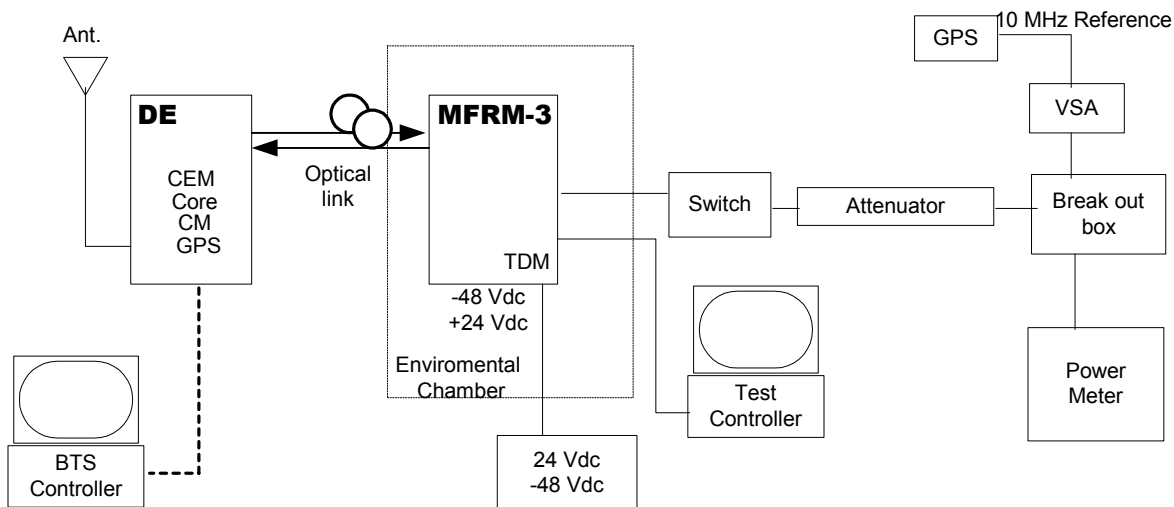


Figure 11 : Test configuration for Frequency Stability

4.6.3 Frequency Results

The test results for the frequency stability over power supply voltage and ambient temperature were obtained for 3-Carrier configuration in B band. The three carriers used in this test were centered at channels 363, 404, 445, and all three carriers were IS-95 modulated.

Table 45: Test results for Frequency Stability versus Power supply Voltage at room temperature, ch 363, 404, 445 IS-95

Voltage (Vdc)	Maximum Carrier Frequency Deviation (Hz)	Maximum Carrier Frequency Deviation (PPM)	Frequency Tolerance <1.5ppm
40	2.217	0.002513	PASS
48 nominal	2.415	0.002738	PASS
56	2.188	0.002481	PASS
20	1.556	0.001764	PASS
24 nominal	1.350	0.00153	PASS
28	1.327	0.001504	PASS

Table 46: Test results for Frequency Stability versus Temperature at -48V operation, ch 363, 404, 445 IS-95

Temperature (°C)	Maximum Carrier Frequency Deviation (Hz)	Maximum Carrier Frequency Deviation (PPM)	Frequency Tolerance <1.5ppm
-40	1.64	0.001859	PASS
-30	0.58	0.000658	PASS
-20	1.79	0.002029	PASS
-10	1.52	0.001723	PASS
0	1.60	0.001814	PASS
10	1.26	0.001428	PASS
20	1.26	0.001428	PASS
30	0.81	0.000918	PASS
40	1.65	0.00187	PASS
50	2.61	0.002959	PASS

Table 47: Test results for Frequency Stability versus Temperature at 24V operation, ch 363, 404, 445 IS-95

Temperature (°C)	Maximum Carrier Frequency Deviation (Hz)	Maximum Carrier Frequency Deviation (PPM)	Frequency Tolerance <1.5ppm
-40	1.75	0.001984	PASS
-30	1.58	0.001791	PASS
-20	1.13	0.001281	PASS
-10	1.01	0.001145	PASS
0	0.83	0.000941	PASS
10	1.78	0.002018	PASS
20	1.44	0.001632	PASS
30	1.73	0.001961	PASS
40	2.23	0.002528	PASS
50	2.40	0.002721	PASS



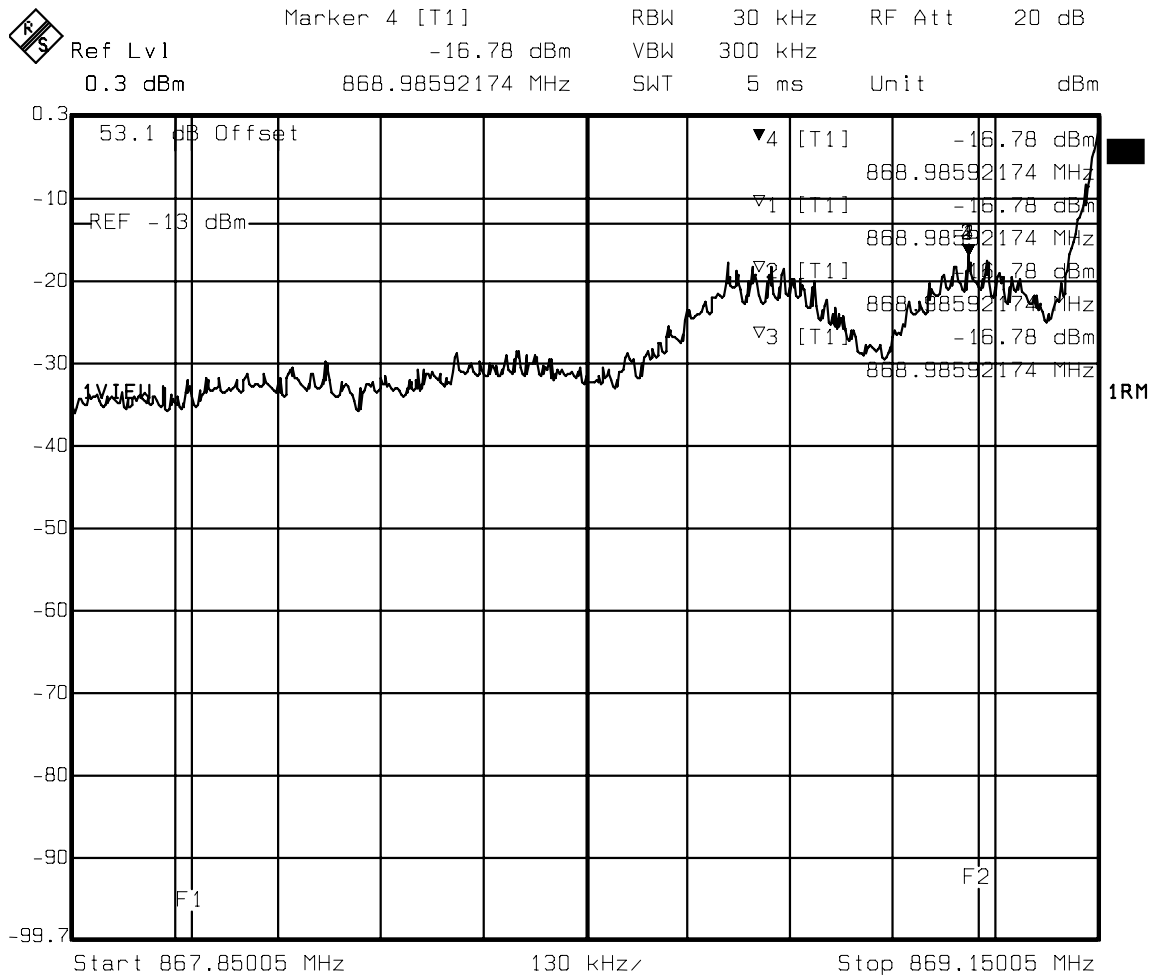
References

- [1] FCC Part 22 Subpart H, “Public Mobile Services”, http://www.access.gpo.gov/nara/cfr/waisidx_01/47cfr22_01.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_01/47cfr2_01.html
- [3] Industry Canada RSS-129, “800 MHz Dual-Mode CDMA Cellular Telephones”, <http://strategis.ic.gc.ca/SSG/sf01324e.html>
- [4] TIA/EIA-97-E “Recommended Minimum Performance Standards for Base Stations Supporting Dual Mode Spread Spectrum Systems”,
- [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](http://strategis.ic.gc.ca/epic/internet/inceb-bhst.nsf/vwapj/occupied-bandwidth.pdf/$FILE/occupied-bandwidth.pdf)
- [6] CDMA BTS Developmen, MFRM-2 800 MHz Power Amplifier Assembly Beta Cycle Verification Report, Dataset Name: NTGY37AA, Document Status: Ratified, Stream: 02 Issue: 02, Issue Date: March 12, 2003, Document Prime: Neil Claxton, 2M23
- [7] Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network, C.S0032-A, Version 2.0, 12 December 2003

APPENDIX PLOTS

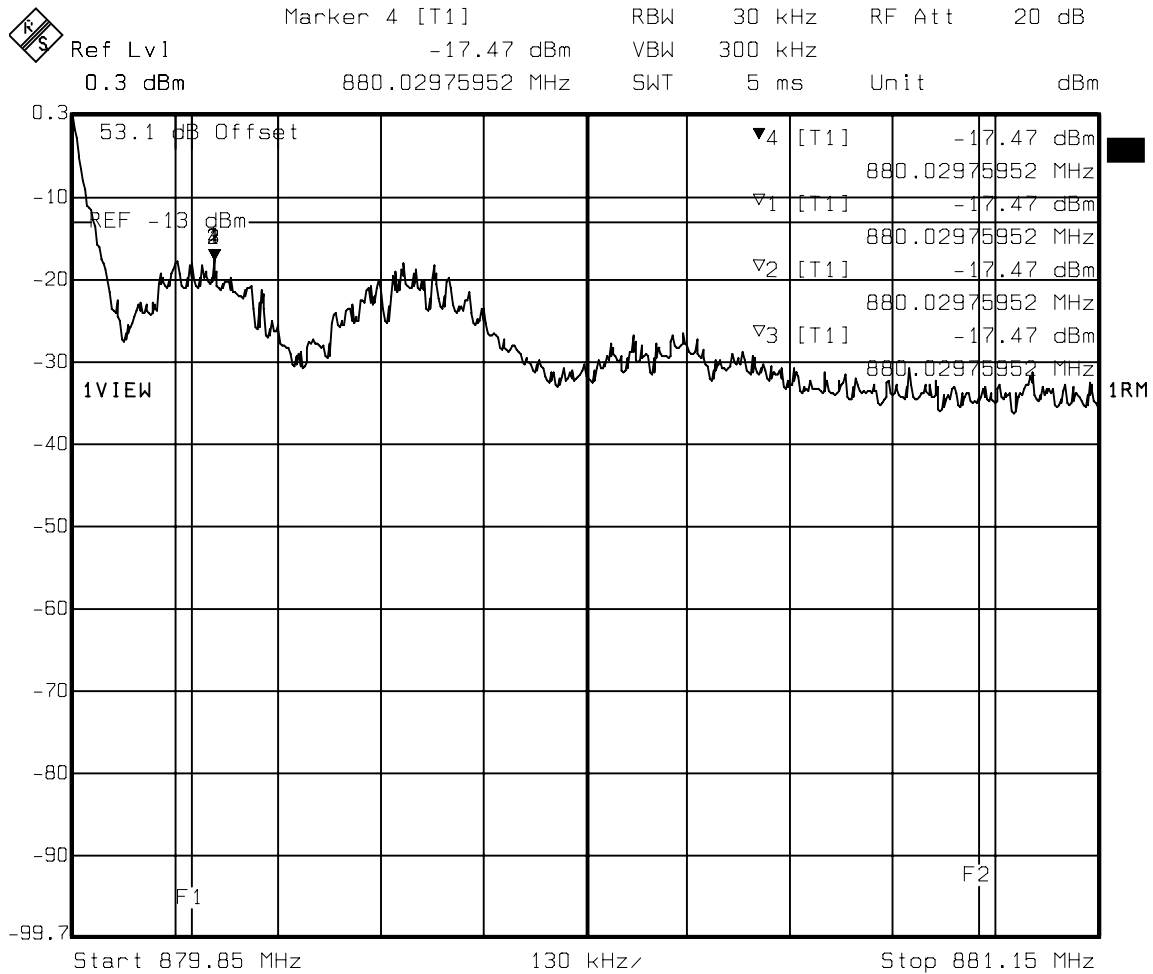
Conducted Spurious Emissions Plots - FCC Test Results

Figure 12 : Conducted Spurious Emissions, A” and A Band, 1-Carrier, ch 1019, IS-95, Lower 1MHz Adjacent emissions



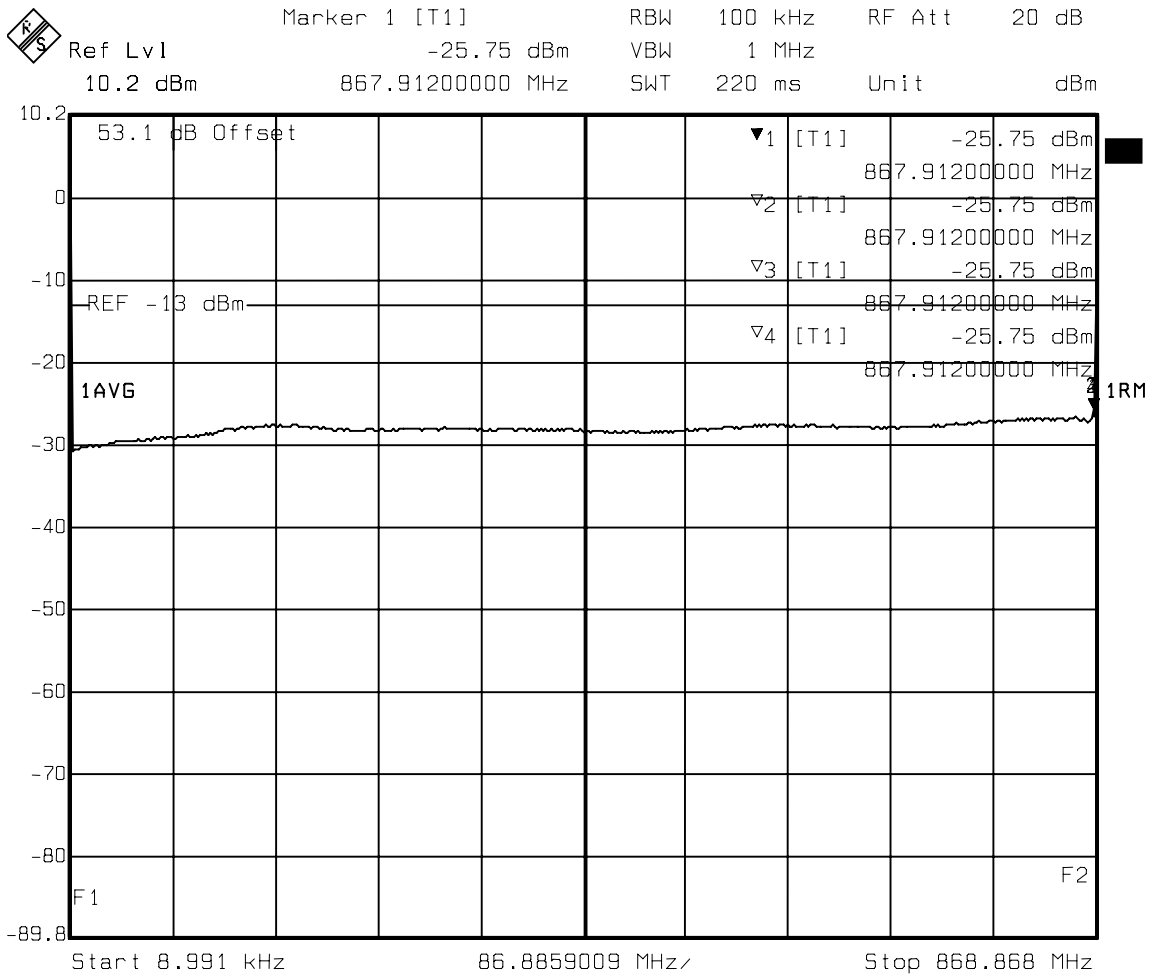
Date: 09.JAN.2007 17:03:53

**Figure 13 : Conducted Spurious Emissions, A” and A Band, 1-Carrier, ch 304, IS-95,
Upper 1MHz Adjacent emissions**



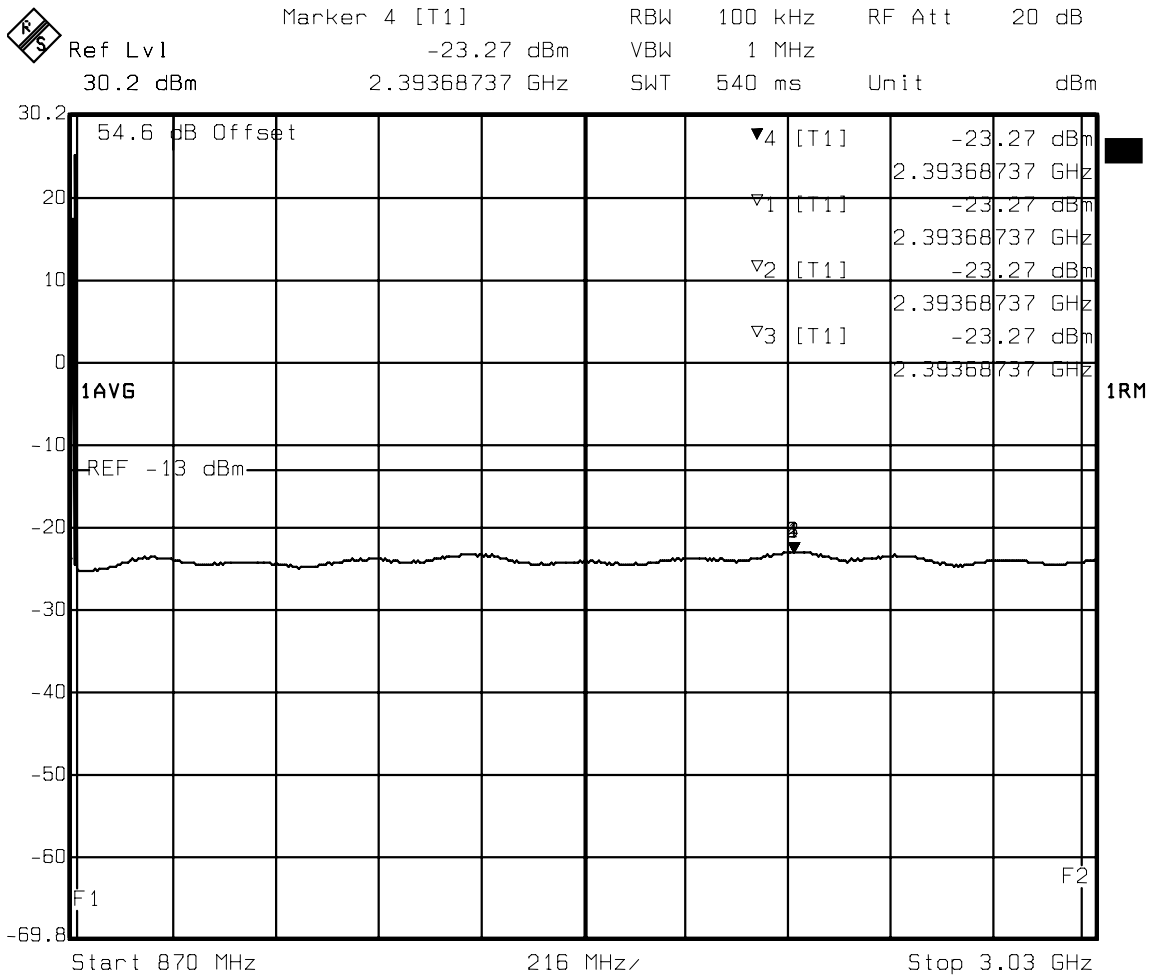
Title: Upper edge to (Upper edge + 1 MHz)
 Date: 09.JAN.2007 16:49:44

Figure 14 : Conducted Spurious Emissions, A” and A Band, 1-Carrier, ch 1019, IS-95, 9kHz to Lower 1MHz range



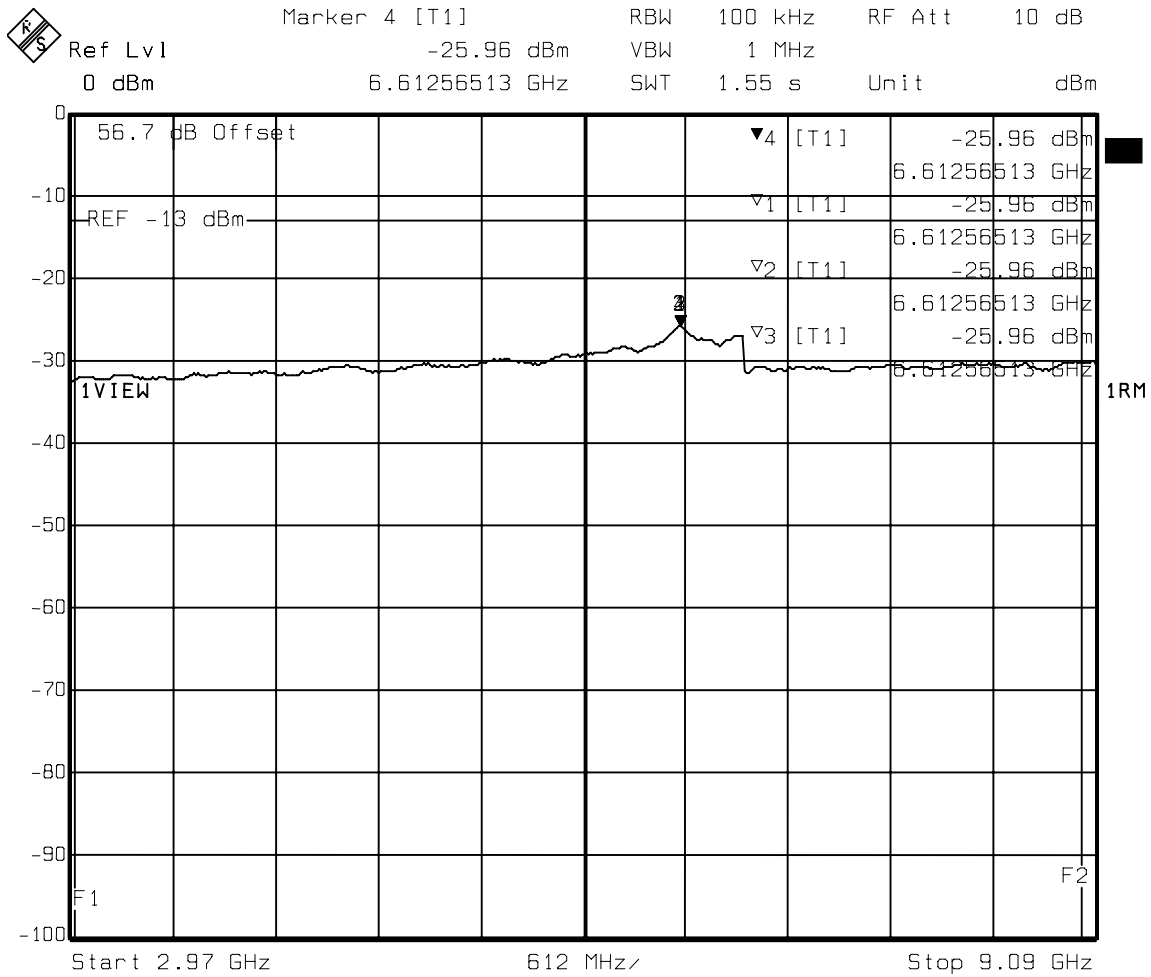
Title: 9kHz_(Low edge-1.0MHz)
 Comment A: Temp C 25
 Date: 09.JAN.2007 17:02:41

Figure 15 : Conducted Spurious Emissions, A” and A Band, 1-Carrier, ch 304, IS-95, Upper Adjacent 1MHz to 3GHz range



Date: 09.JAN.2007 16:48:27

Figure 16 : Conducted Spurious Emissions, A” and A Band, 1-Carrier, ch 304, IS-95, 3GHz to 9GHz range



Title: Channel 304, 3 GHz to 9 GHz
 Comment A: Temp C 25
 Date: 14.DEC.2006 14:06:49

Figure 17 : Conducted Spurious Emissions, B band, 2-Carrier, ch 363, 404, IS-95, Lower 1MHz Adjacent emissions

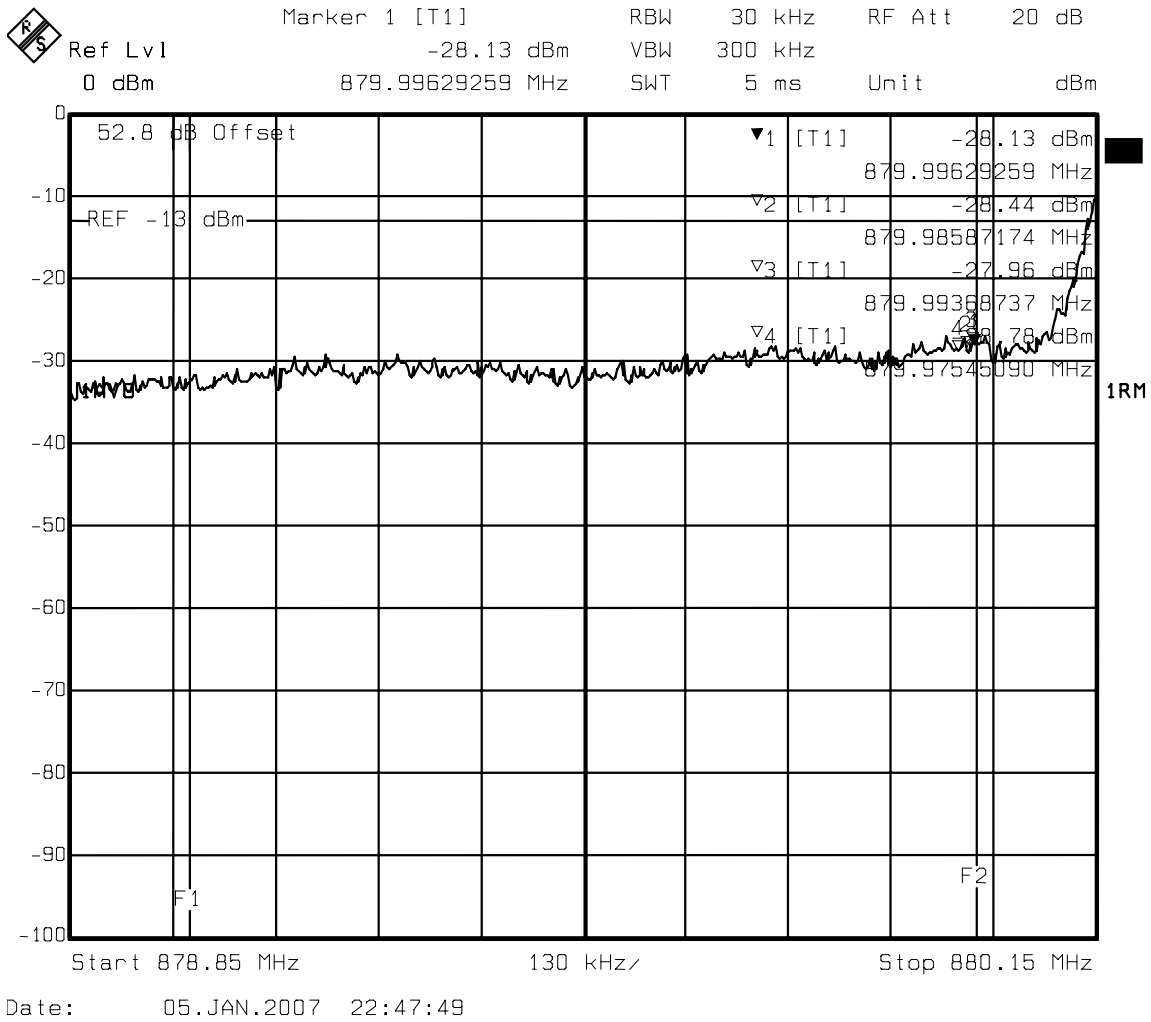
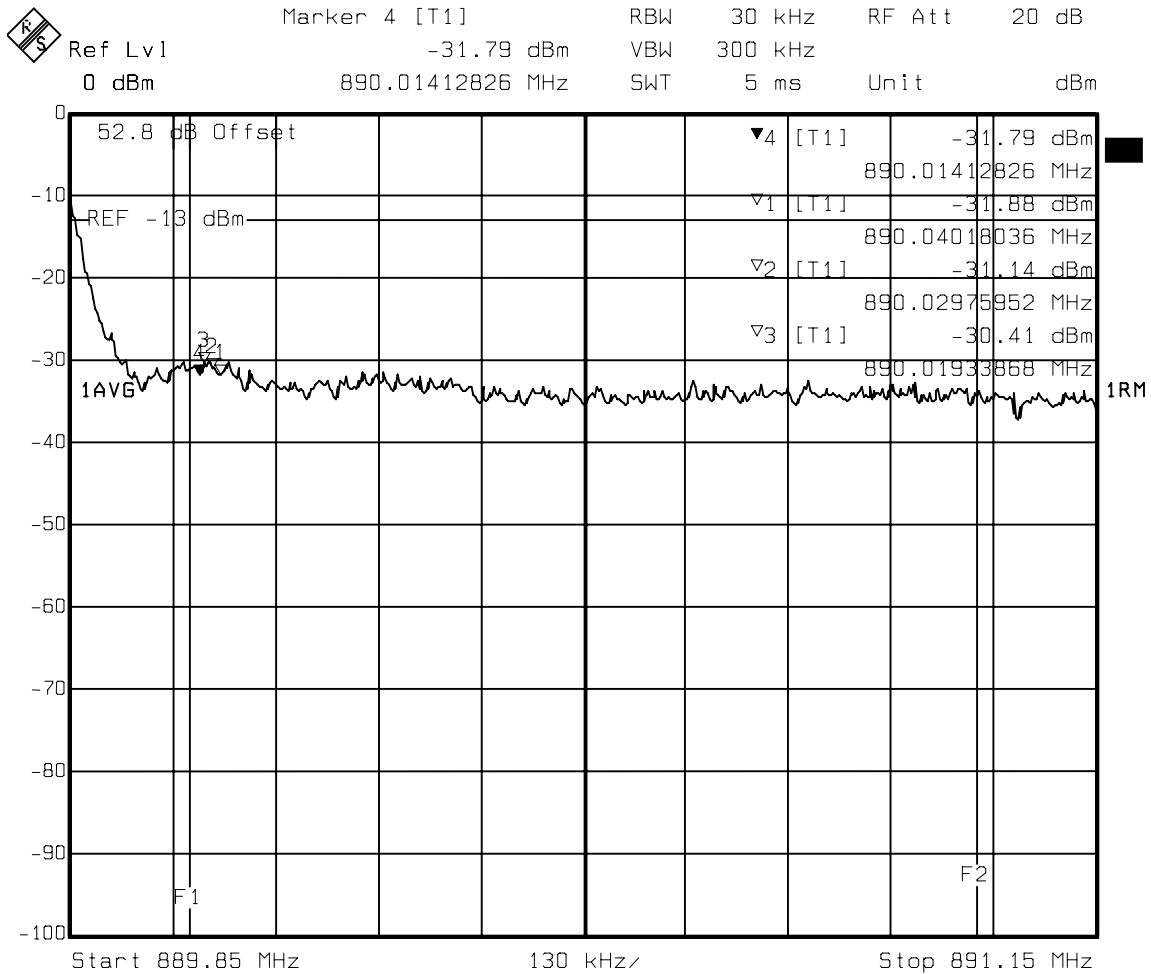
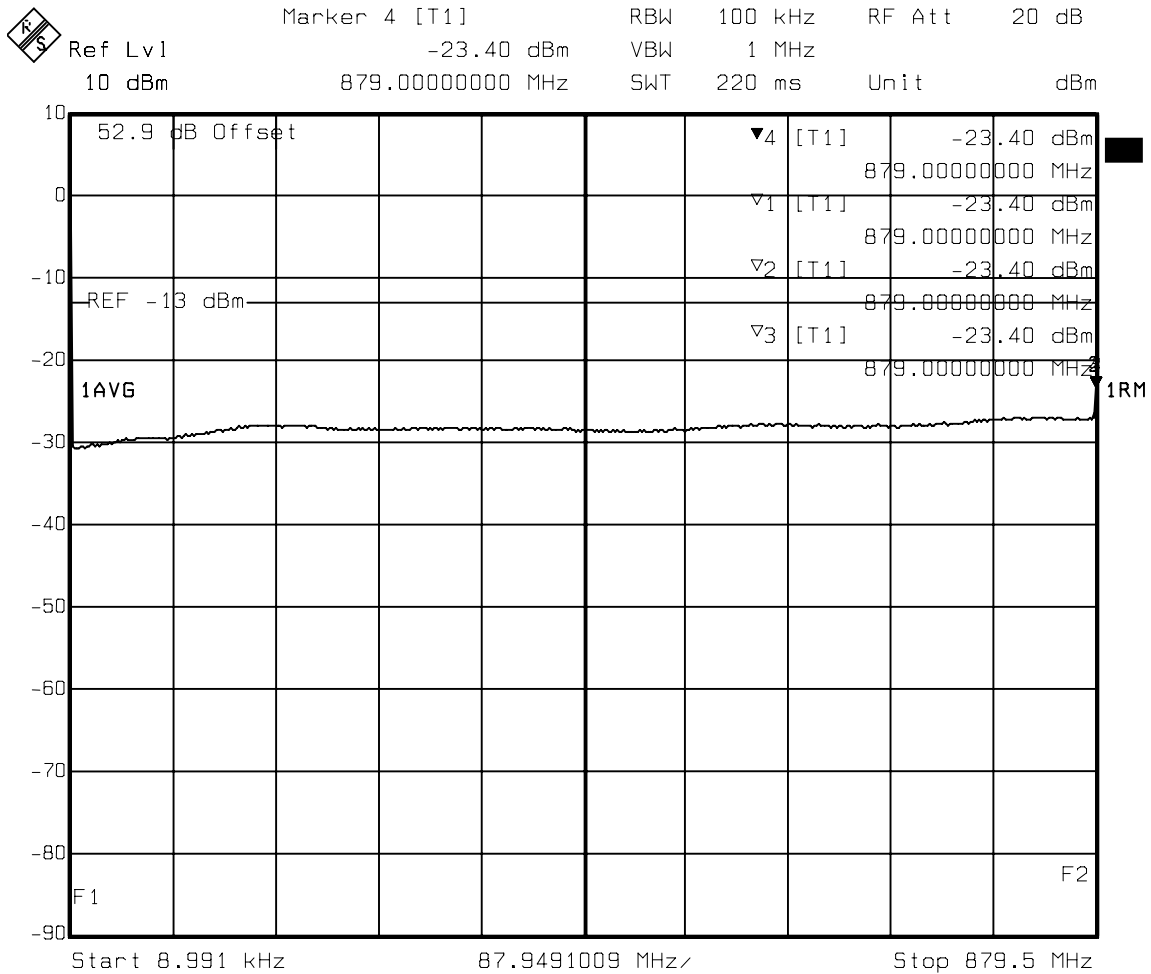


Figure 18 : Conducted Spurious Emissions, B band, 2-Carrier, ch 596, 637, IS-95, Upper 1MHz Adjacent emissions



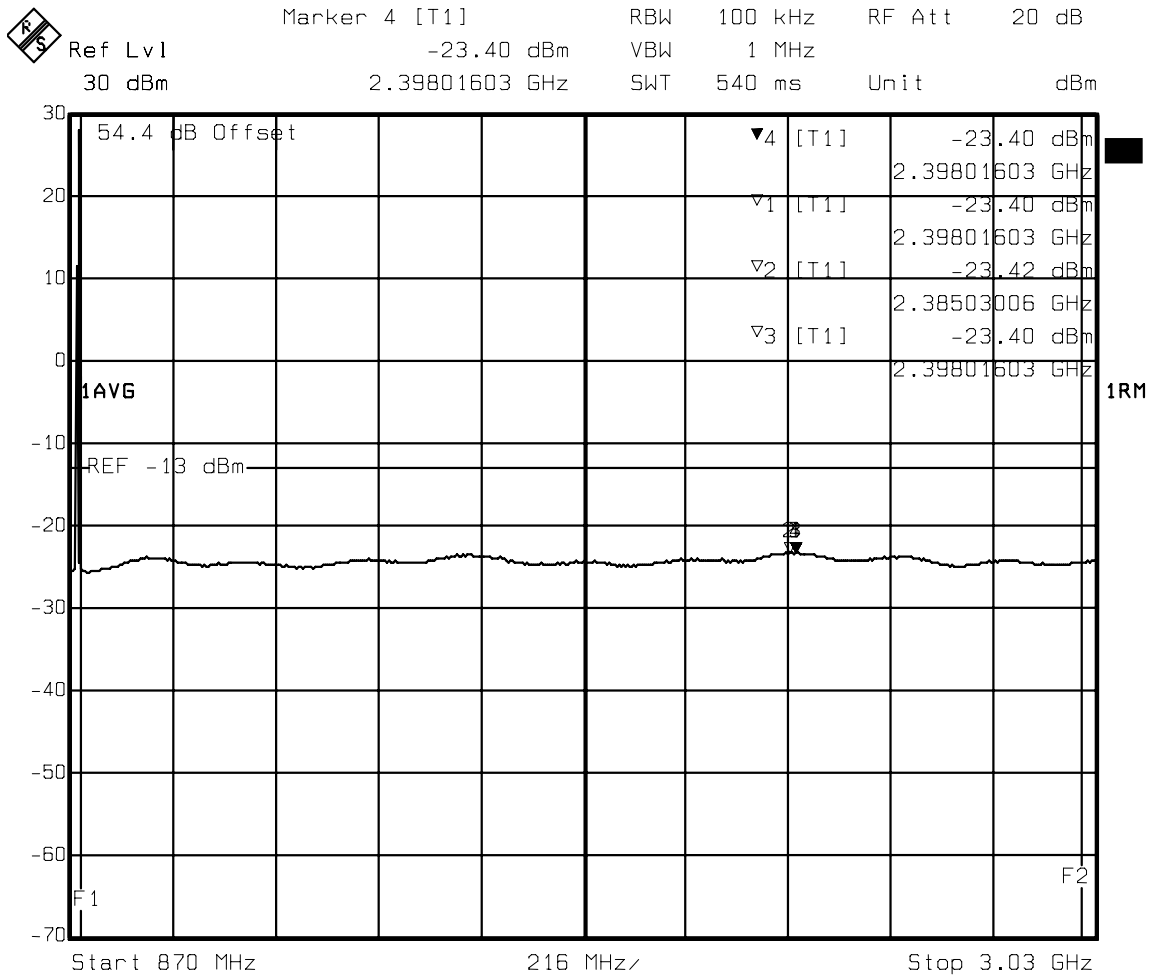
Title: Upper edge to (Upper edge + 1 MHz)
 Date: 05.JAN.2007 22:59:45

Figure 19 : Conducted Spurious Emissions, B band, 2-Carrier, ch 363, 404, IS-95, 9kHz to Lower Adjacent 1MHz range



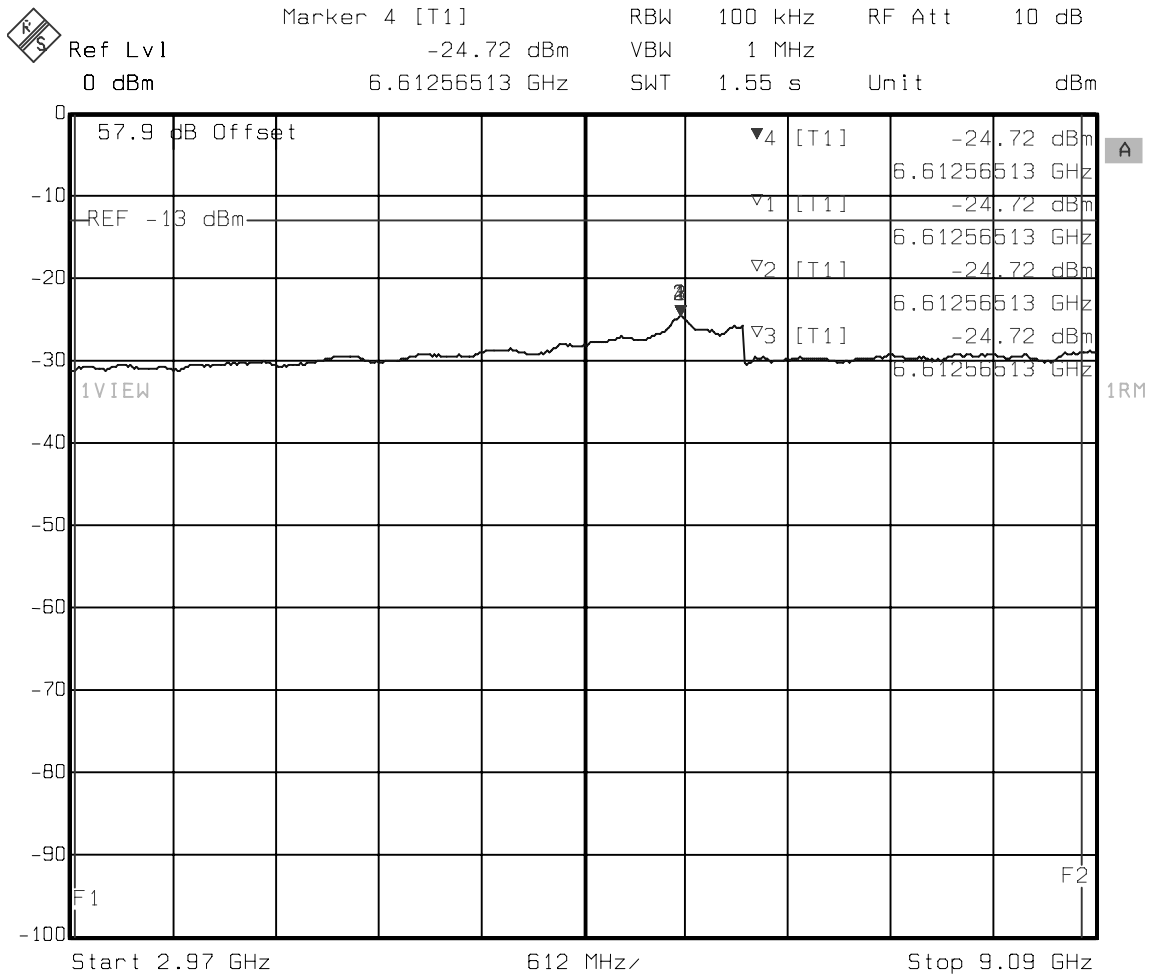
Comment A: Temp C 25
 Date: 05.JAN.2007 22:45:16

Figure 20 : Conducted Spurious Emissions, B band, 2-Carrier, ch 596, 637, IS-95, Upper Adjacent 1MHz to 3GHz range



Date: 05.JAN.2007 23:01:42

Figure 21 : Conducted Spurious Emissions, B band, 2-Carrier, ch 596, 637, IS-95, 3GHz to 9GHz range



Title: Channels 363, 404, 3 GHz to 9 GHz
 Comment A: Temp C 25
 Date: 05.DEC.2006 16:25:58

Figure 22 : Conducted Spurious Emissions, A” and A Band, 3-Carrier, ch 1019, 37, 78, IS-95, Lower 1MHz Adjacent emissions

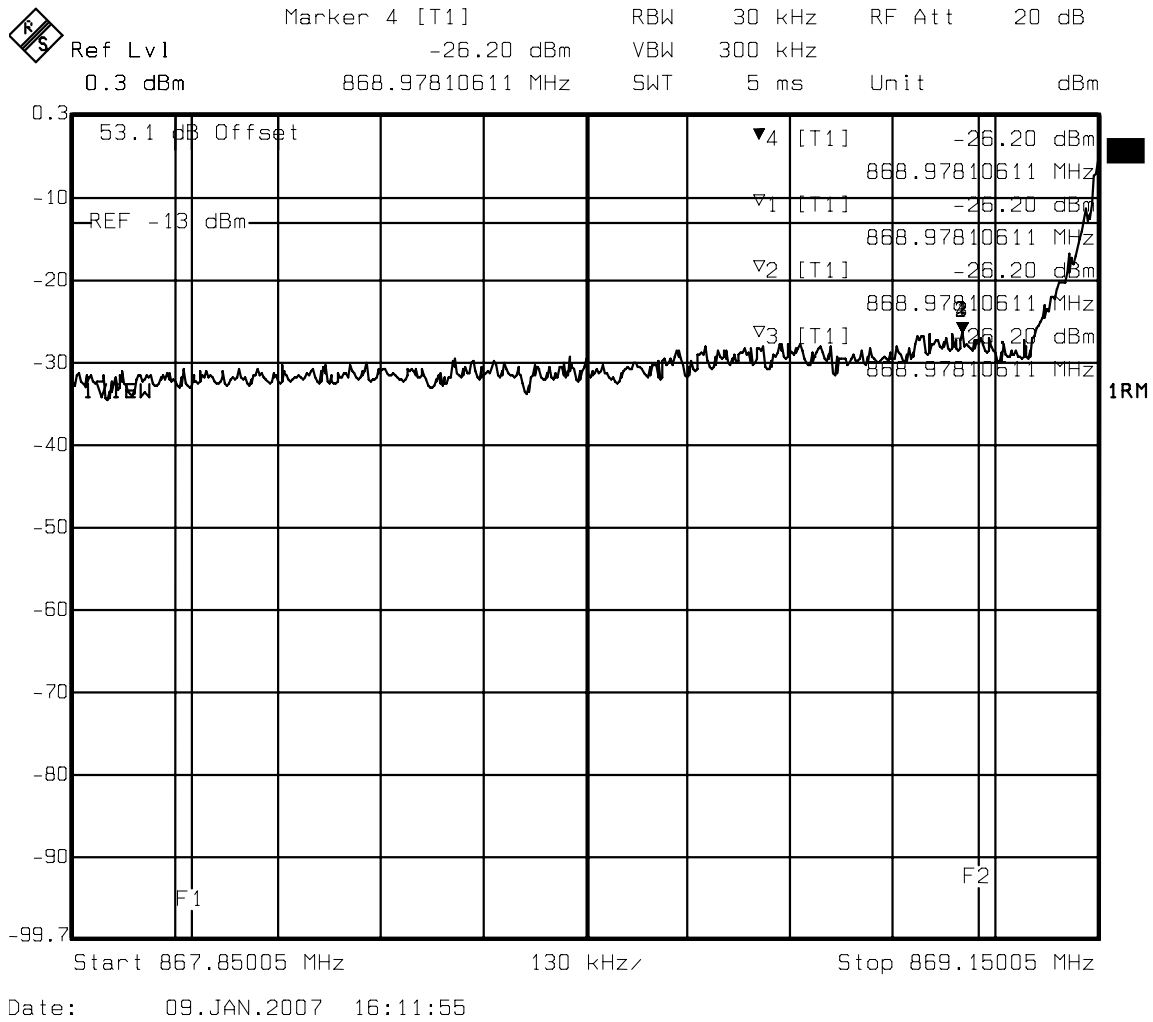
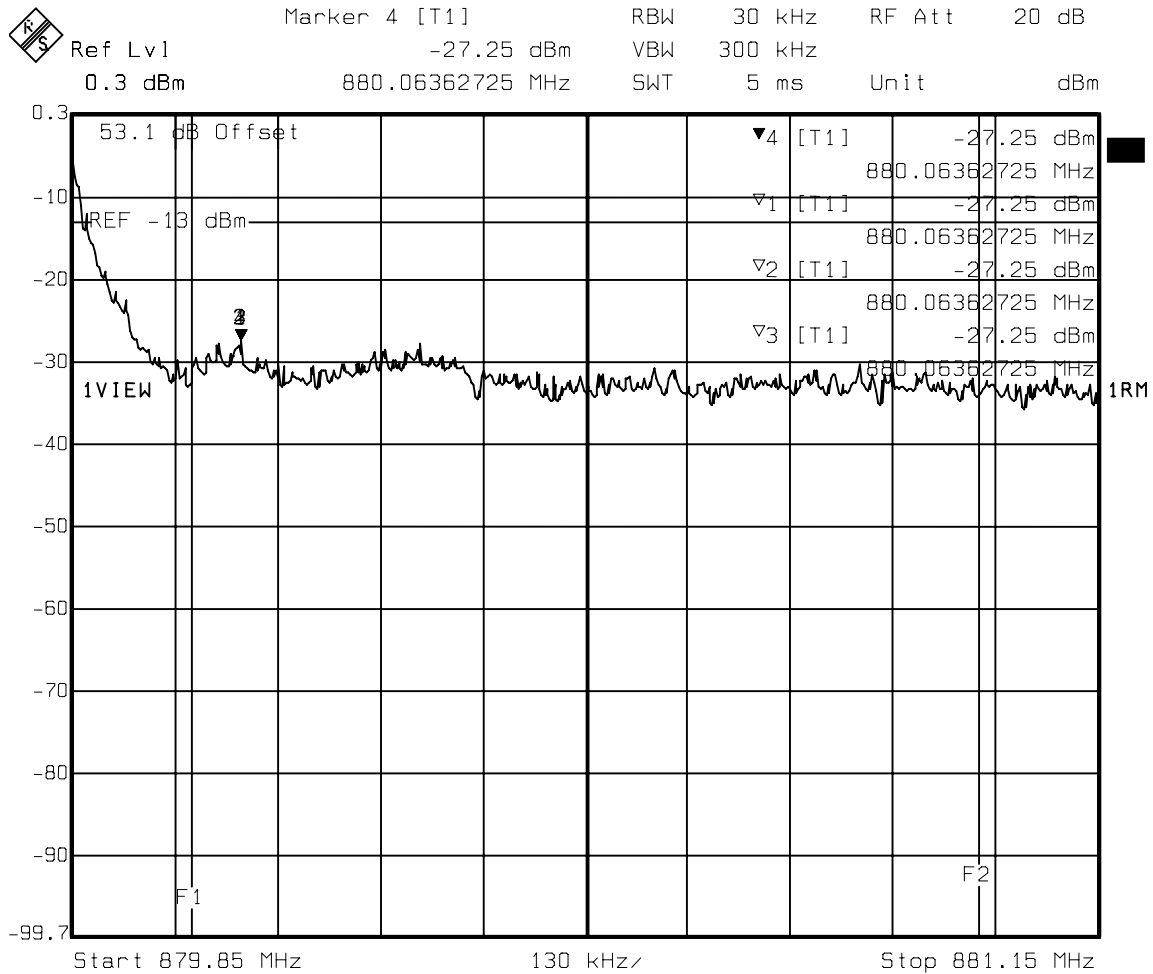
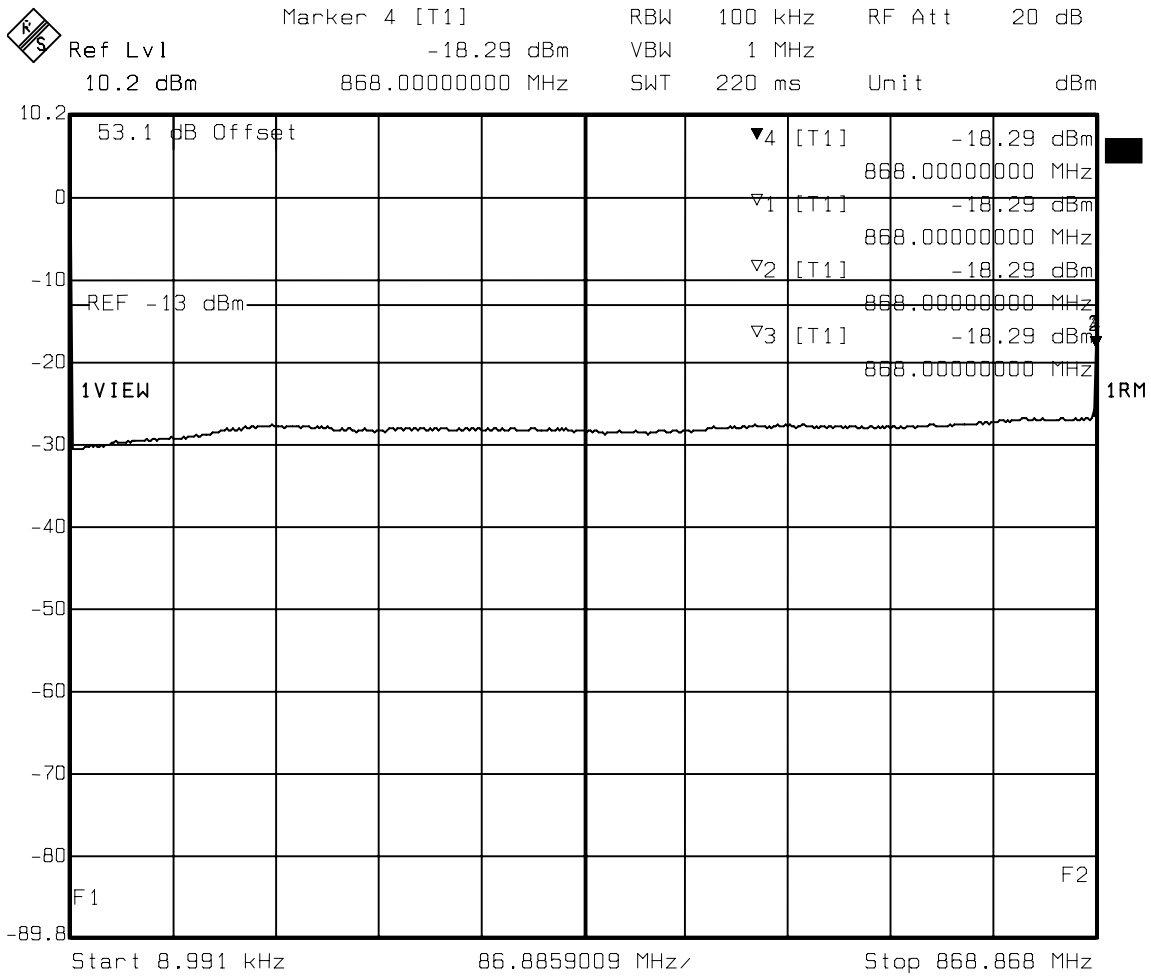


Figure 23 : Conducted Spurious Emissions, A” and A Band, 3-Carrier, ch 222, 263, 304, IS-95, Upper 1MHz Adjacent emissions



Title: Upper edge to (Upper edge + 1 MHz)
 Date: 09.JAN.2007 16:33:03

Figure 24 : Conducted Spurious Emissions, A” and A Band, 3-Carrier, ch 1019, 37, 78, IS-95, 9kHz to Lower Adjacent 1MHz



Title: 9kHz_(Low edge-1.0MHz)
 Comment A: Temp C 25
 Date: 09.JAN.2007 16:14:26

Figure 25 : Conducted Spurious Emissions, A” and A Band, 3-Carrier, ch 222, 263, 304, IS-95, Upper Adjacent 1MHz to 3GHz range

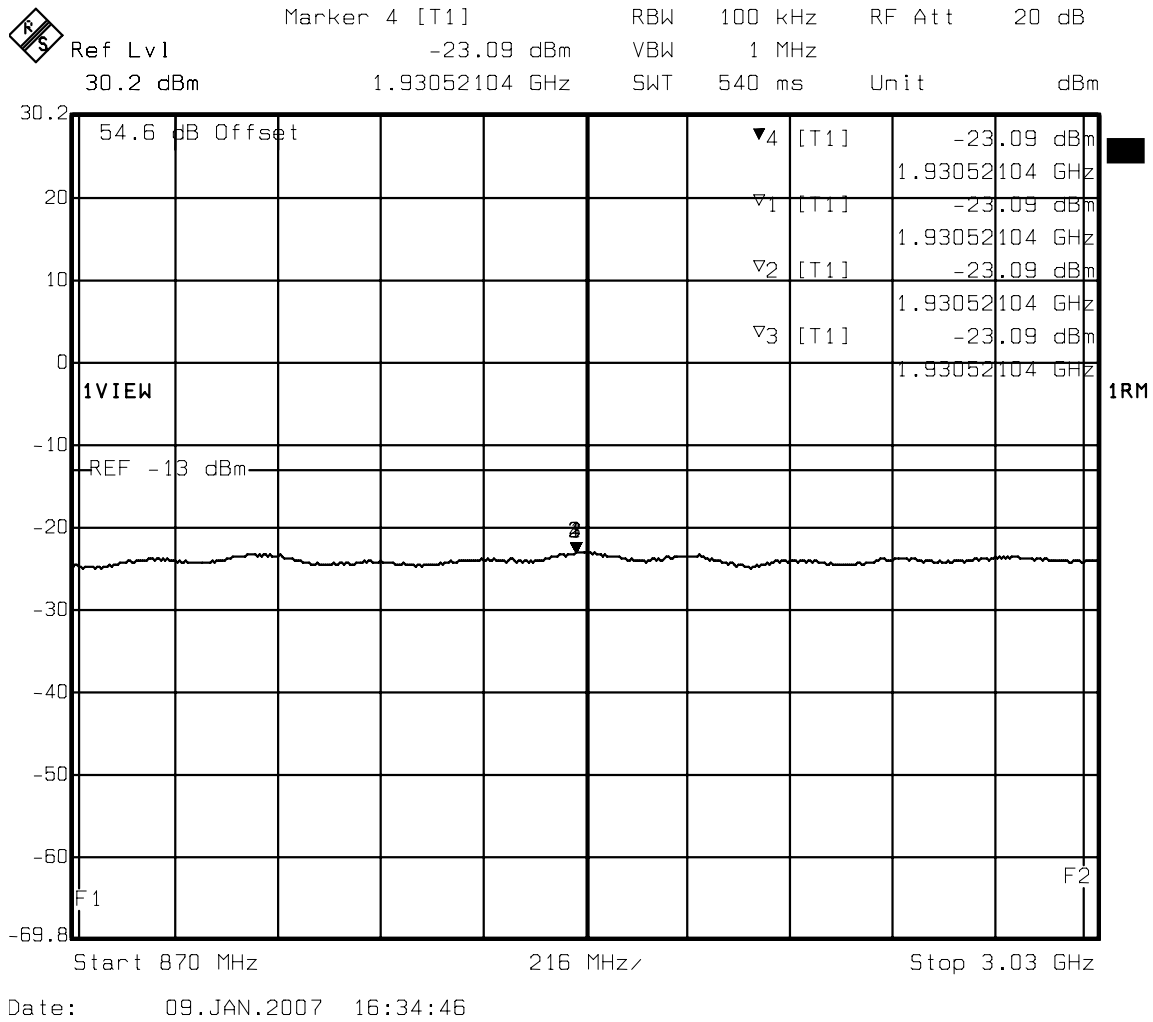
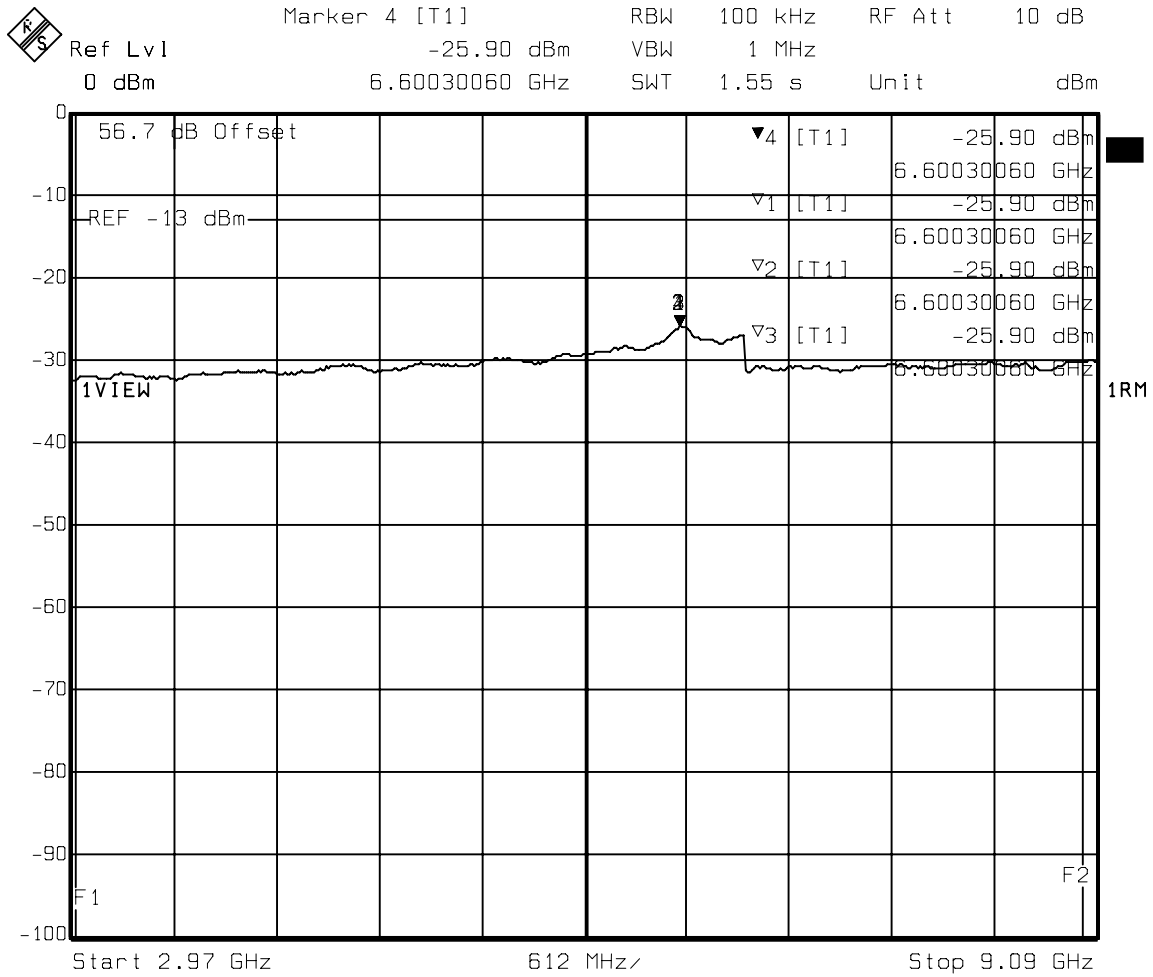


Figure 26 : Conducted Spurious Emissions, A” and A Band, 3-Carriers, ch 222, 263, 304, IS-95, 3GHz to 9GHz range



Title: Channels 1019, 37, 78, 3 GHz to 9 GHz
 Comment A: Temp C 25
 Date: 14.DEC.2006 12:32:55

Figure 27 : Conducted Spurious Emissions, B Band, 1-Carrier, ch 363, IS-856 (DOMA QPSK), Lower 1MHz Adjacent emissions

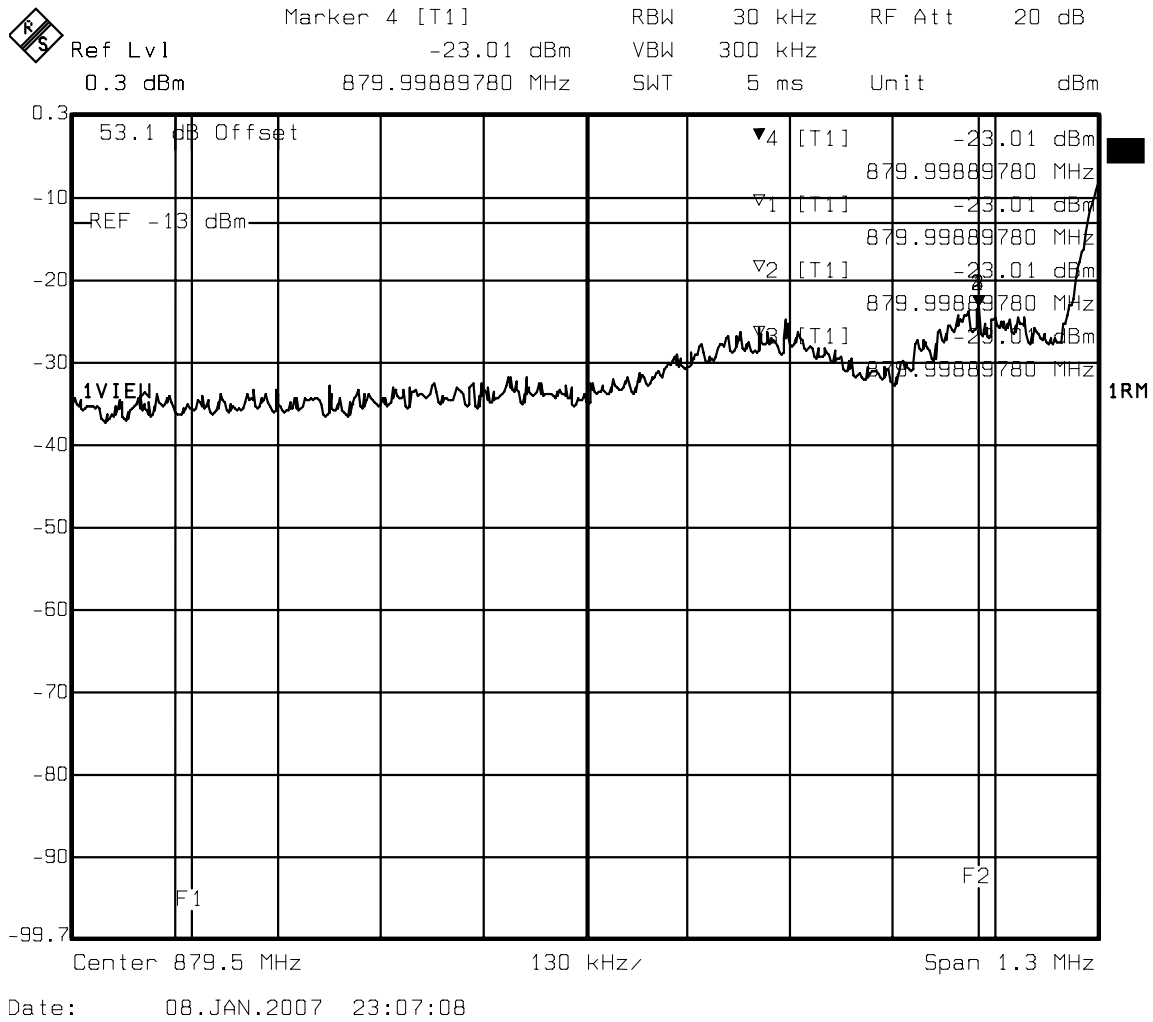
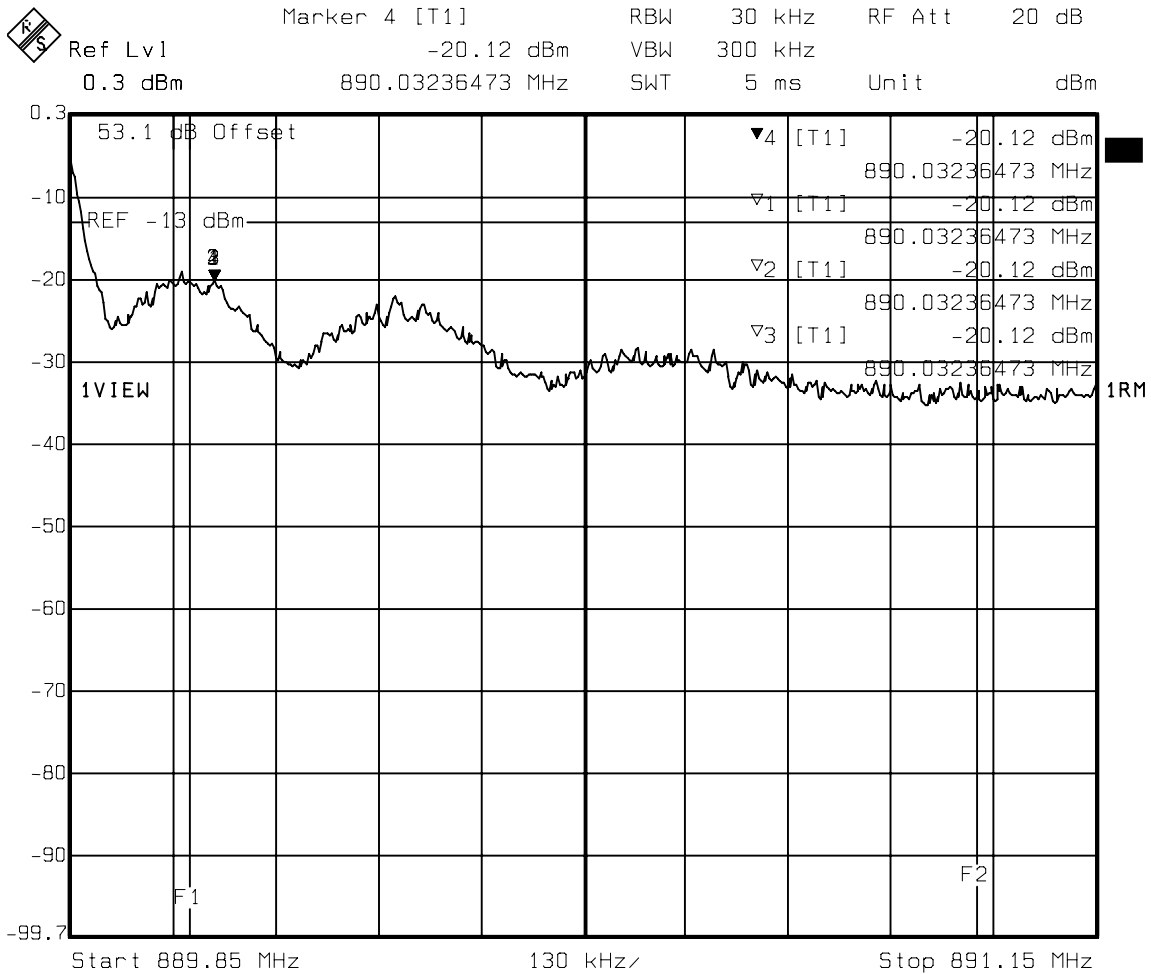
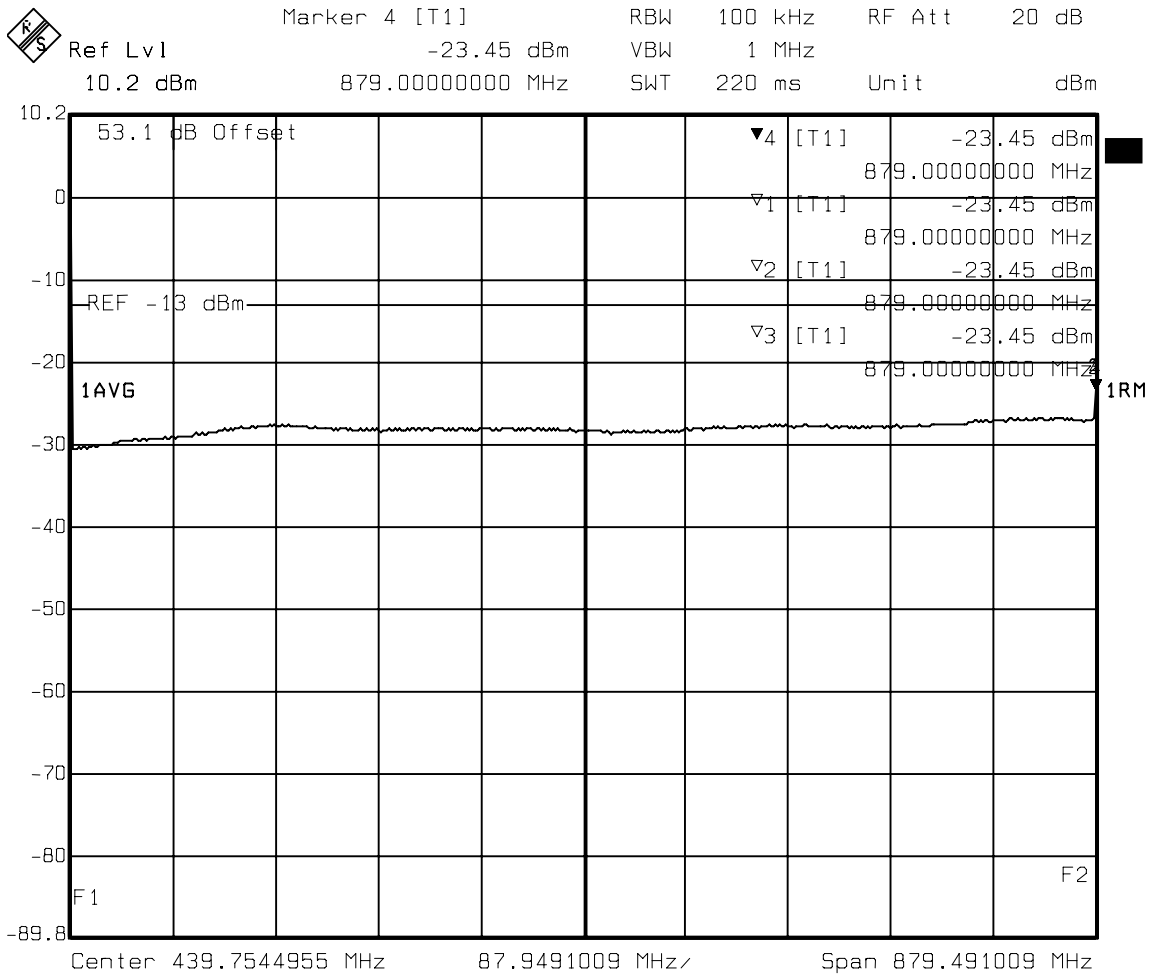


Figure 28 : Conducted Spurious Emissions, B band, 1-Carrier, ch 637, IS-856 (DOMA QPSK), Upper 1MHz Adjacent emissions



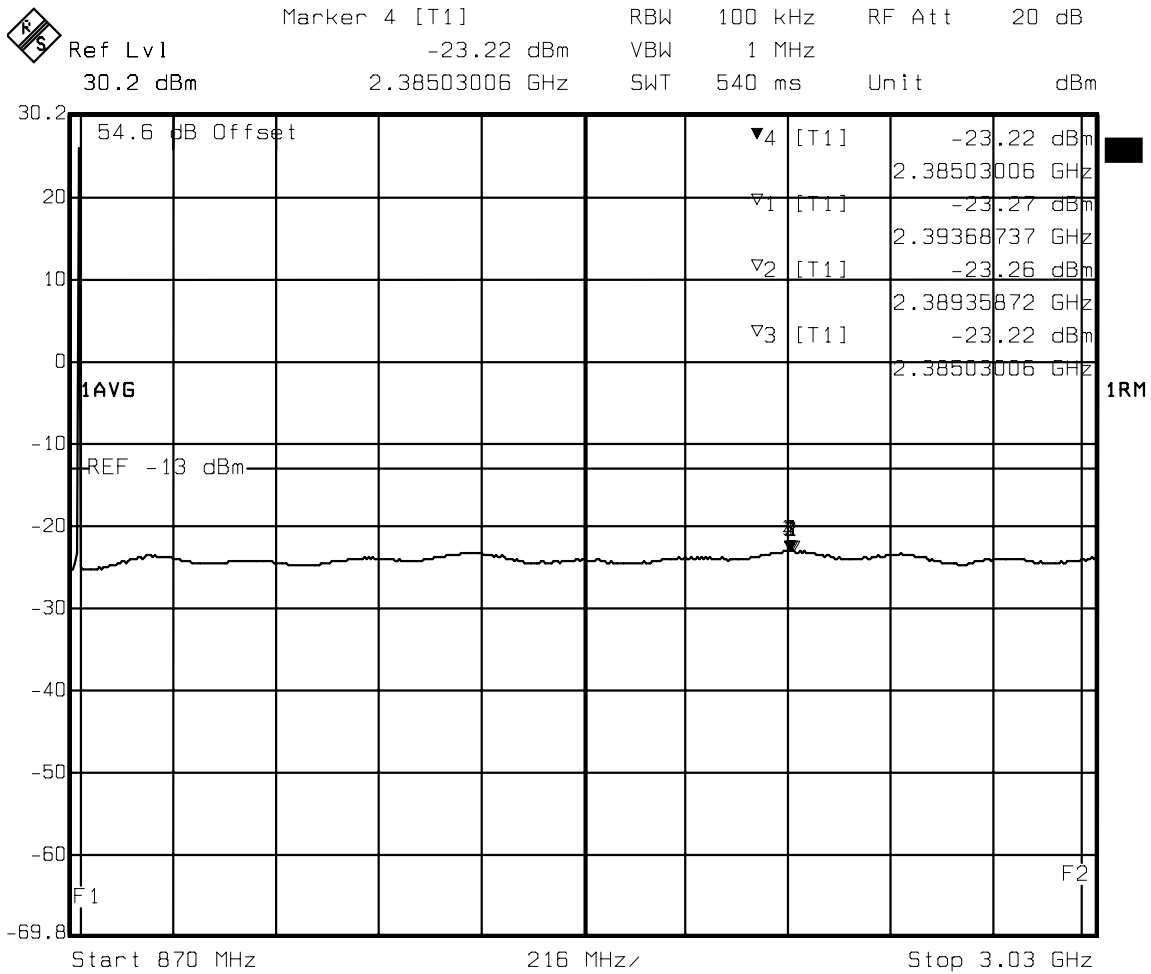
Title: Upper edge to (Upper edge + 1 MHz)
 Date: 08.JAN.2007 23:20:25

Figure 29 : Conducted Spurious Emissions, B band, 1-Carrier, ch 363, IS-856 (DOMA QPSK), 9kHz to Lower Adjacent 1MHz range



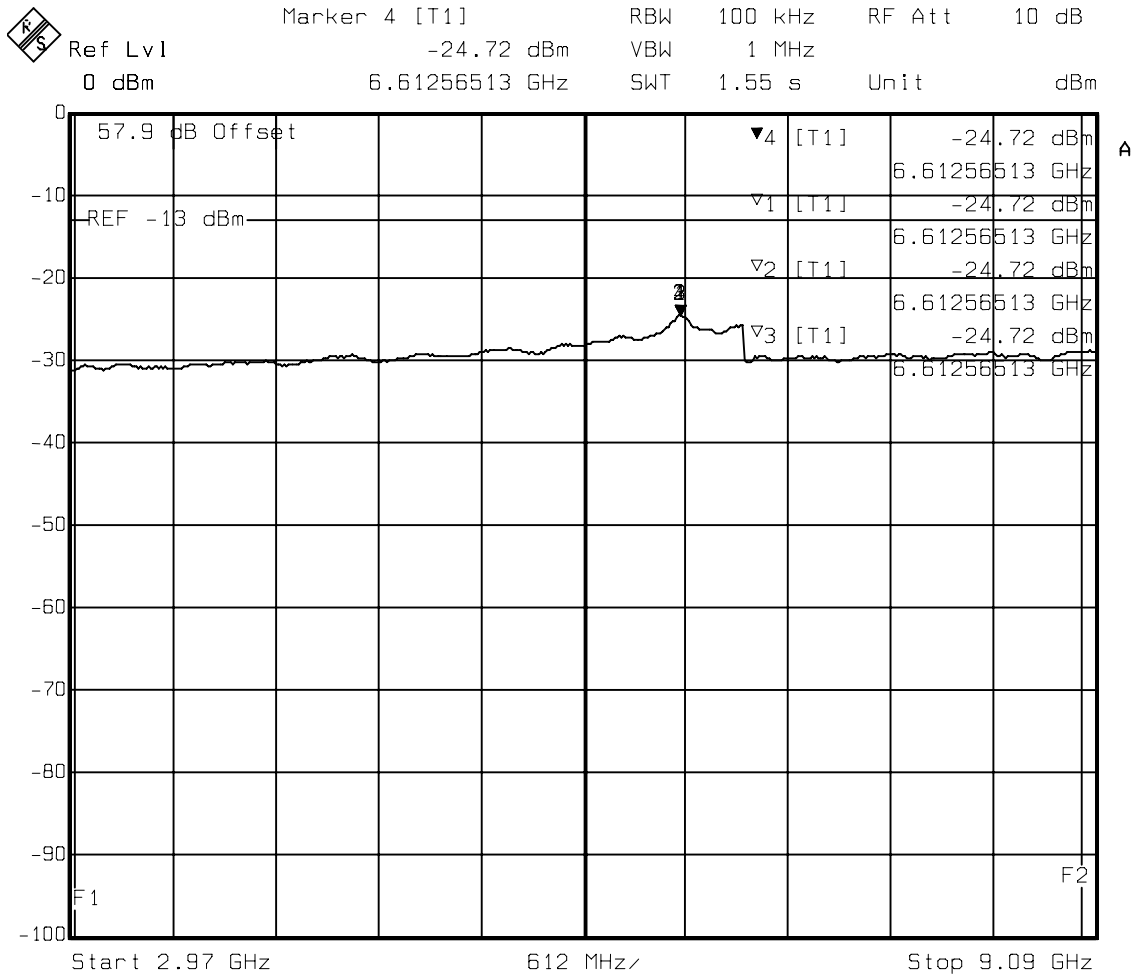
Title: 9k to (Lower limit - 1MHz)
 Comment A: Temp C 25
 Date: 08.JAN.2007 23:08:10

Figure 30 : Conducted Spurious Emissions, B band, 1 -Carrier, ch 637, IS-856 (DOMA QPSK), Upper Adjacent 1MHz to 3GHz range



Date: 08.JAN.2007 23:21:25

Figure 31 : Conducted Spurious Emissions, B band, 1-Carrier, ch 637, IS-856 (DOMA QPSK), 3GHz to 9 GHz range



Title: Channel 363, 3 GHz to 9 GHz

Figure 32 : Conducted Spurious Emissions, B band, 3-Carrier, ch 363, 404, 445, IS-856 (DOMA/DOM0 8PSK), Lower 1MHz Adjacent emissions

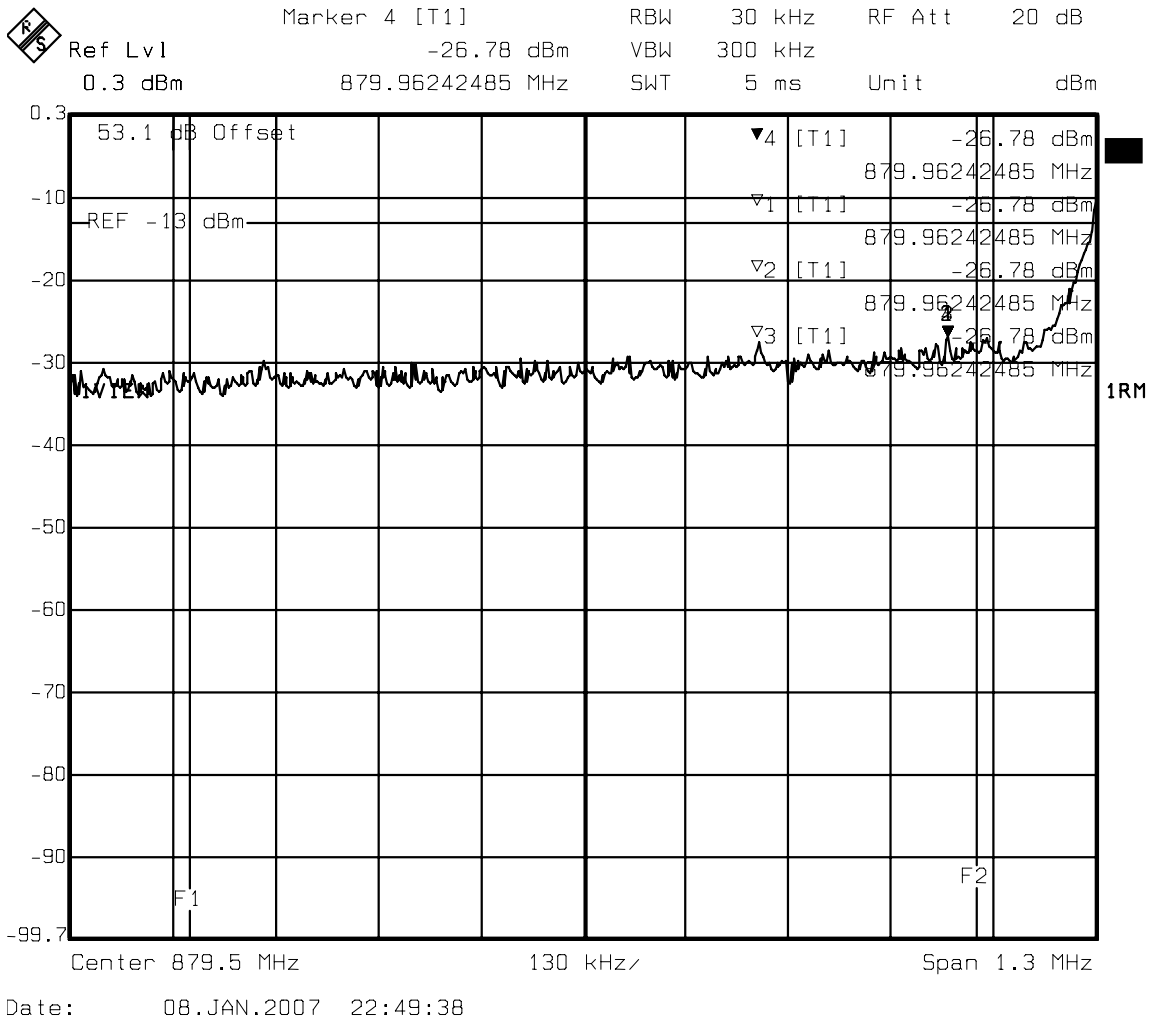
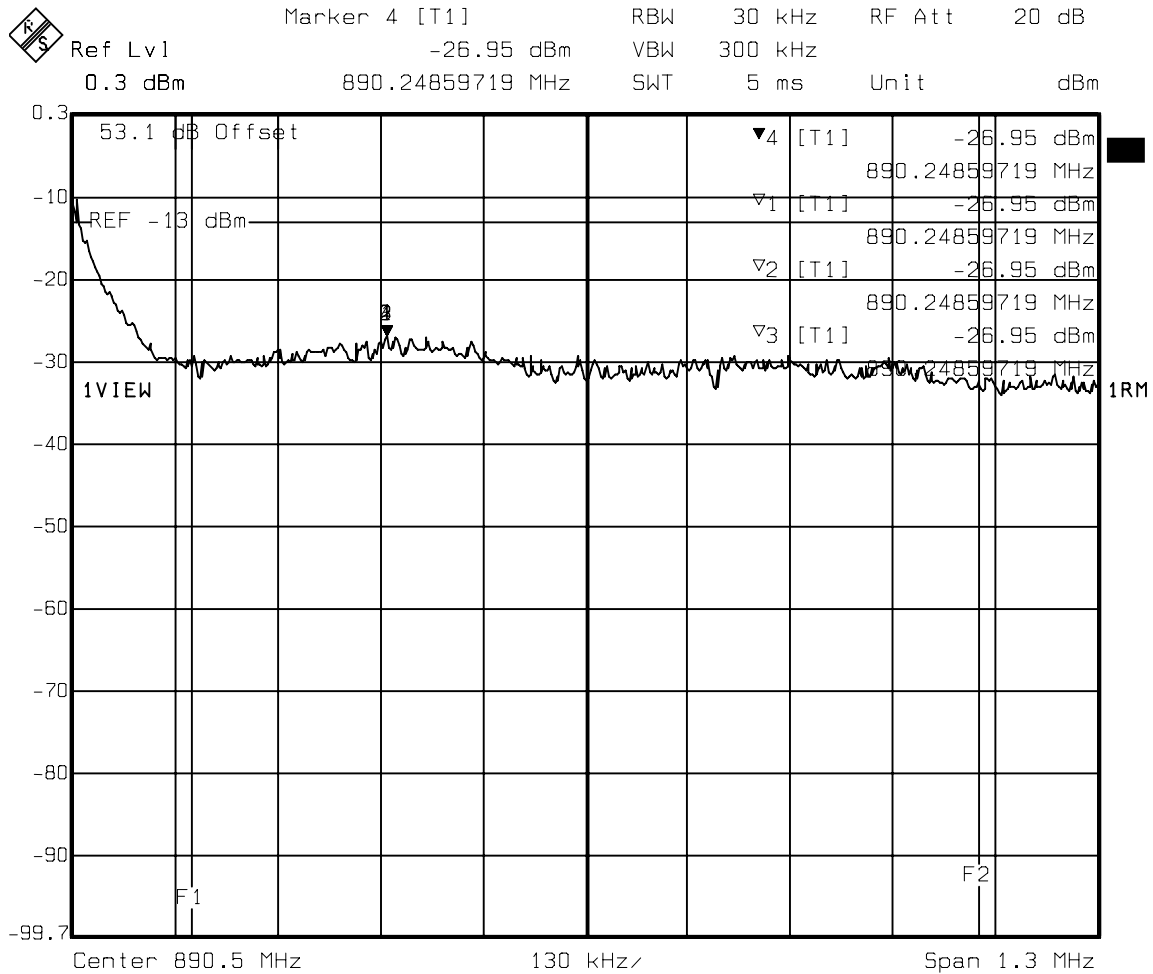
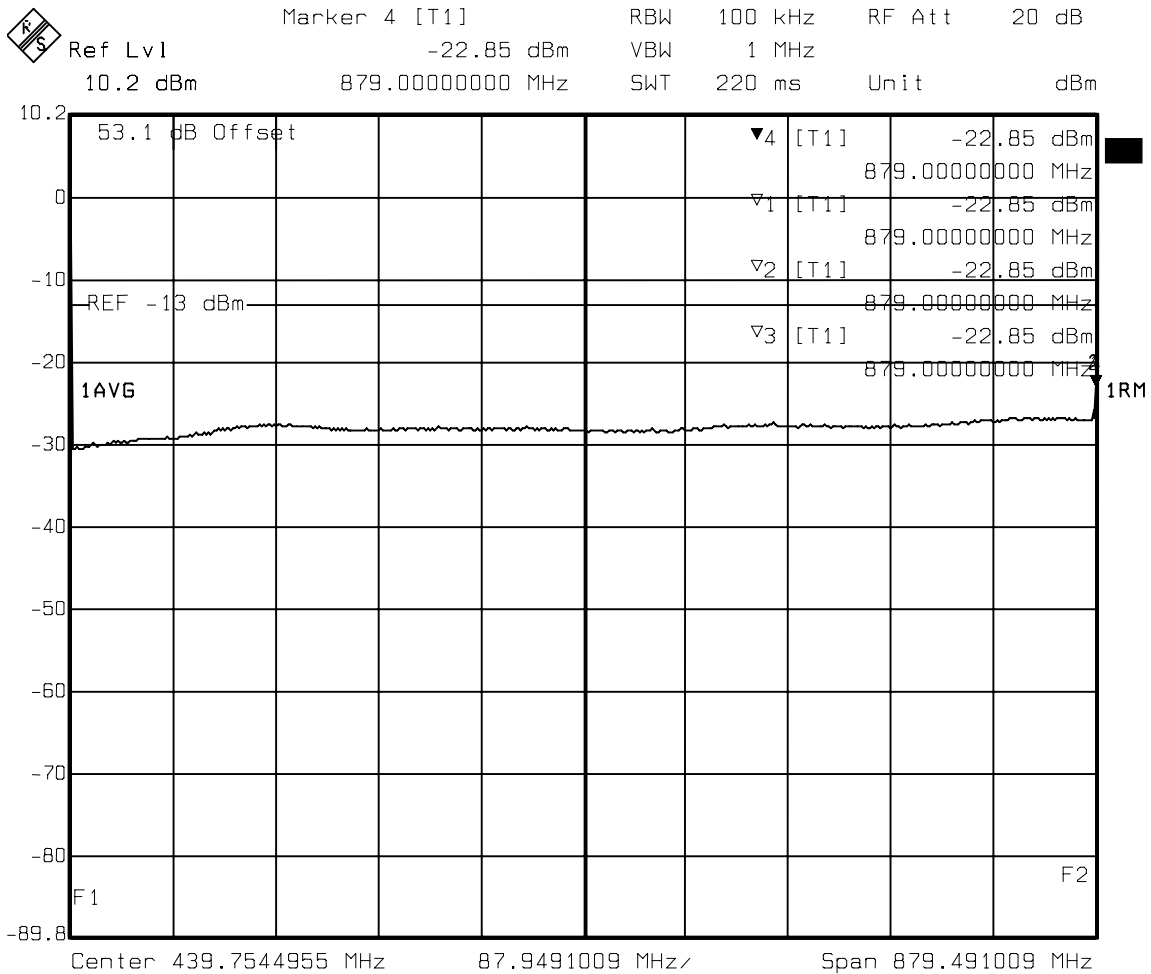


Figure 33 : Conducted Spurious Emissions, B band, 3-Carrier, ch 555, 596, 637, IS-856 (DOMA/DOM0 8PSK), Upper 1MHz Adjacent emissions



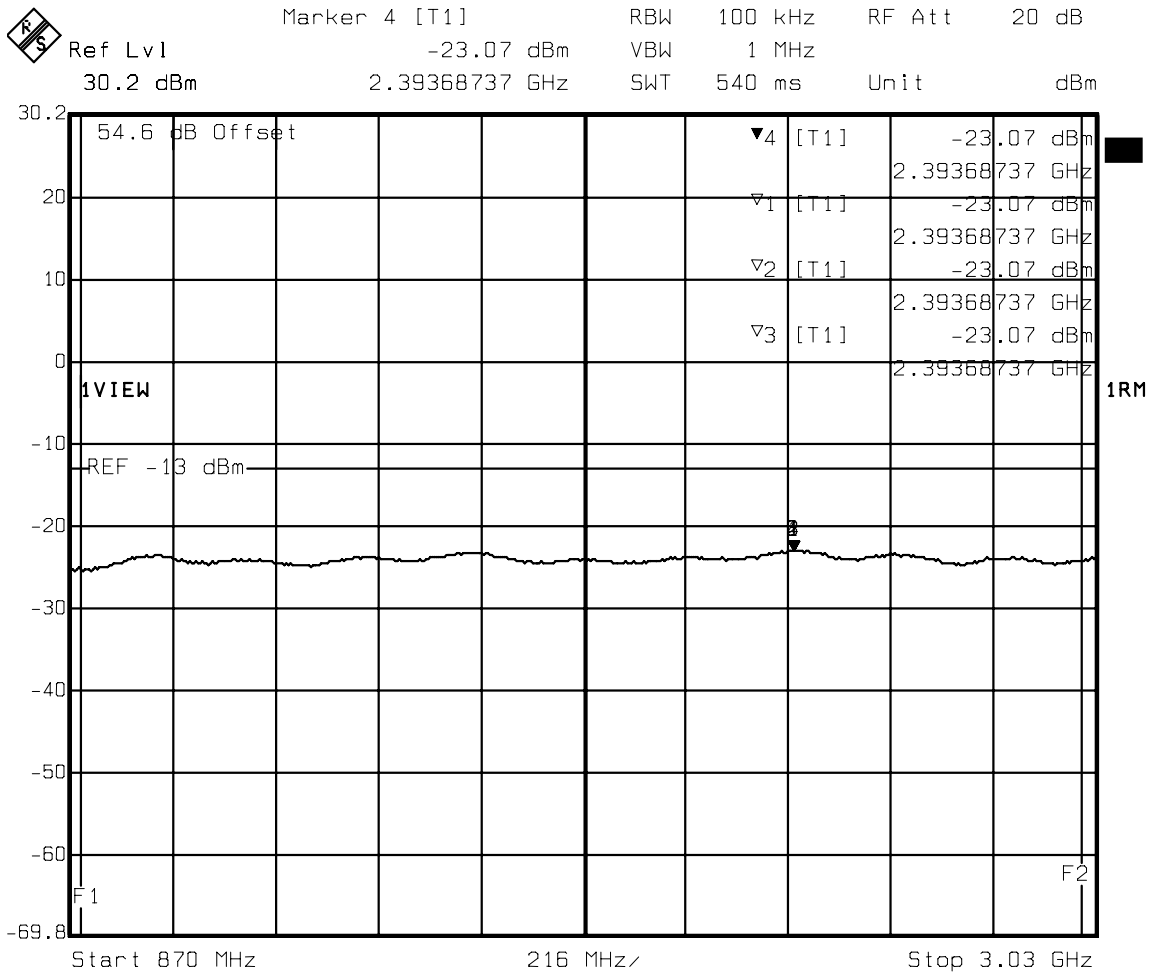
Title: Upper edge to (Upper edge + 1 MHz)
 Date: 08.JAN.2007 22:21:59

Figure 34 : Conducted Spurious Emissions, B band, 3-Carrier, ch 363, 404, 445, IS-856 (DOMA/DOM0 8PSK), 9kHz to Lower Adjacent 1MHz range



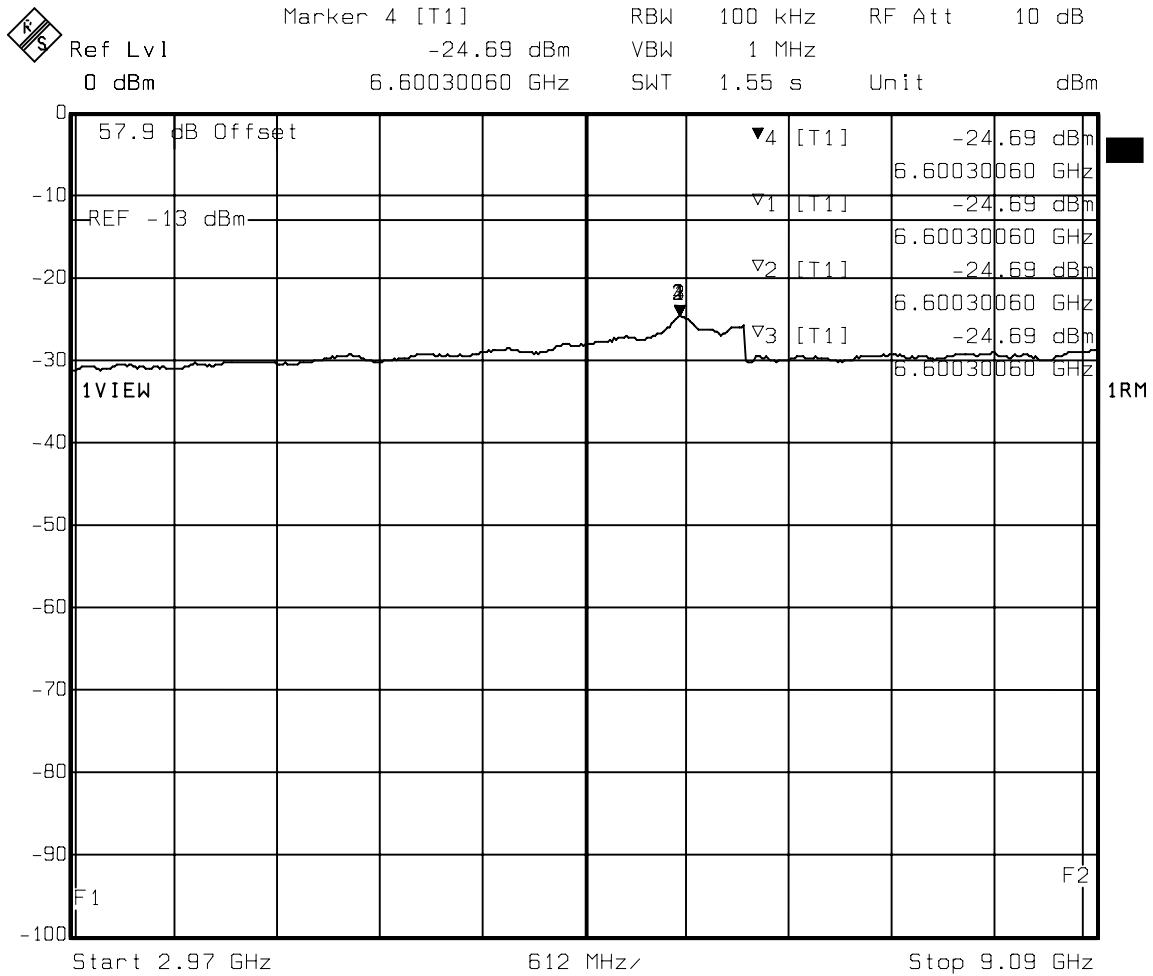
Title: 9k to (Lower limit - 1MHz)
 Comment A: Temp C 25
 Date: 08.JAN.2007 22:48:12

Figure 35 : Conducted Spurious Emissions, B band, 3 -Carrier, ch 555, 596, 637, IS-856 (DOMA/DOM0 8PSK), Upper Adjacent 1MHz to 3GHz range



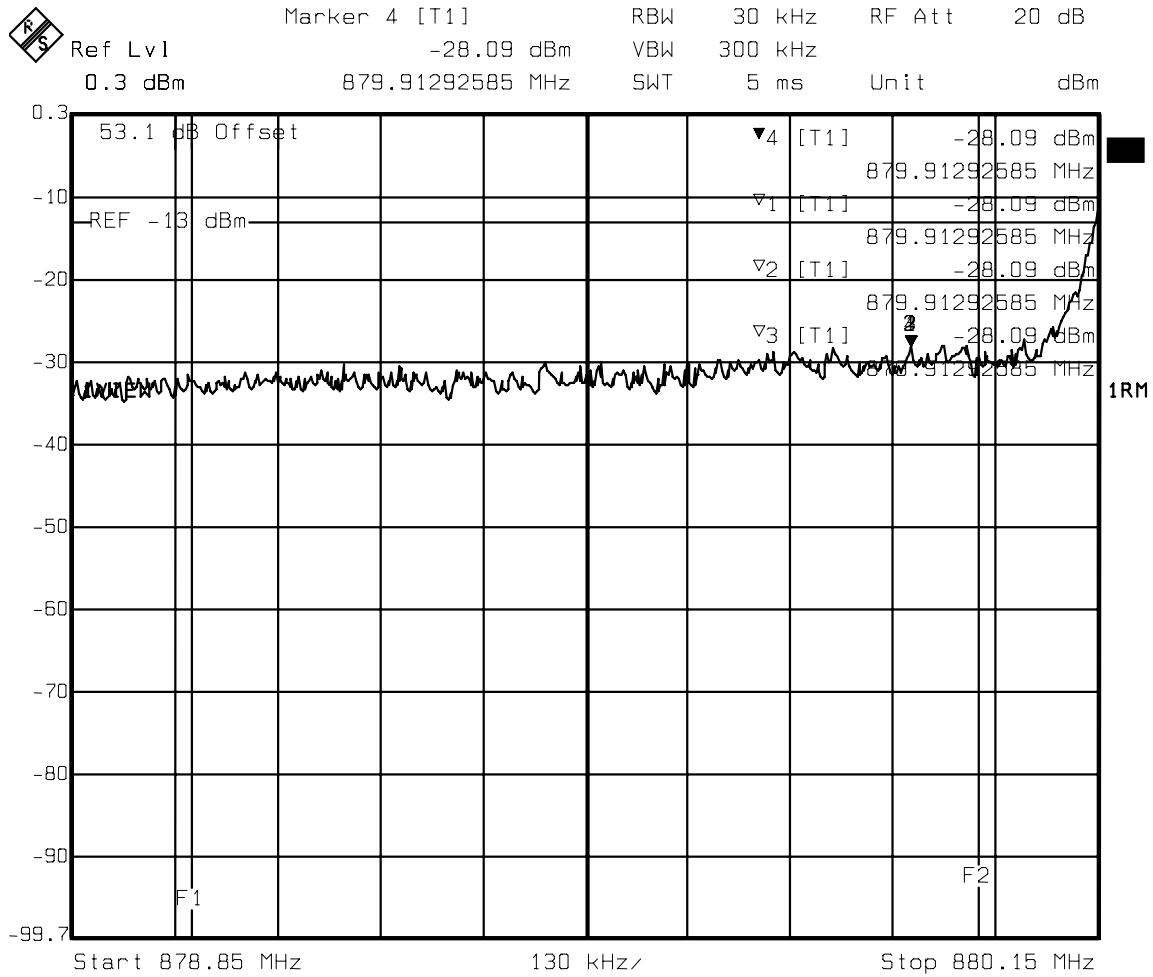
Date: 08.JAN.2007 22:20:11

Figure 36 : Conducted Spurious Emissions, B band, 3-Carrier, ch 555, 596, 637, IS-856 (DOMA/DOM0 8PSK), 3GHz to 9GHz range



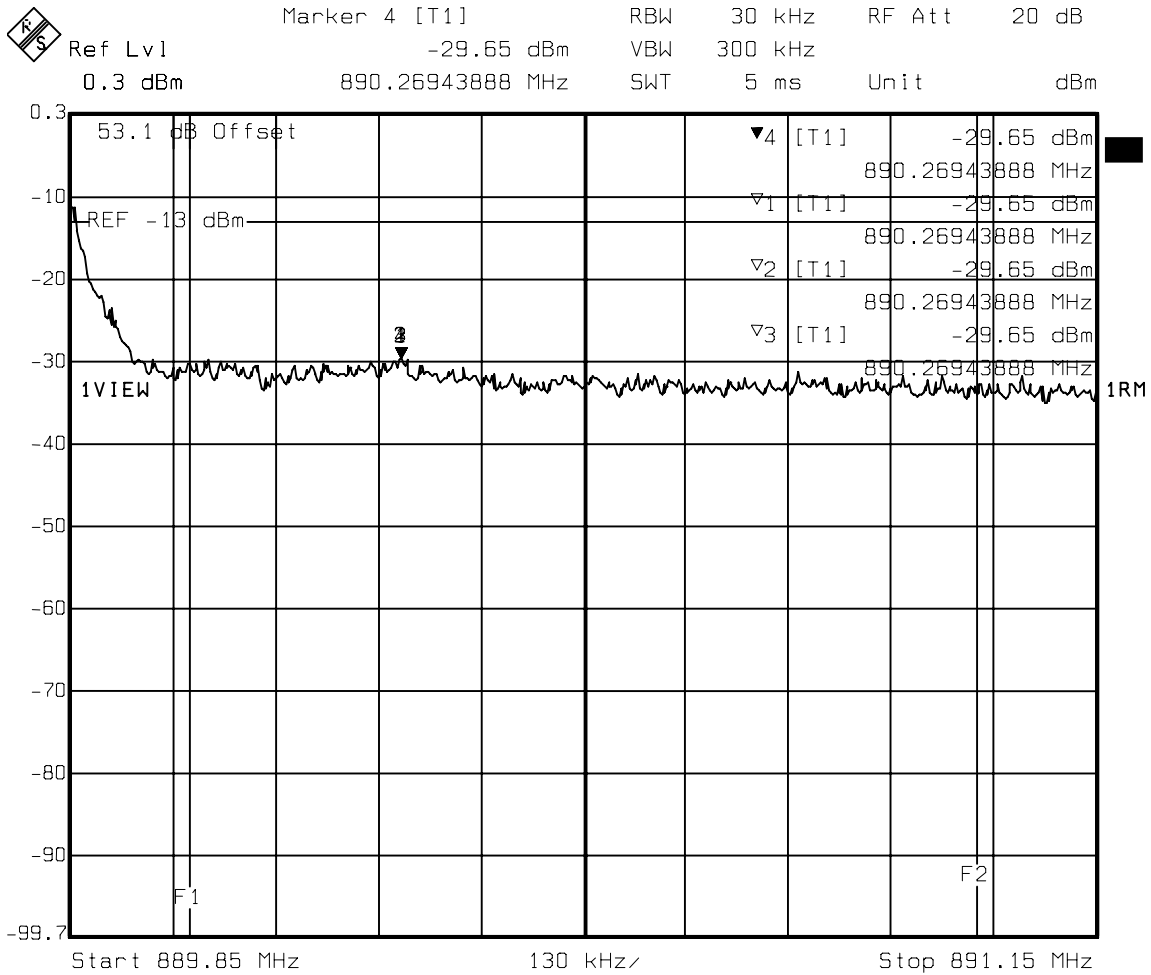
Title: Channels 363, 404, 445, 3 GHz to 9 GHz
 Comment A: Temp C 25
 Date: 12.DEC.2006 15:57:17

Figure 37 : Conducted Spurious Emissions, B band, 3-Carrier, ch 363, 404, 445, IS-856 (Left & Centre Carriers, DOMA/DOM0 16-QAM) and IS-95 (Right Carrier), Lower 1MHz Adjacent emissions



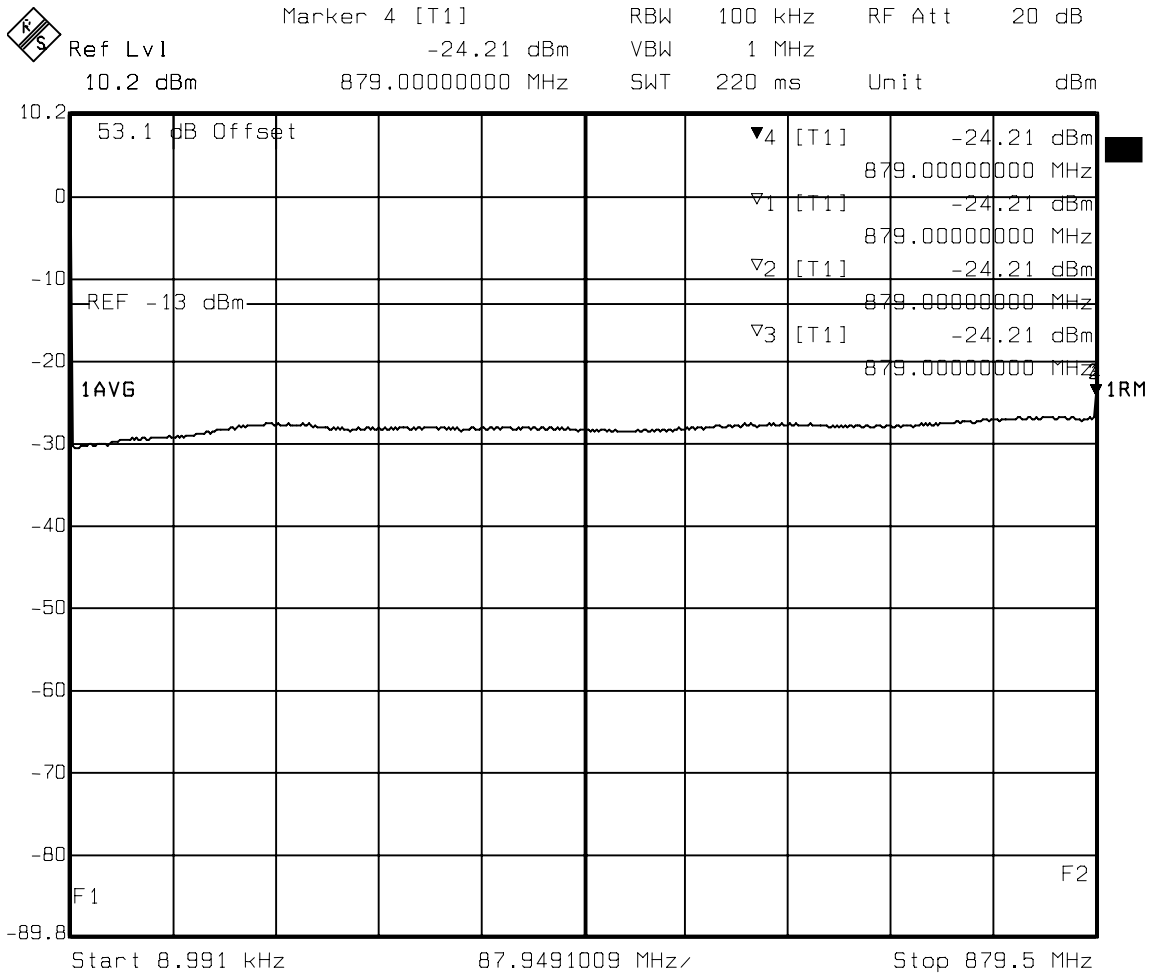
Date: 08.JAN.2007 23:51:08

Figure 38 : Conducted Spurious Emissions, B band, 3-Carrier, ch ch 555, 596, 637, IS-856 (Left & Centre Carriers, DOMA/DOM0 16-QAM) and IS-95 (Right Carrier), Upper 1MHz Adjacent emissions



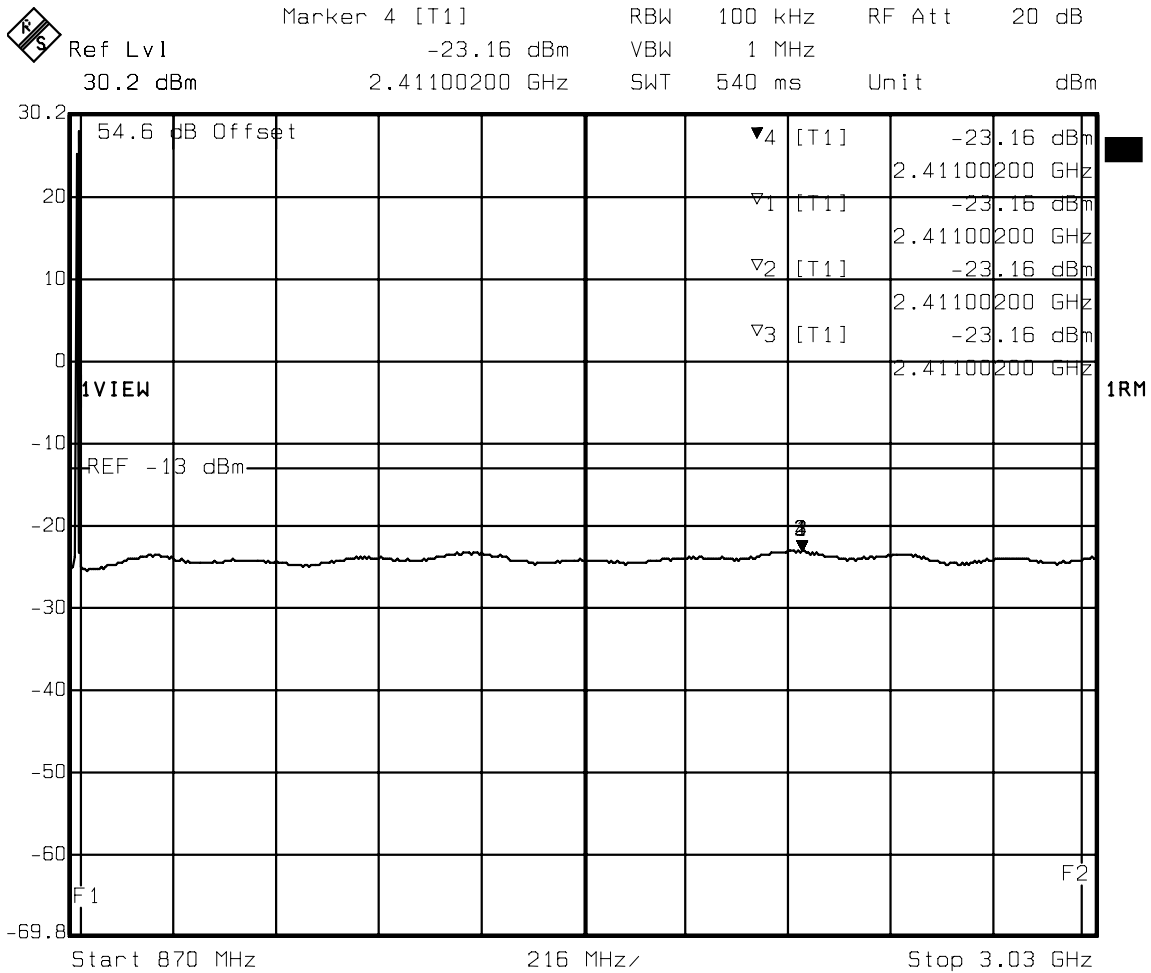
Title: Upper edge to (Upper edge + 1 MHz)
 Date: 09.JAN.2007 00:05:15

Figure 39 : Conducted Spurious Emissions, B band, 3-Carrier, ch 363, 404, 445, IS-856 (Left & Centre Carriers, DOMA/DOM0 16-QAM) and IS-95 (Right Carrier), 9kHz to Lower Adjacent 1MHz range



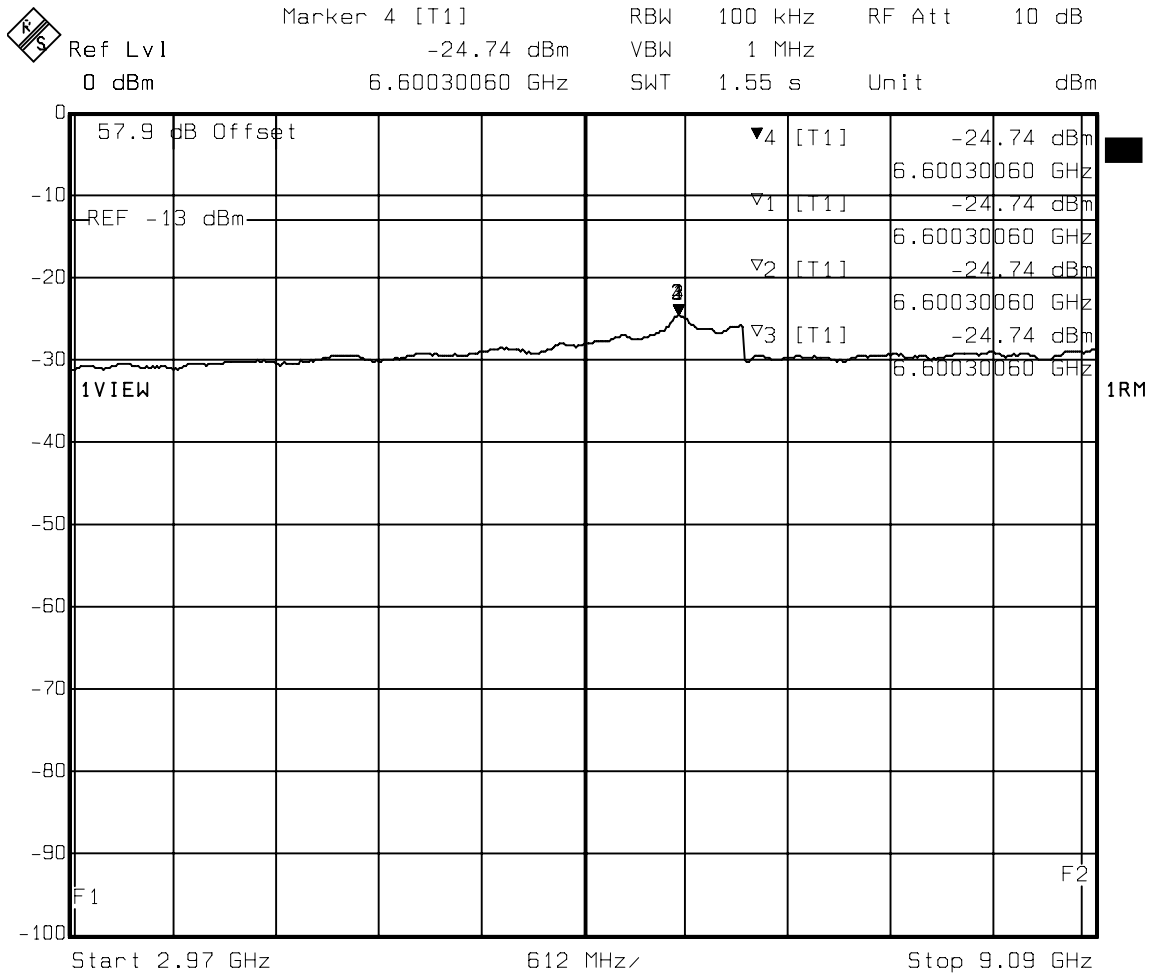
Title: 9k to (Lower limit - 1MHz)
 Comment A: Temp C 25
 Date: 08.JAN.2007 23:52:16

Figure 40 : Conducted Spurious Emissions, B band, 3-Carrier, ch 555, 596, 637, IS-856 (Left & Centre Carriers, DOMA/DOM0 16-QAM) and IS-95 (Right Carrier), Upper Adjacent 1MHz to 3 GHz range



Date: 09.JAN.2007 00:06:36

Figure 41 : Conducted Spurious Emissions, B band, 3GHz to 9GHz range, 3-Carrier, ch 555, 596, 637, IS-856 (Left & Centre Carriers, DOMA/DOM0 16-QAM) and IS-95 (Right Carrier)



Title: Channels 363, 404, 445, 3 GHz to 9 GHz
 Comment A: Temp C 25
 Date: 13.DEC.2006 12:53:50

Figure 42 : Conducted Spurious Emissions, A' Band, 1-Carrier, ch 692, IS-95, Lower 1MHz Adjacent emissions

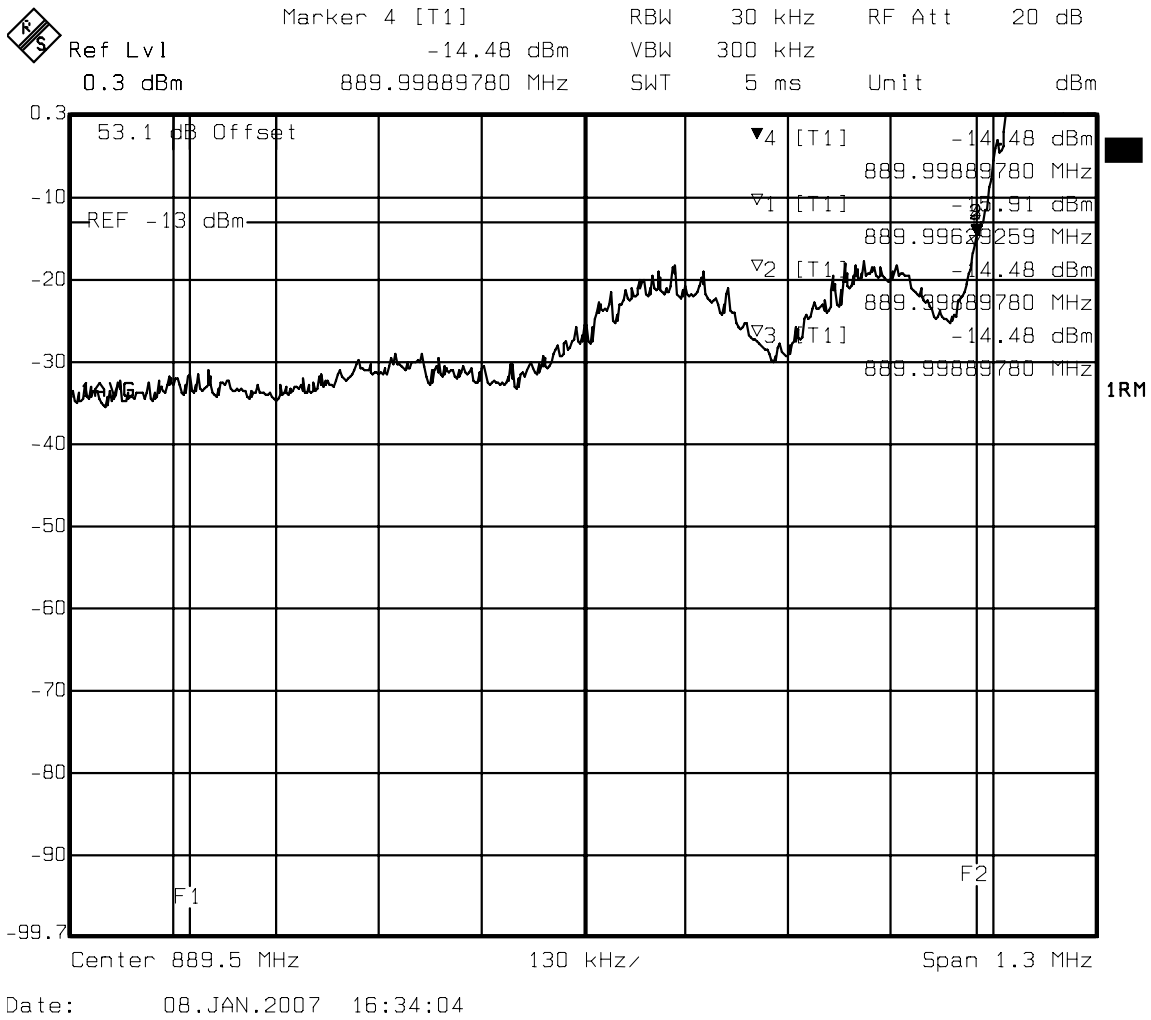


Figure 43 : Conducted Spurious Emissions, A' Band, 1-Carrier, ch 692, IS-95, Lower 1MHz Adjacent emissions, detailed view of the spectrum at 890MHz and below (power was measured in 7 adjacent 30kHz channels)

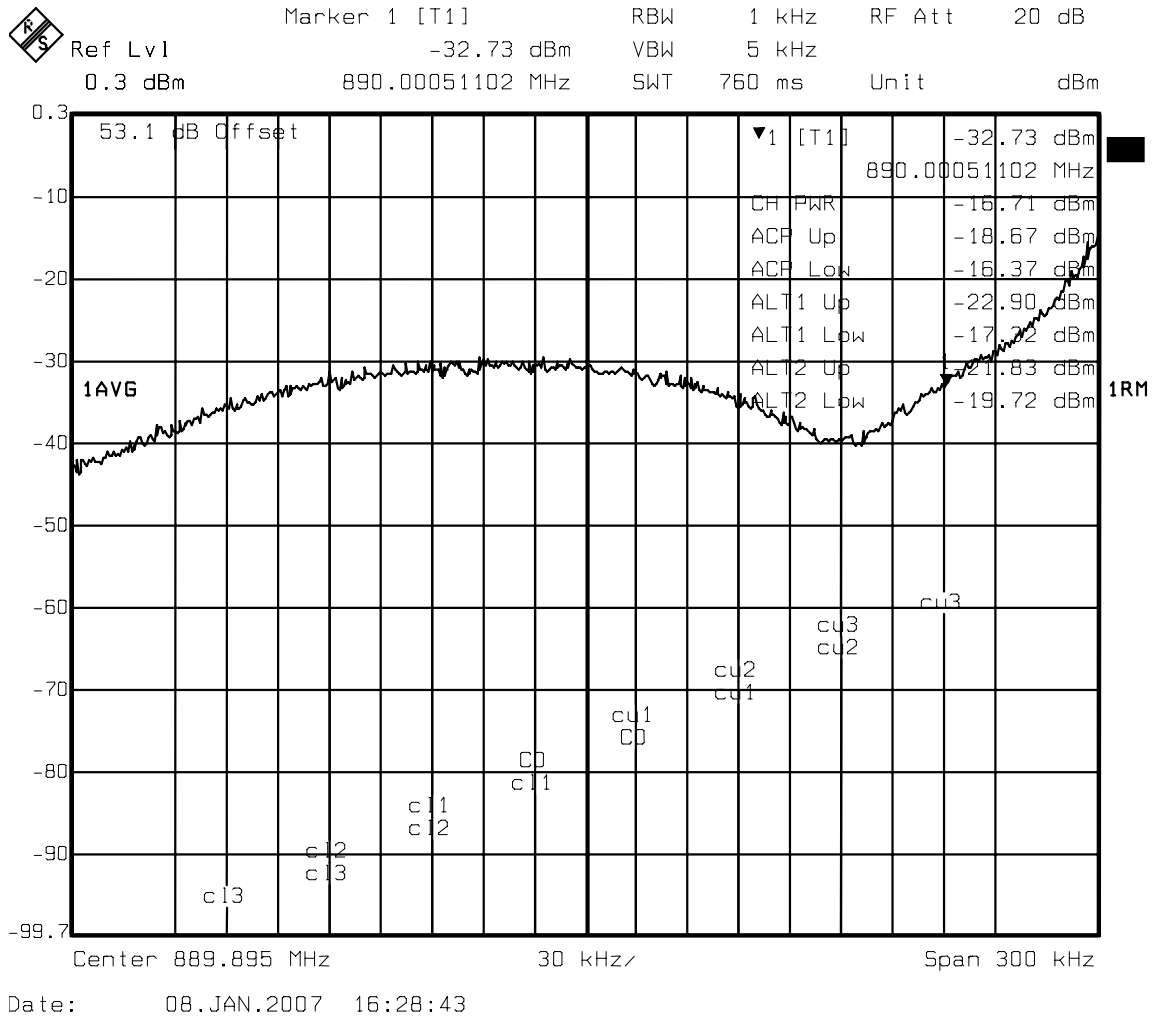
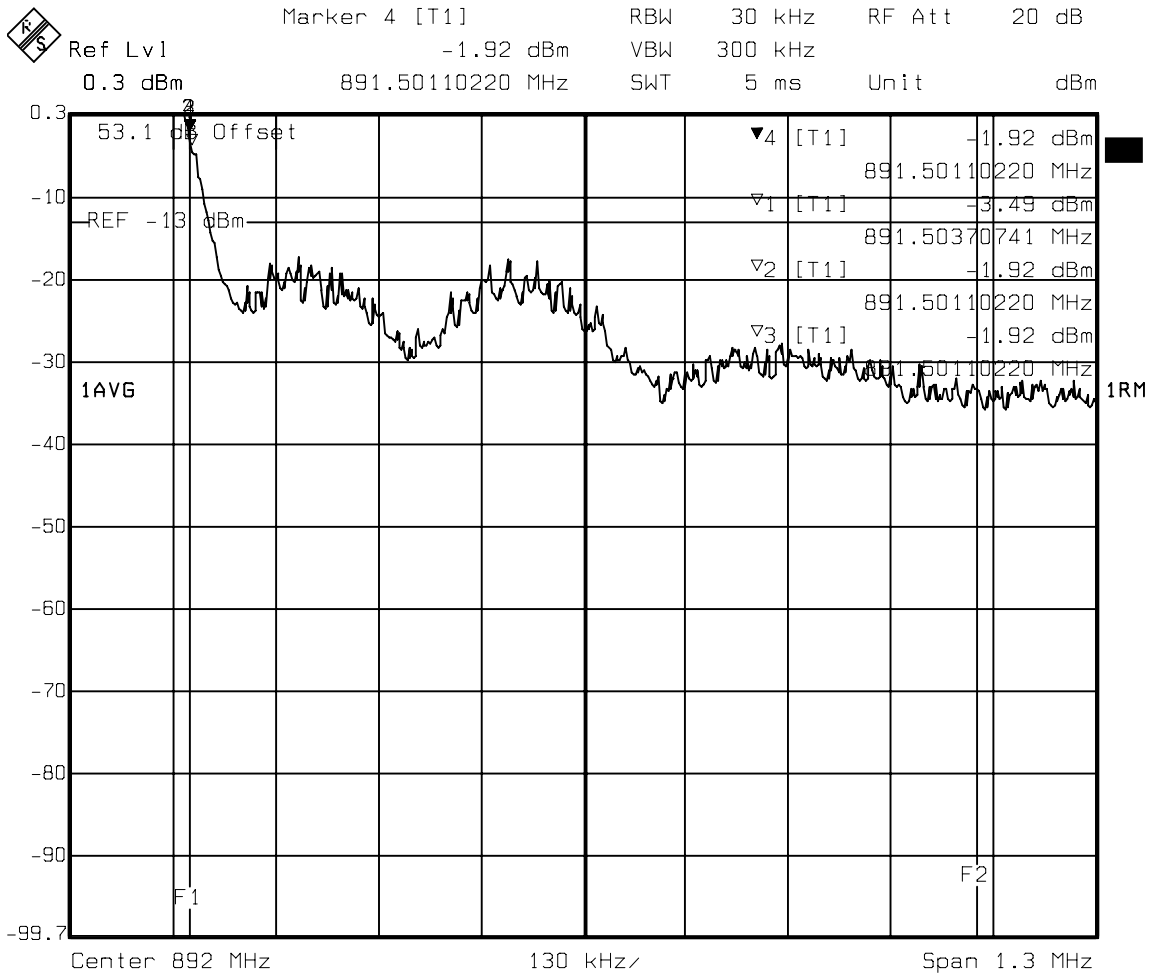


Figure 44 : Conducted Spurious Emissions, A' Band, 1-Carrier, ch 692, IS-95, Upper 1MHz Adjacent emissions



Title: Upper edge to (Upper edge + 1 MHz)
 Date: 08.JAN.2007 16:40:31

Figure 45 : Conducted Spurious Emissions, A' Band, 1-Carrier, ch 692, IS-95, Lower 1MHz Adjacent emissions, detailed view of the spectrum at 891.5MHz and above (power was measured in 7 adjacent 30kHz channels)

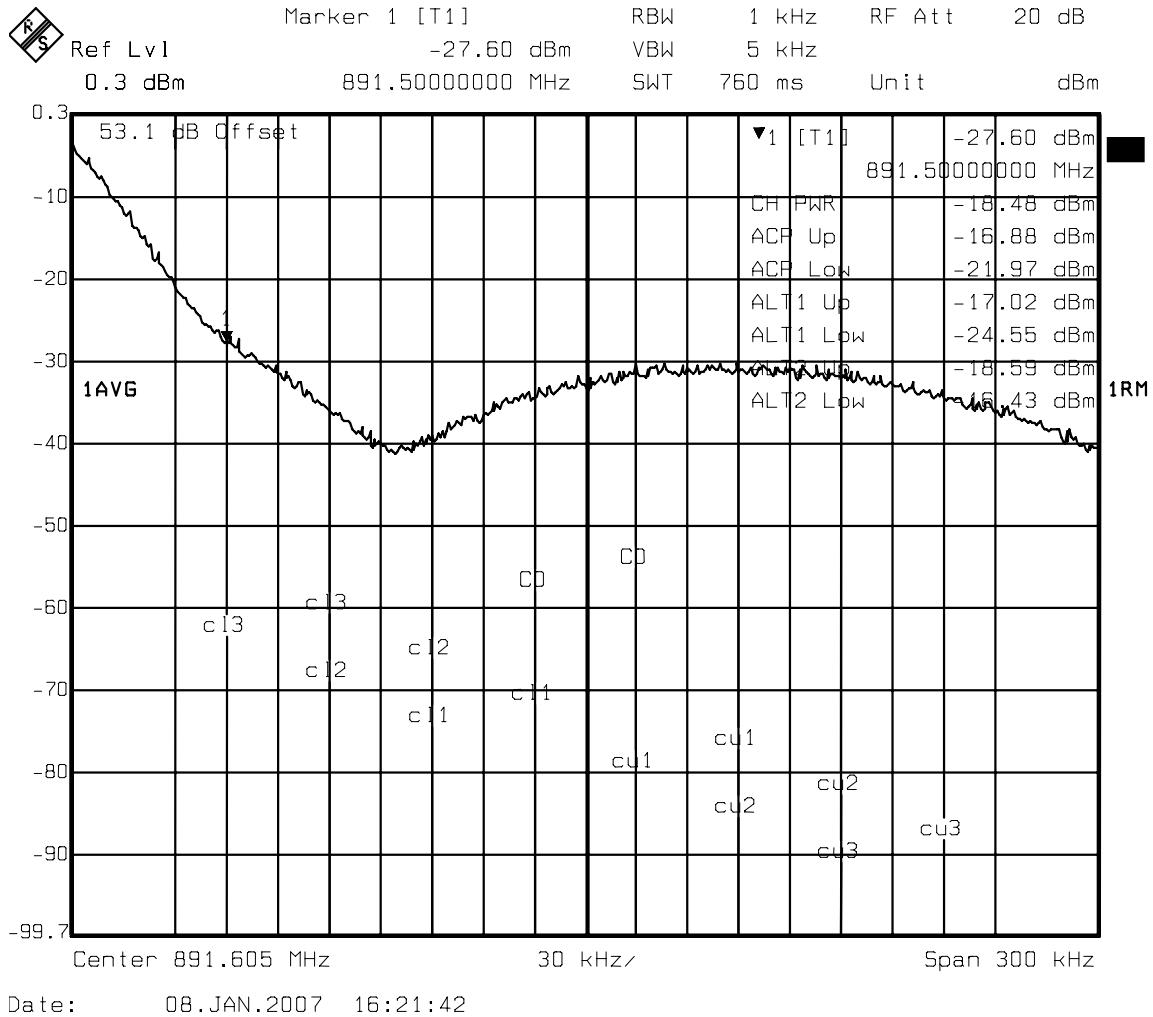
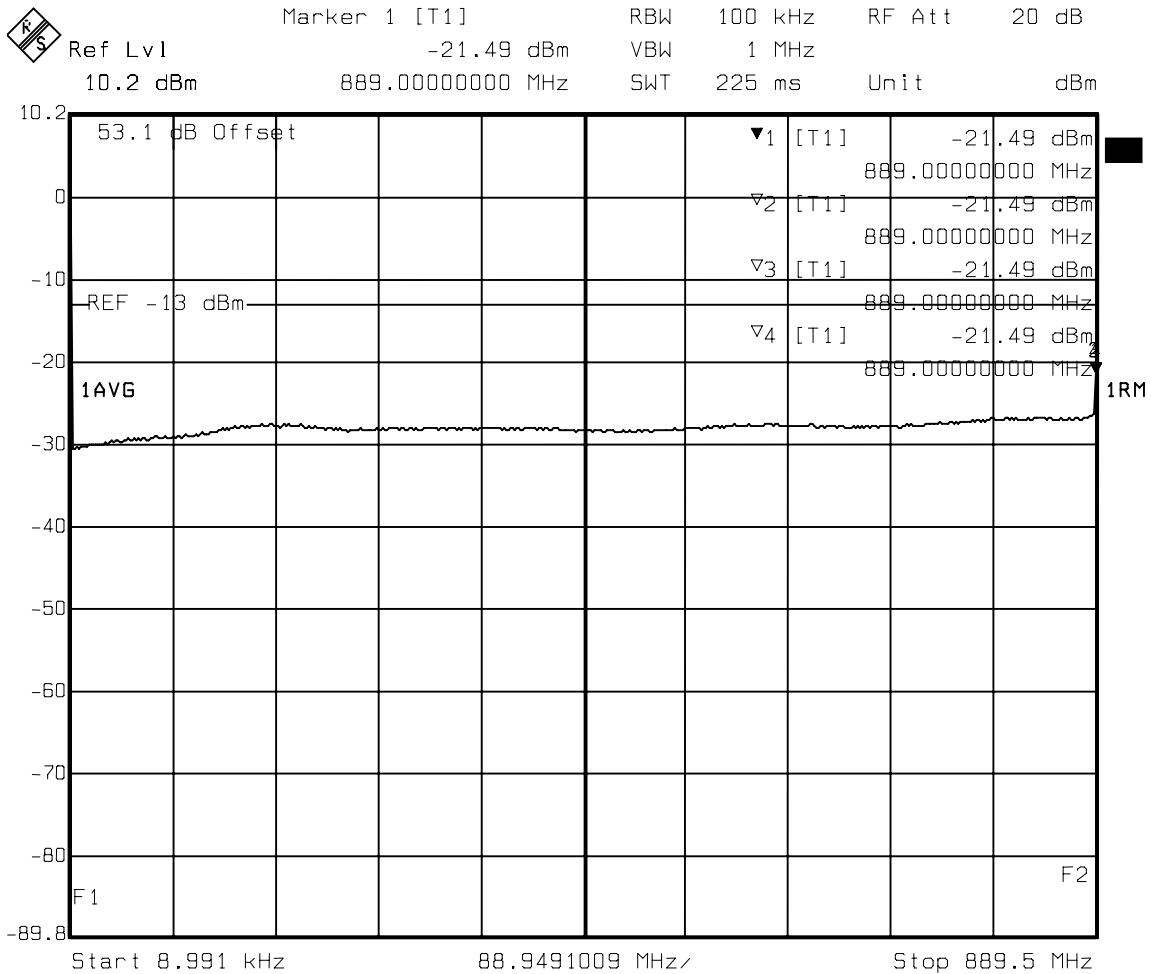
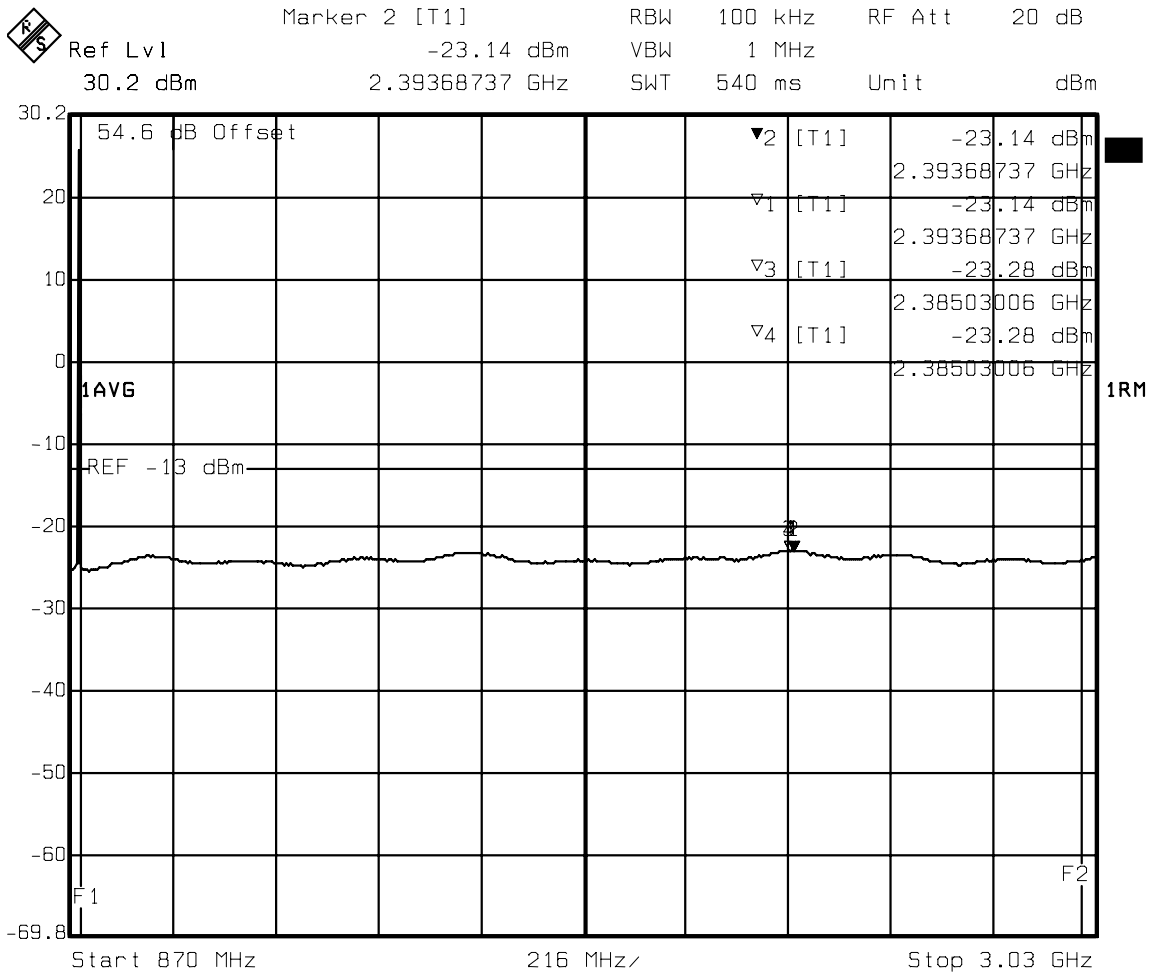


Figure 46 : Conducted Spurious Emissions, A' Band, 1-Carrier, ch 692, IS-95, 9kHz to Lower Adjacent 1MHz range



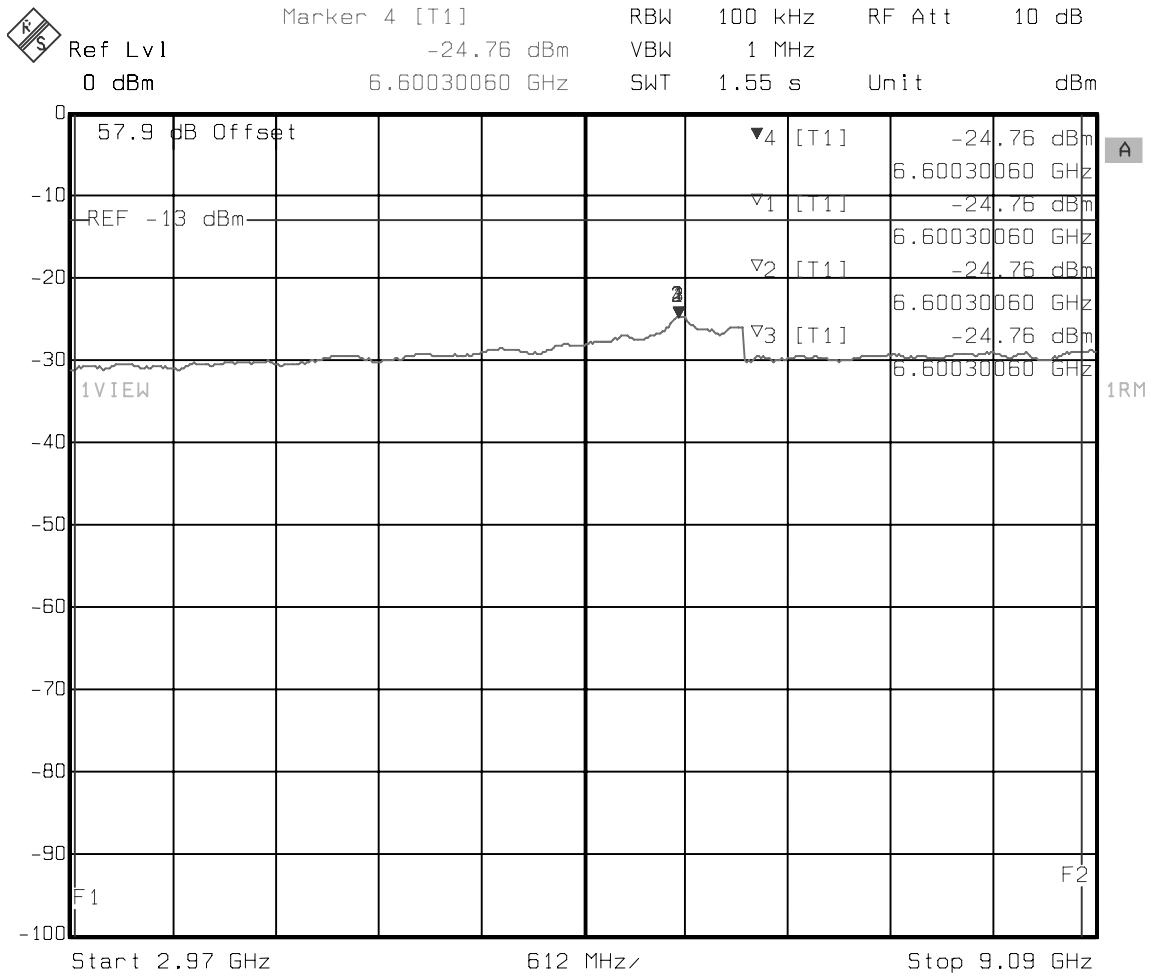
Title: 9kHz_(Low edge-1.0MHz)
 Comment A: Temp C 25
 Date: 08.JAN.2007 14:33:14

Figure 47 : Conducted Spurious Emissions, A' band, 1-Carrier, ch 692, IS-95, Upper Adjacent 1MHz to 3 GHz range



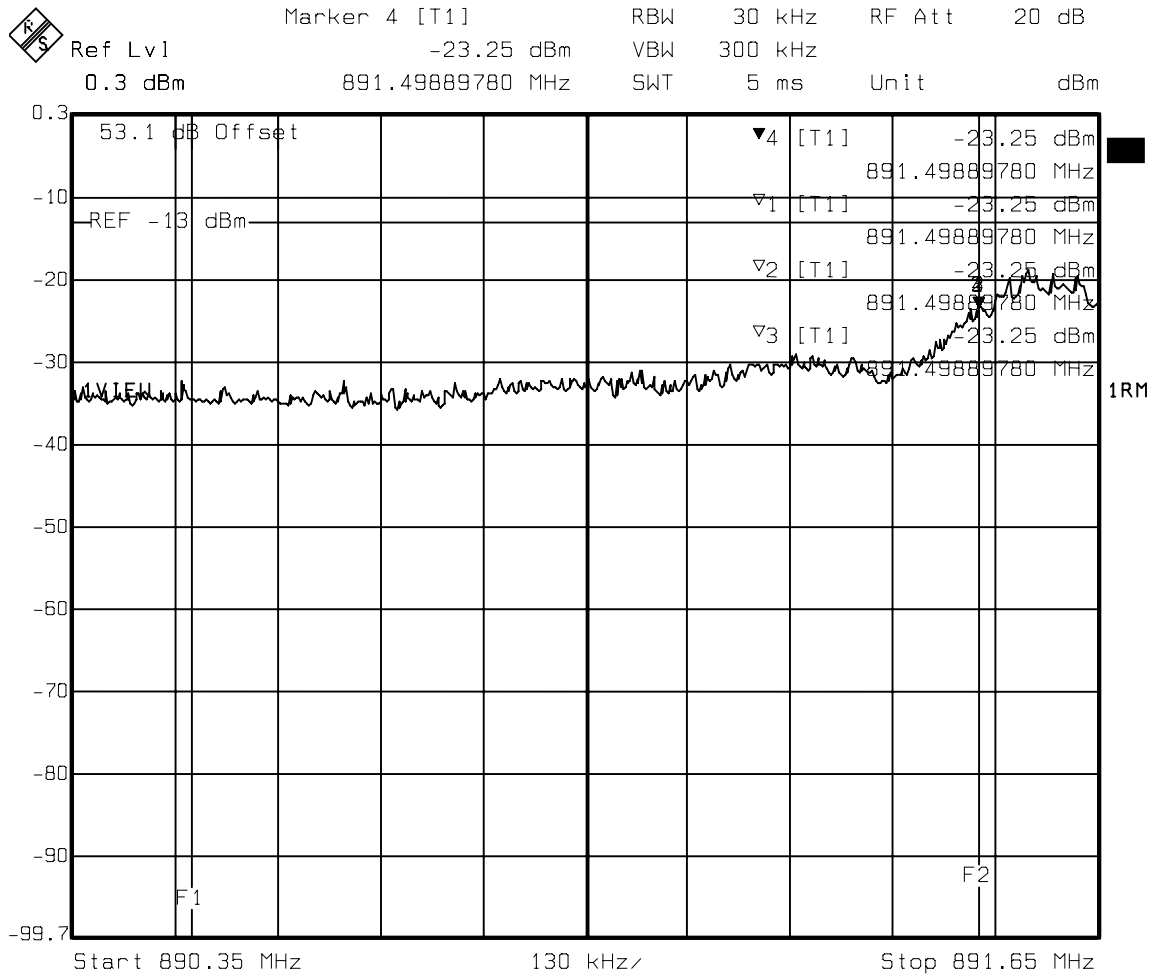
Date: 08.JAN.2007 14:27:29

Figure 48 : Conducted Spurious Emissions, A' band, 1-carrier, ch 692, IS-95, 3 GHz to 9 GHz range



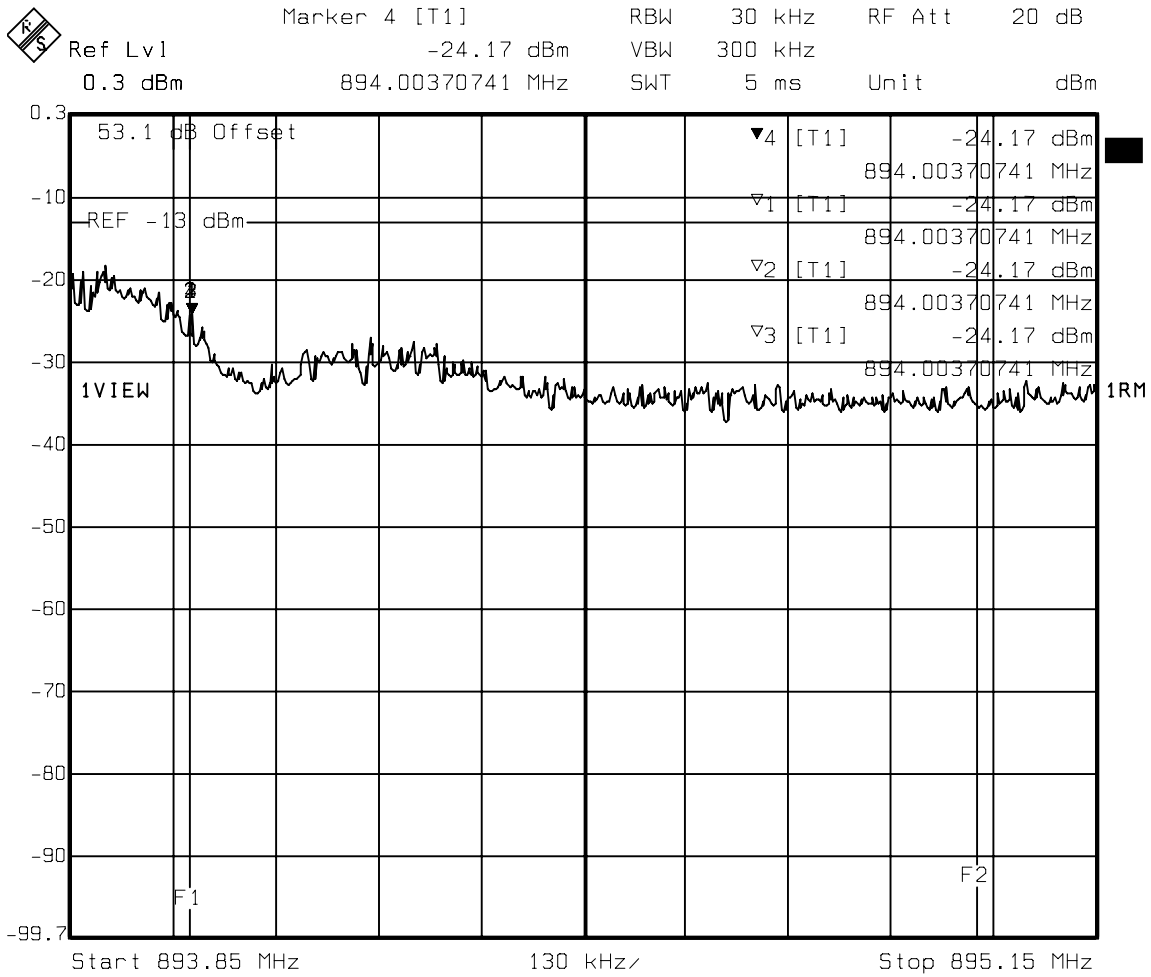
Title: Channel 692, 3 GHz to 9 GHz
 Comment A: Temp C 25
 Date: 11.DEC.2006 10:59:16

Figure 49 : Conducted Spurious Emissions, B' Band, 1-Carrier, ch 758, IS-95, Lower 1MHz Adjacent emissions



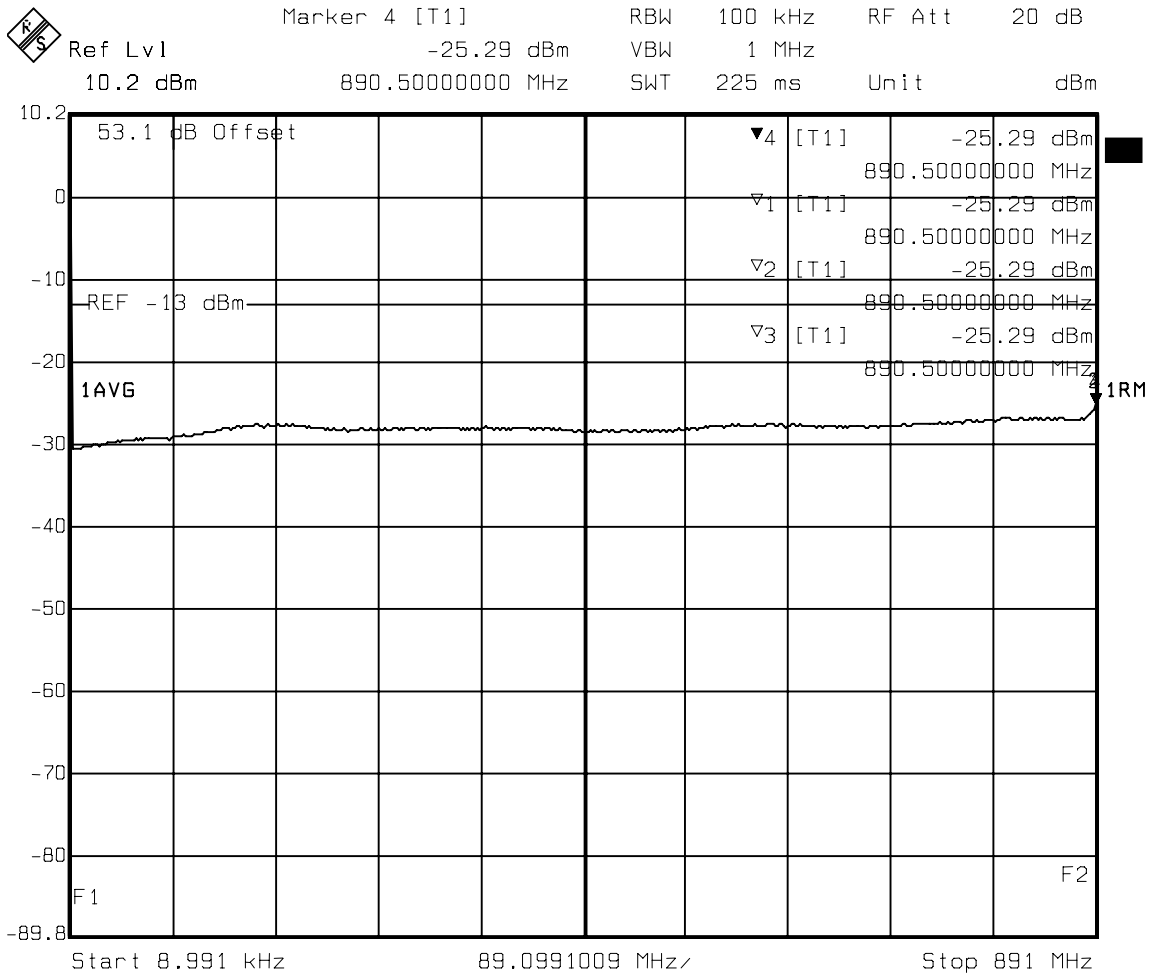
Title: (Lower edge - 1 MHz) to Lower edge
Date: 08.JAN.2007 17:39:07

Figure 50 : Conducted Spurious Emissions, B' Band, 1-Carrier, ch 758, IS-95, Upper 1MHz Adjacent emissions



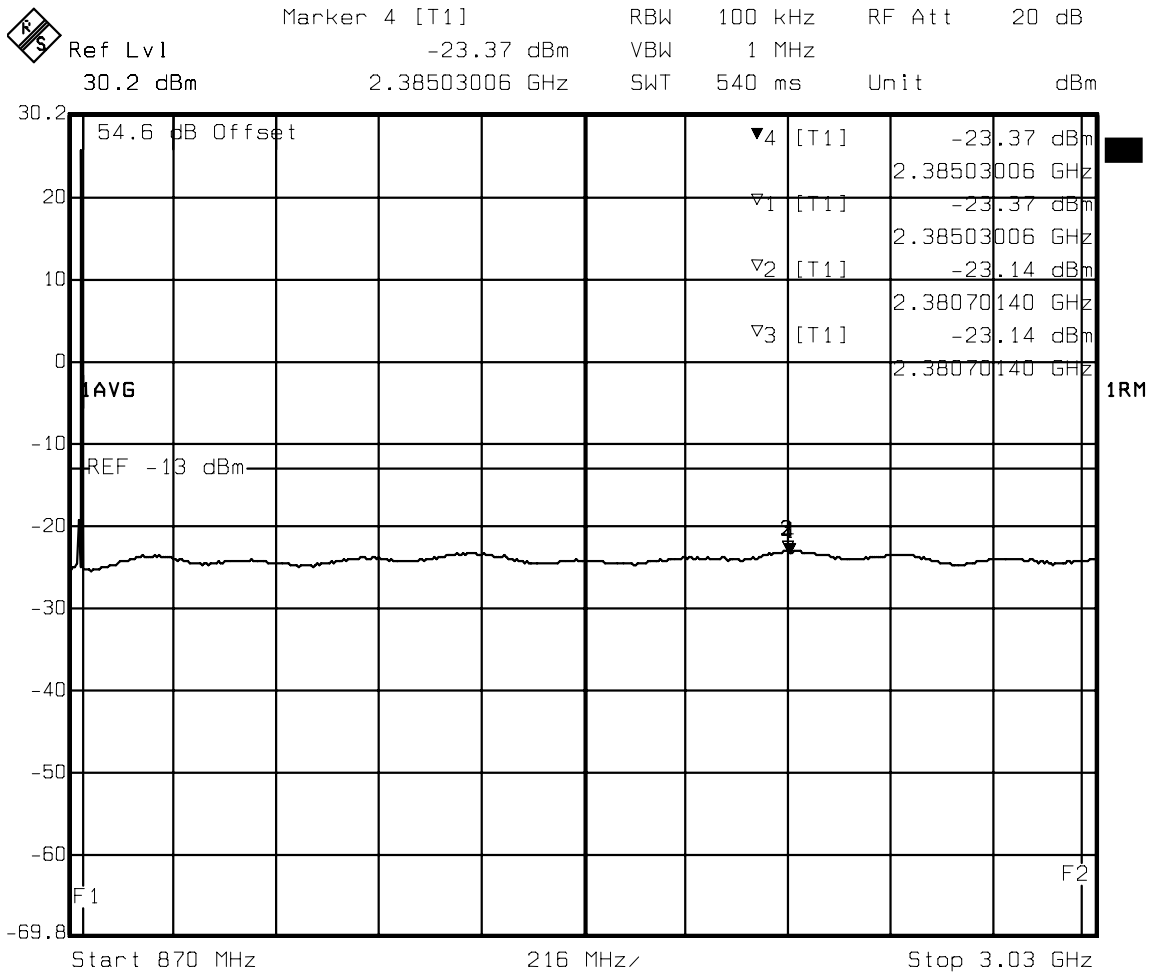
Title: Upper edge to (Upper edge + 1 MHz)
 Date: 08.JAN.2007 17:41:11

Figure 51 : Conducted Spurious Emissions, B' Band, 1-Carrier, ch 758, IS-95, 9kHz to Lower Adjacent 1MHz



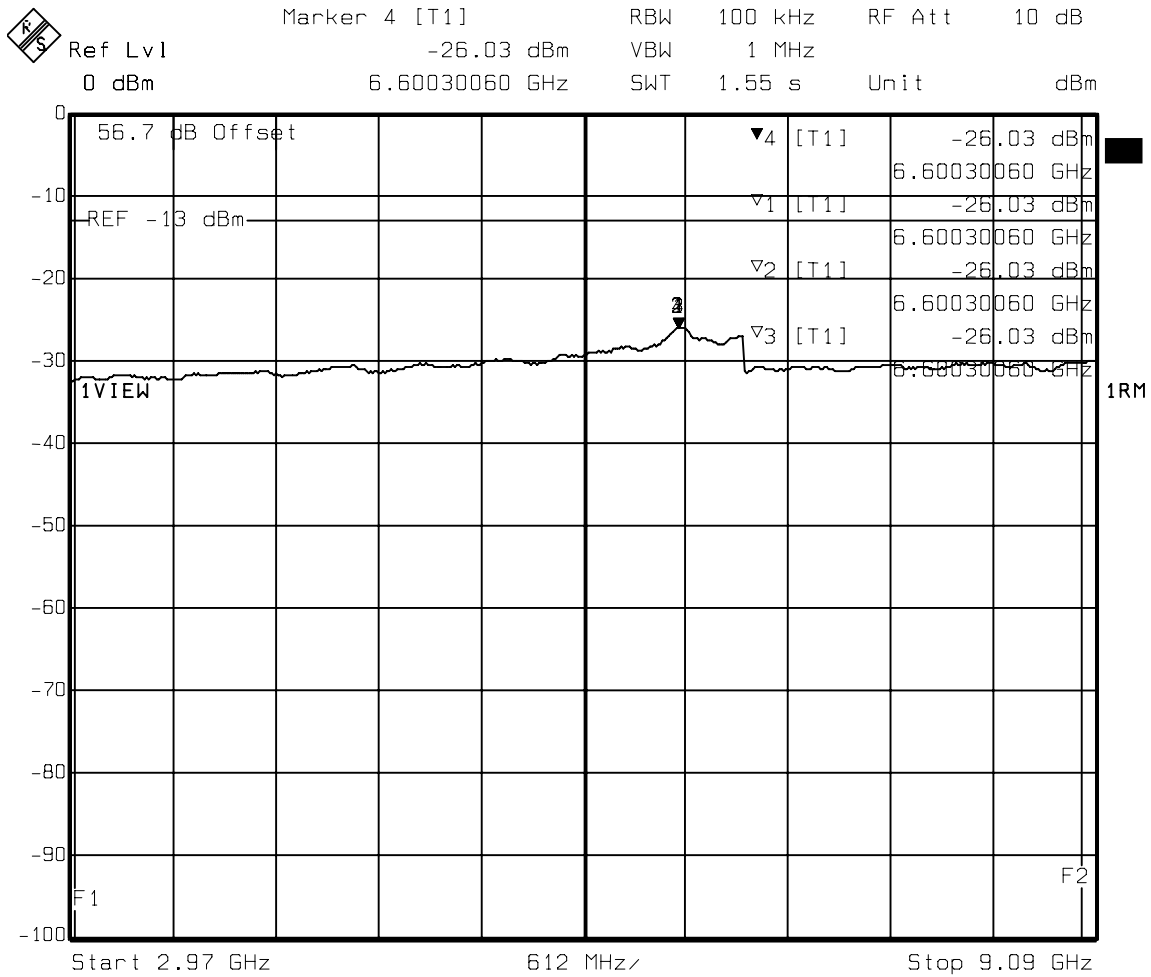
Title: 9kHz_(Low edge-1.0MHz)
 Comment A: Temp C 25
 Date: 08.JAN.2007 17:35:06

Figure 52 : Conducted Spurious Emissions, B' Band, 1-Carrier, ch 758, IS-95, Upper Adjacent 1MHz to 3GHz range



Date: 08.JAN.2007 17:42:49

Figure 53 : Conducted Spurious Emissions, B' band, 1-carrier, ch 758, IS-95, 3GHz to 9GHz range



Title: Channel 758, 3 GHz to 9 GHz
 Comment A: Temp C 25
 Date: 19.DEC.2006 12:42:28

Figure 54 : Conducted Spurious Emissions, B B' Band, 2-Carrier, ch 630, 758, IS-95, Lower 1MHz Adjacent emissions

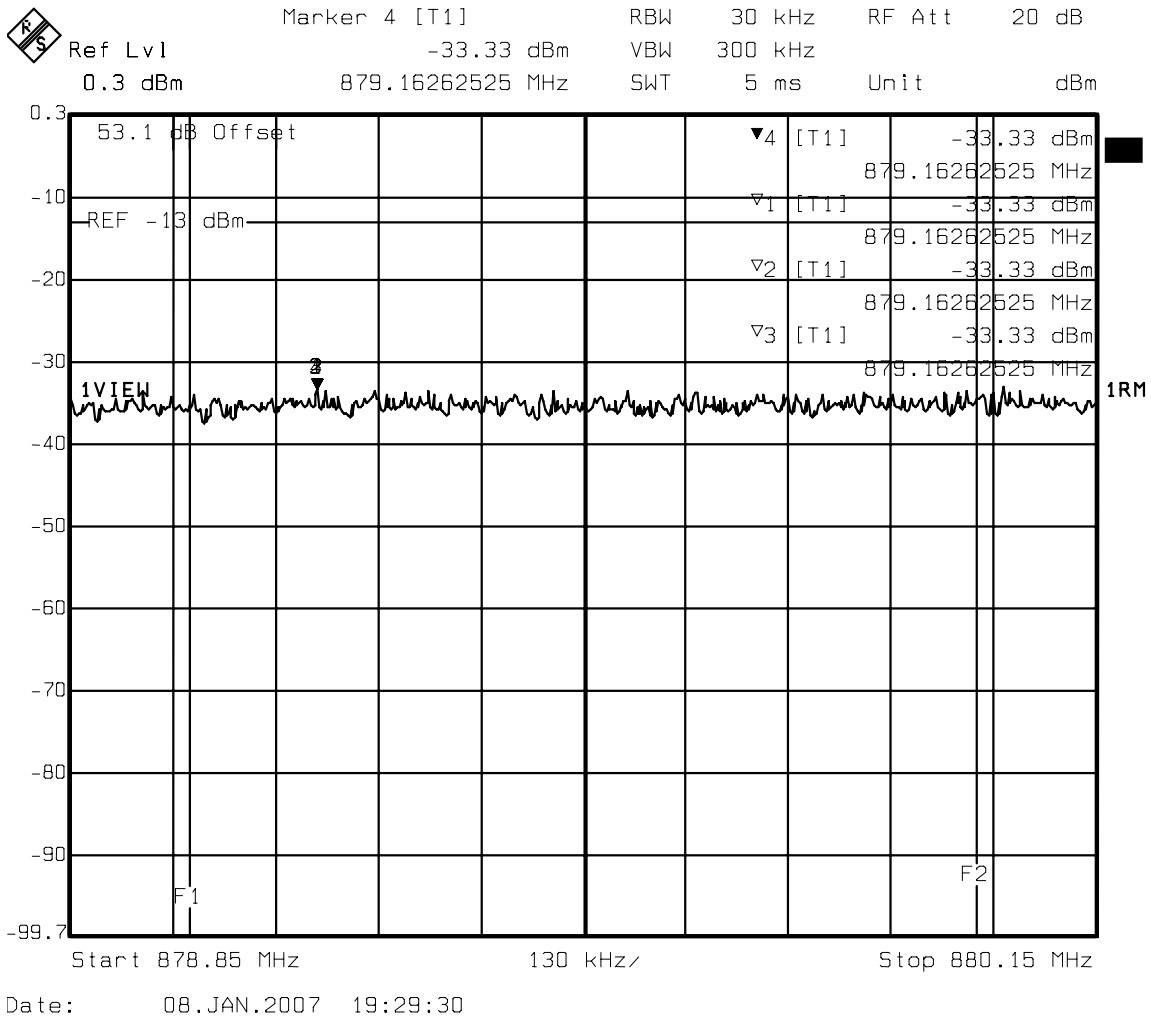
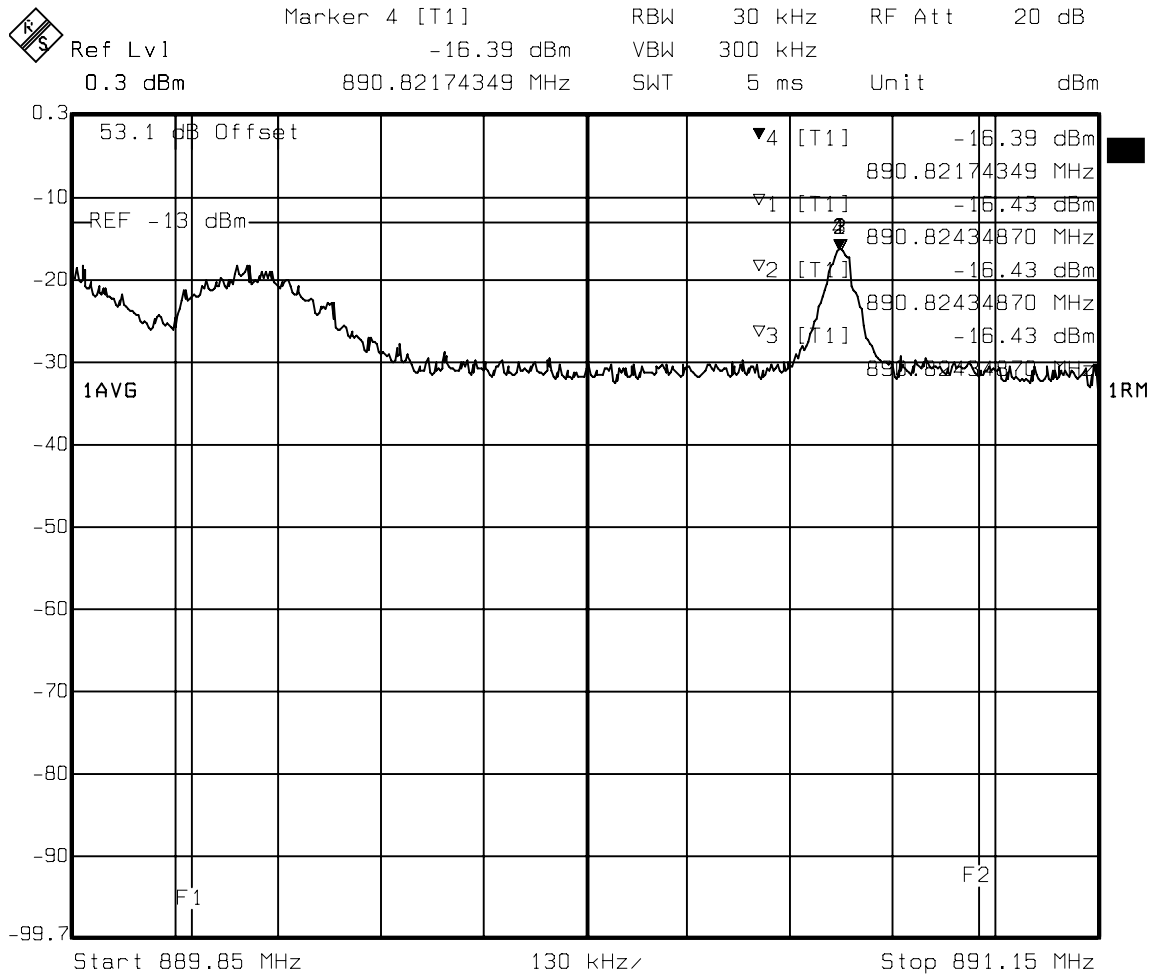
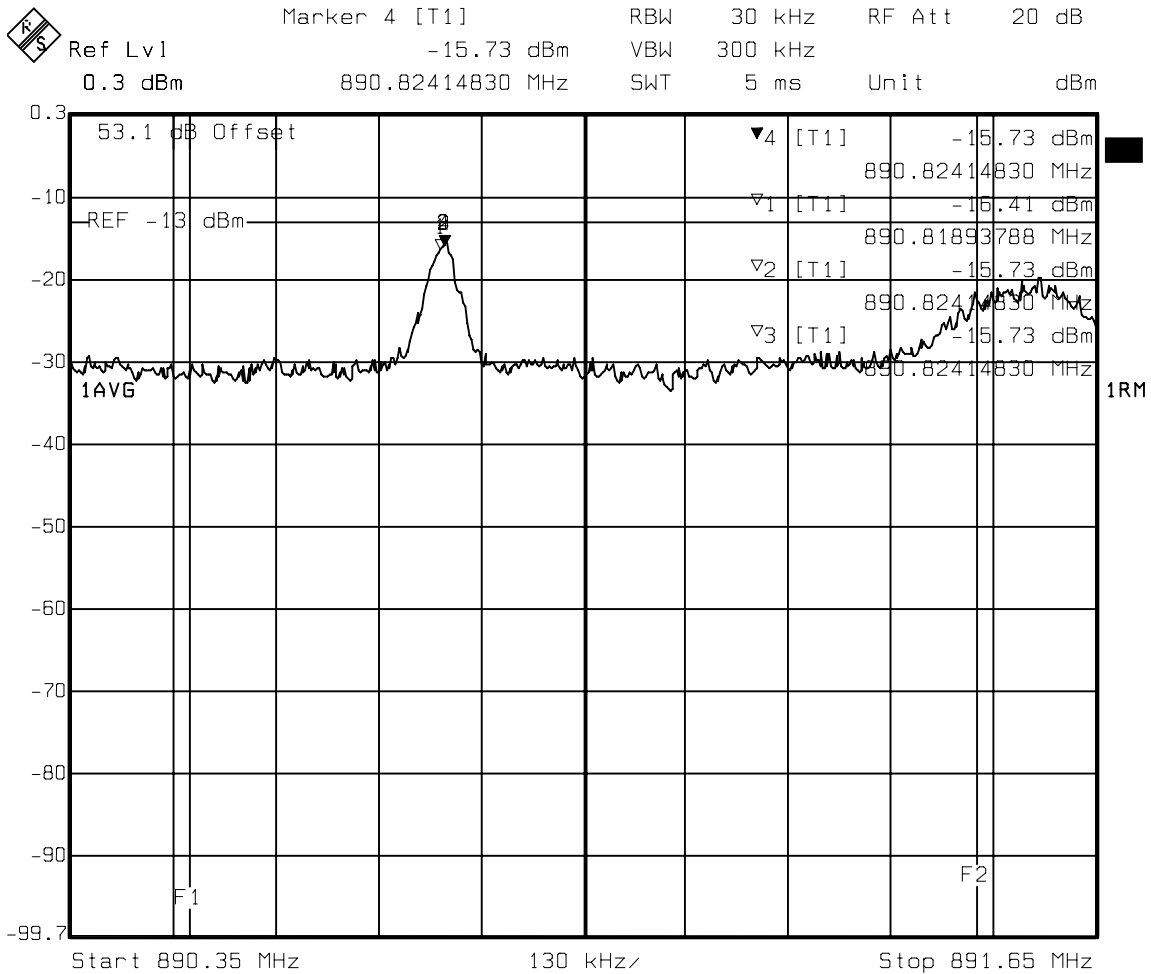


Figure 55 : Conducted Spurious Emissions, B B' Band, 2-Carrier, ch 630, 758, IS-95, B Band Upper 1MHz Adjacent emissions



Title: Upper edge to (Upper edge + 1 MHz)
Date: 08.JAN.2007 19:31:02

Figure 56 : Conducted Spurious Emissions, B B' Band, 2-Carrier, ch 630, 758, IS-95, B' Band Lower 1MHz Adjacent emissions



Title: (Lower edge - 1 MHz) to Lower edge
 Date: 08.JAN.2007 19:33:28

Figure 57 : Conducted Spurious Emissions, B B' Band, 2-Carrier, ch 630, 758, IS-95, Local Oscillator Leakage

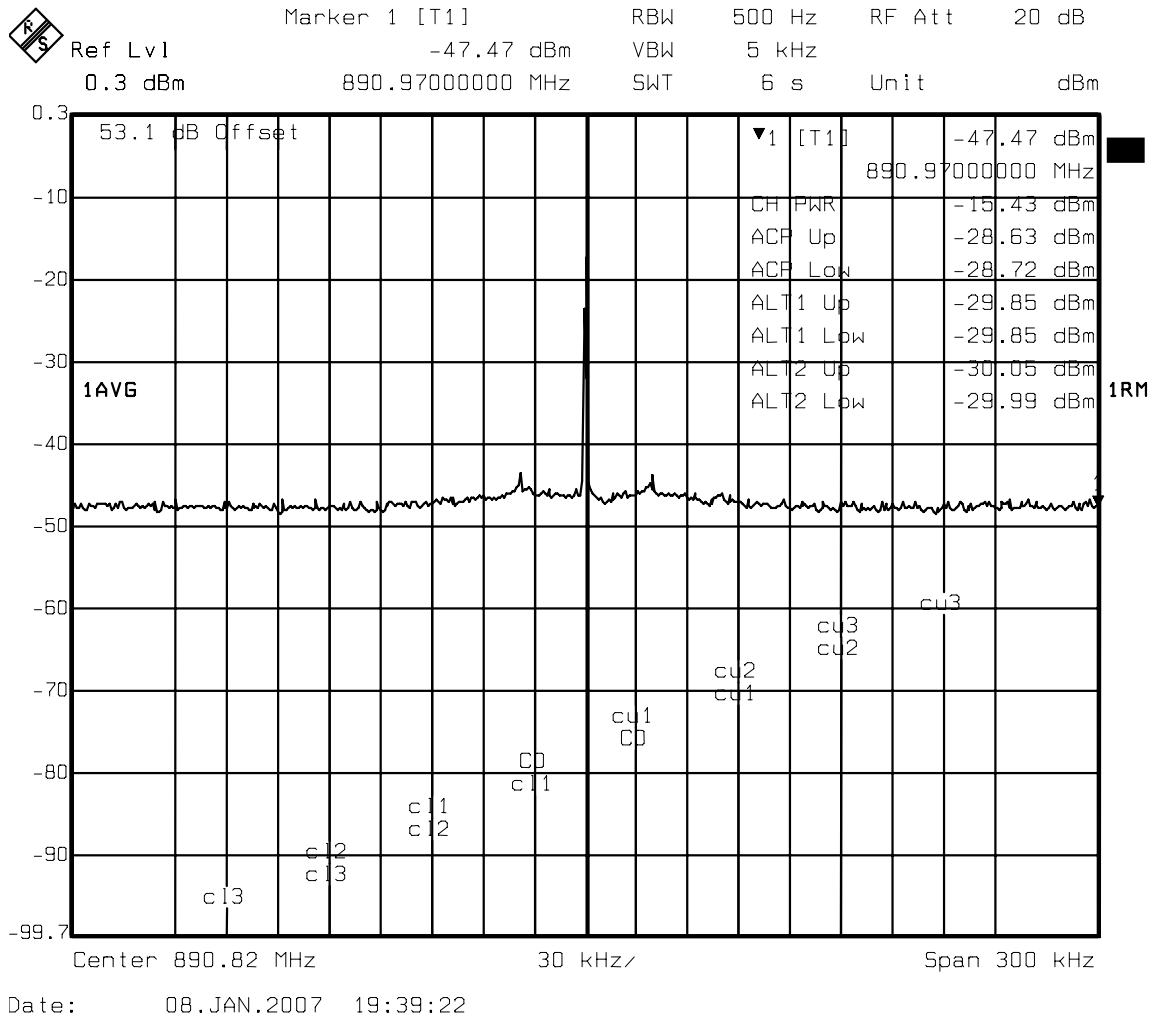
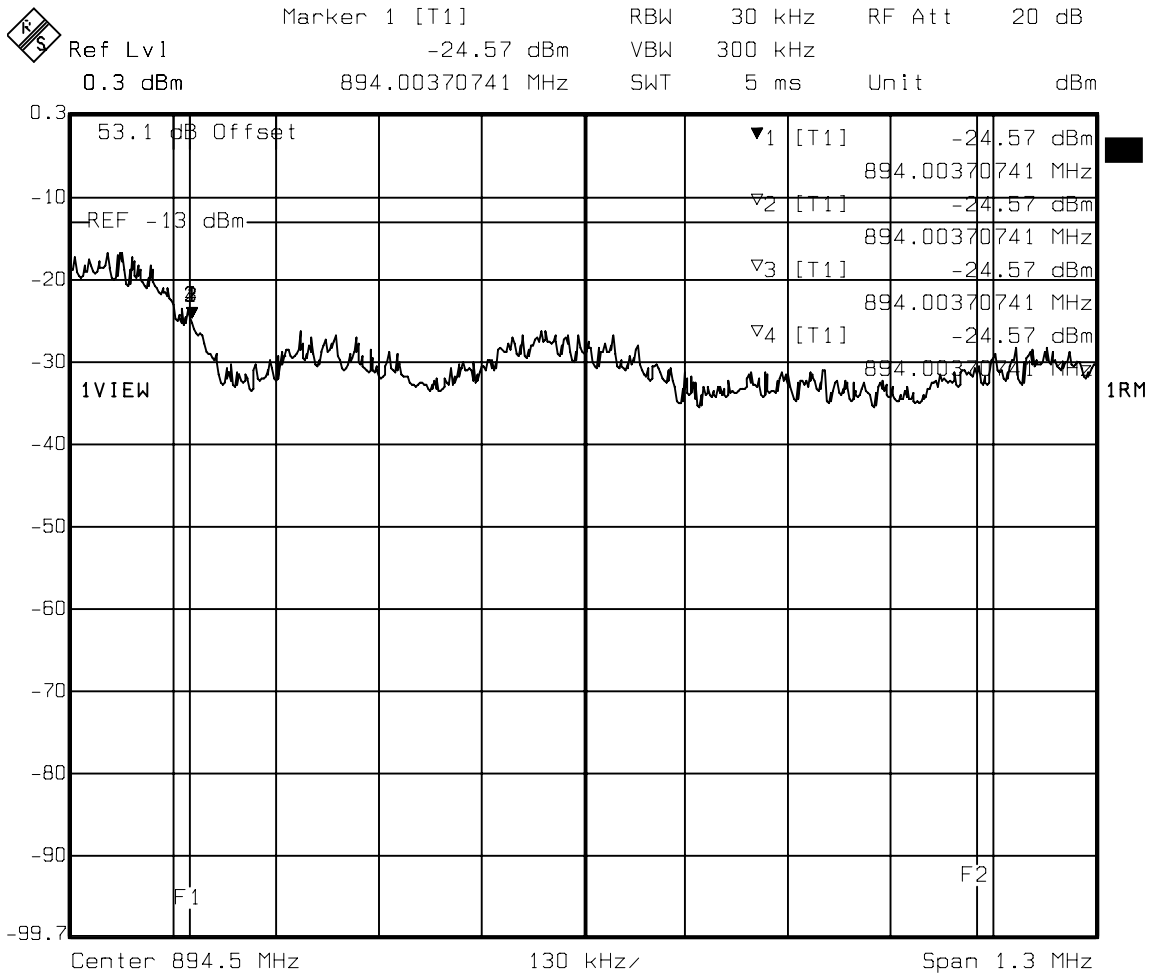
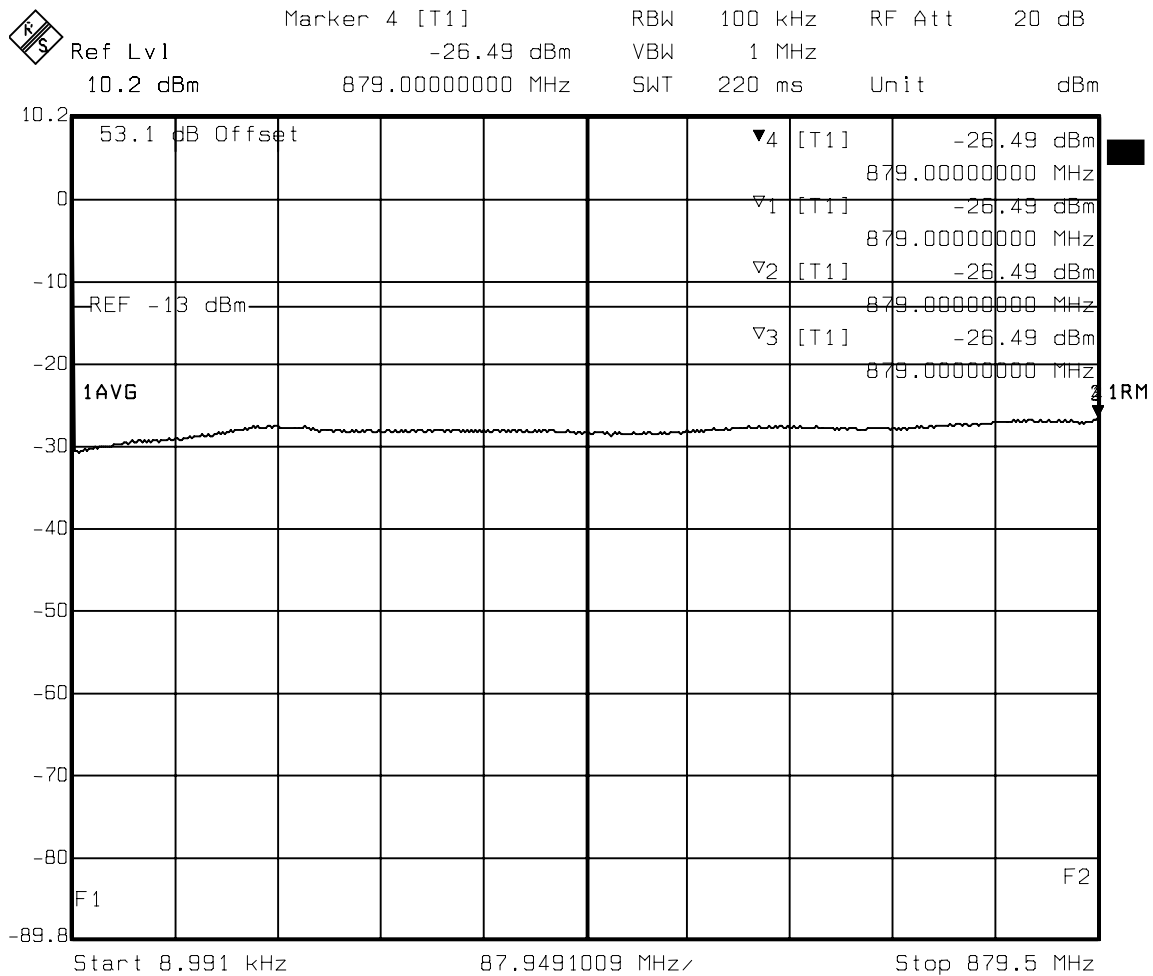


Figure 58 : Conducted Spurious Emissions, B B' Band, 2-Carrier, ch 630, 758, IS-95, B' Band Upper 1MHz Adjacent emissions



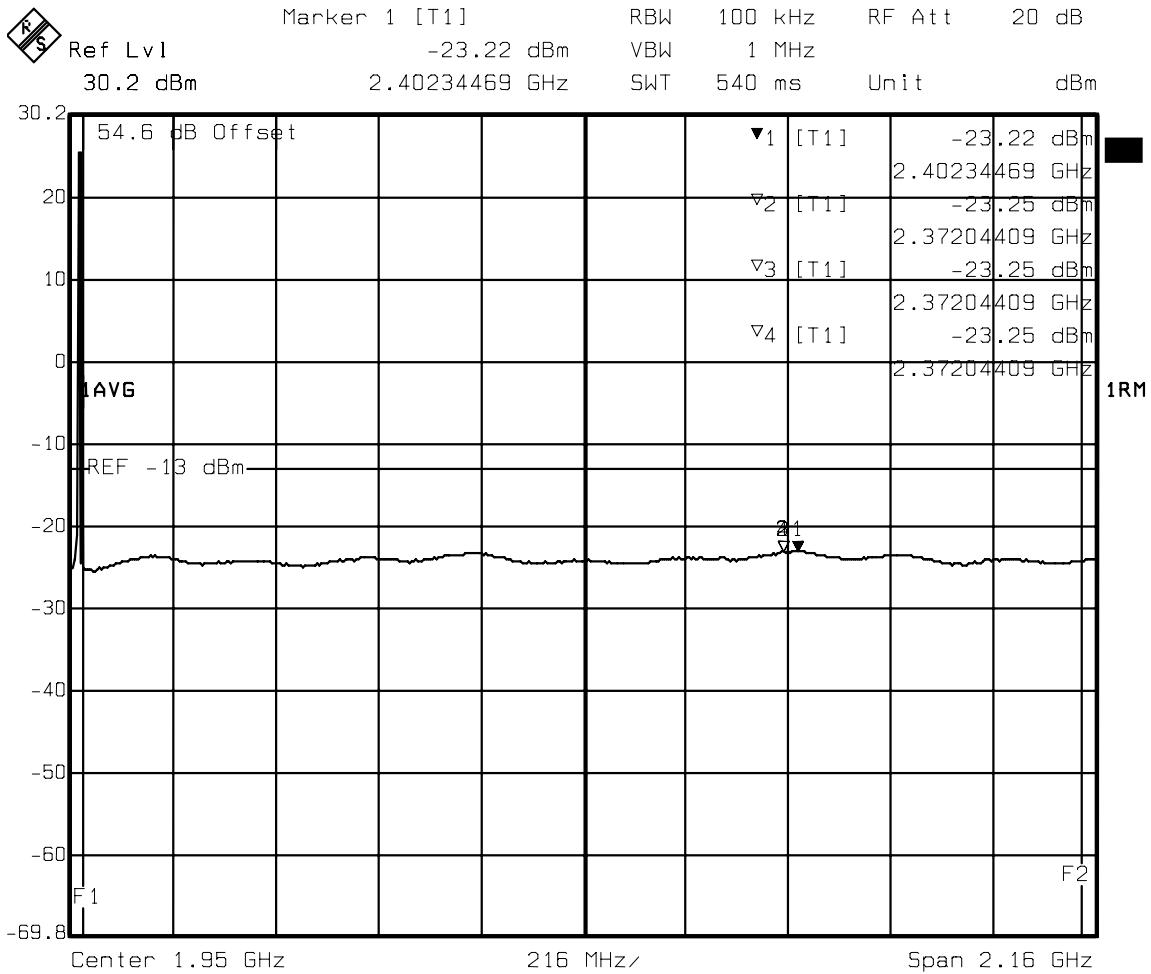
Title: Upper edge to (Upper edge + 1 MHz)
 Date: 08.JAN.2007 19:41:08

Figure 59 : Conducted Spurious Emissions, B B' Band, 2-Carrier, ch 630, 758, IS-95, 9kHz to Lower Adjacent 1 MHz



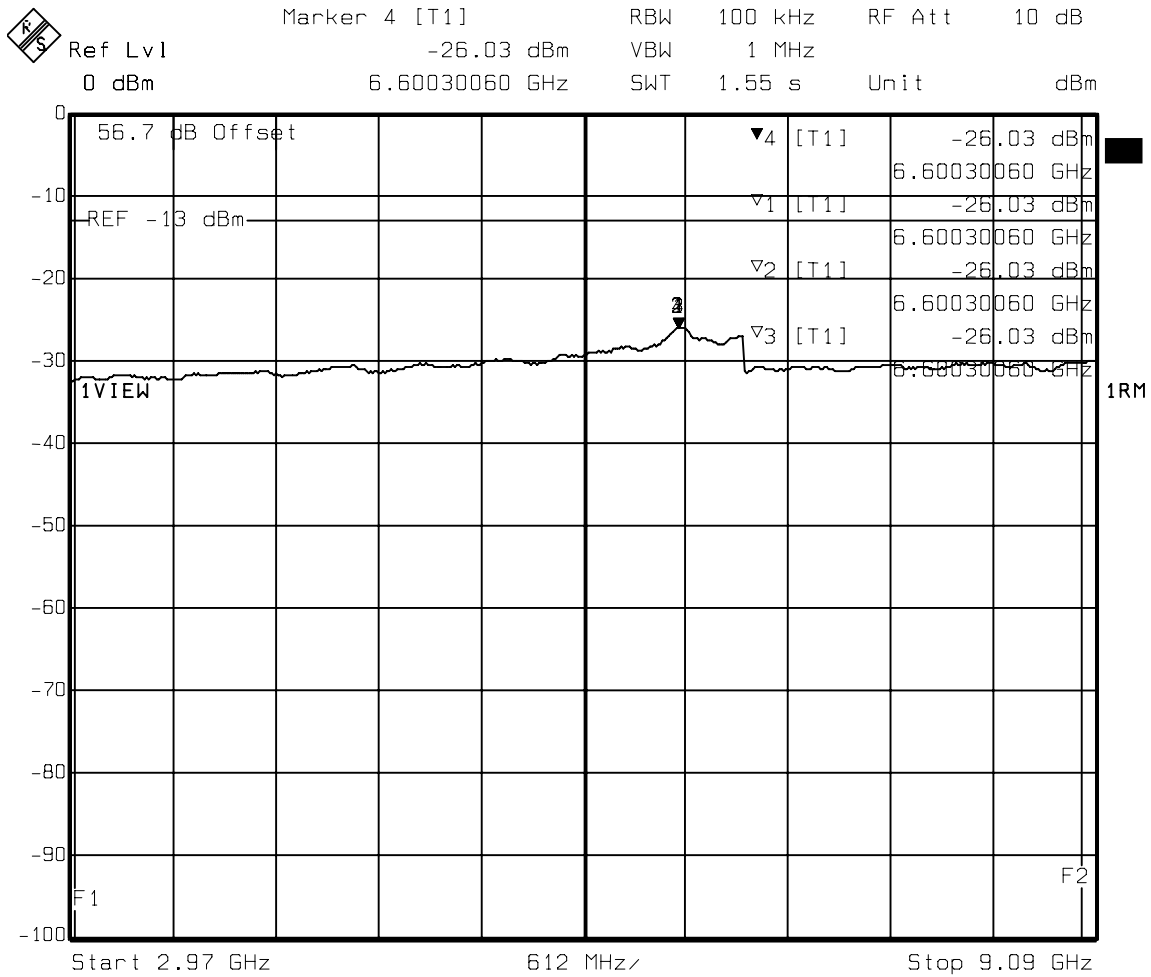
Title: 9k to (Lower limit - 1MHz)
 Comment A: Temp C 25
 Date: 08.JAN.2007 19:28:13

Figure 60 : Conducted Spurious Emissions, BB' band, 1 carrier, ch 630, 758, IS-95 Upper Adjacent 1MHz to 3 GHz range



Date: 08.JAN.2007 19:42:52

Figure 61 : Conducted Spurious Emissions, B B' Band, 2-carrier, ch 630, 758, IS-95, 3 GHz to 9 GHz range



Title: Channel 758, 3 GHz to 9 GHz
 Comment A: Temp C 25
 Date: 19.DEC.2006 12:42:28

Conducted Spurious Emissions Plots - Industry Canada Test Results

Figure 62 : 750 kHz offsets single-carrier, channel 1019

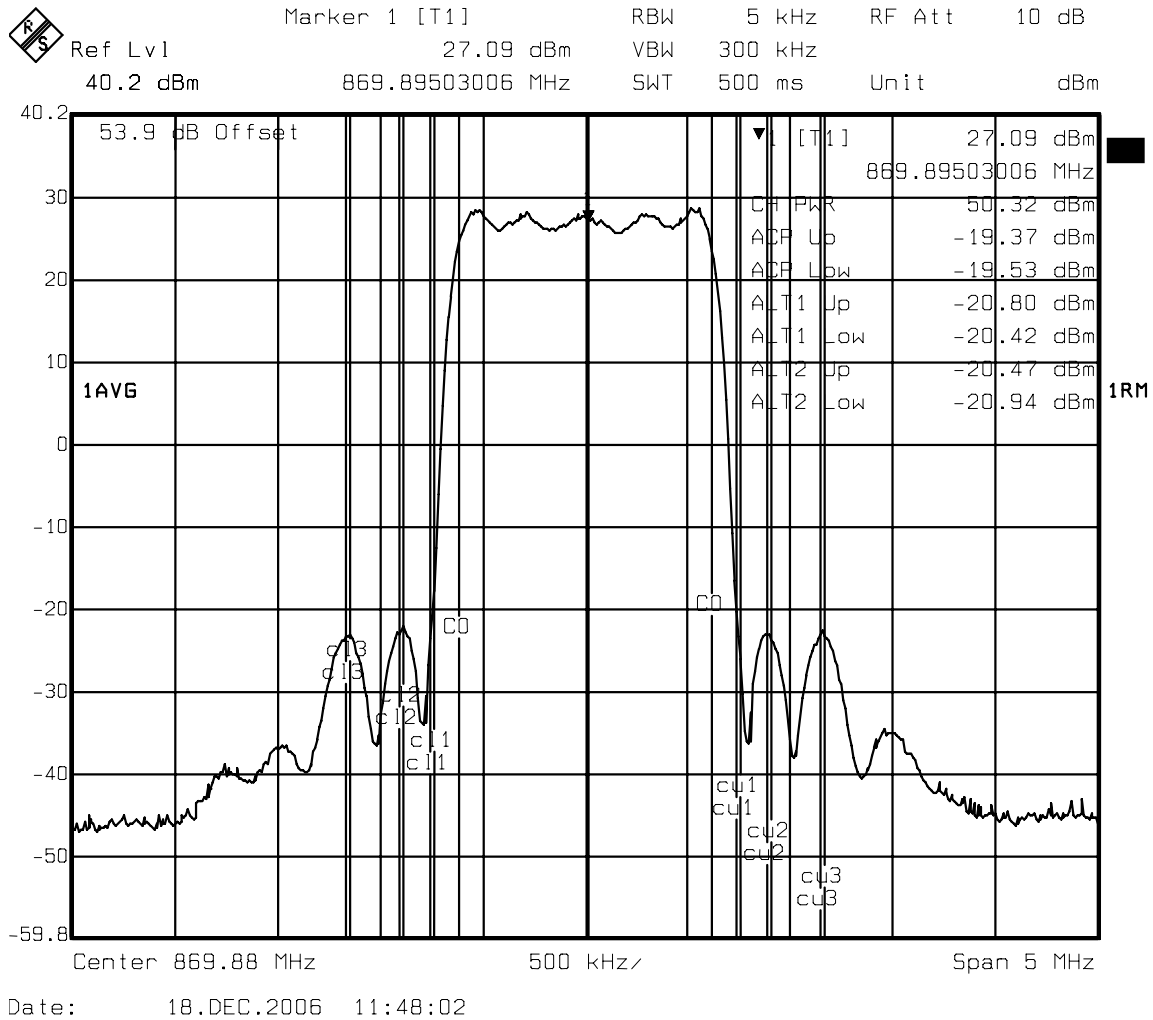
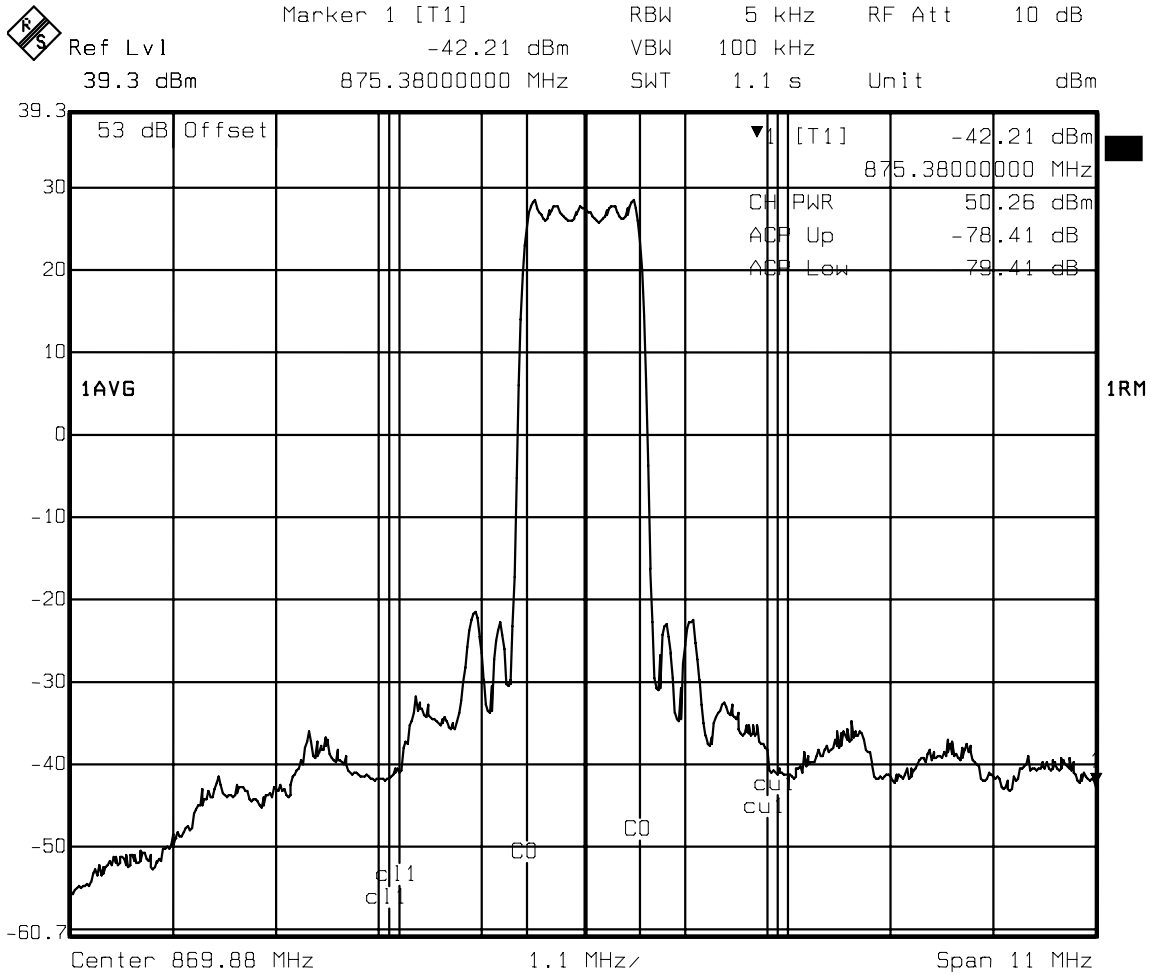
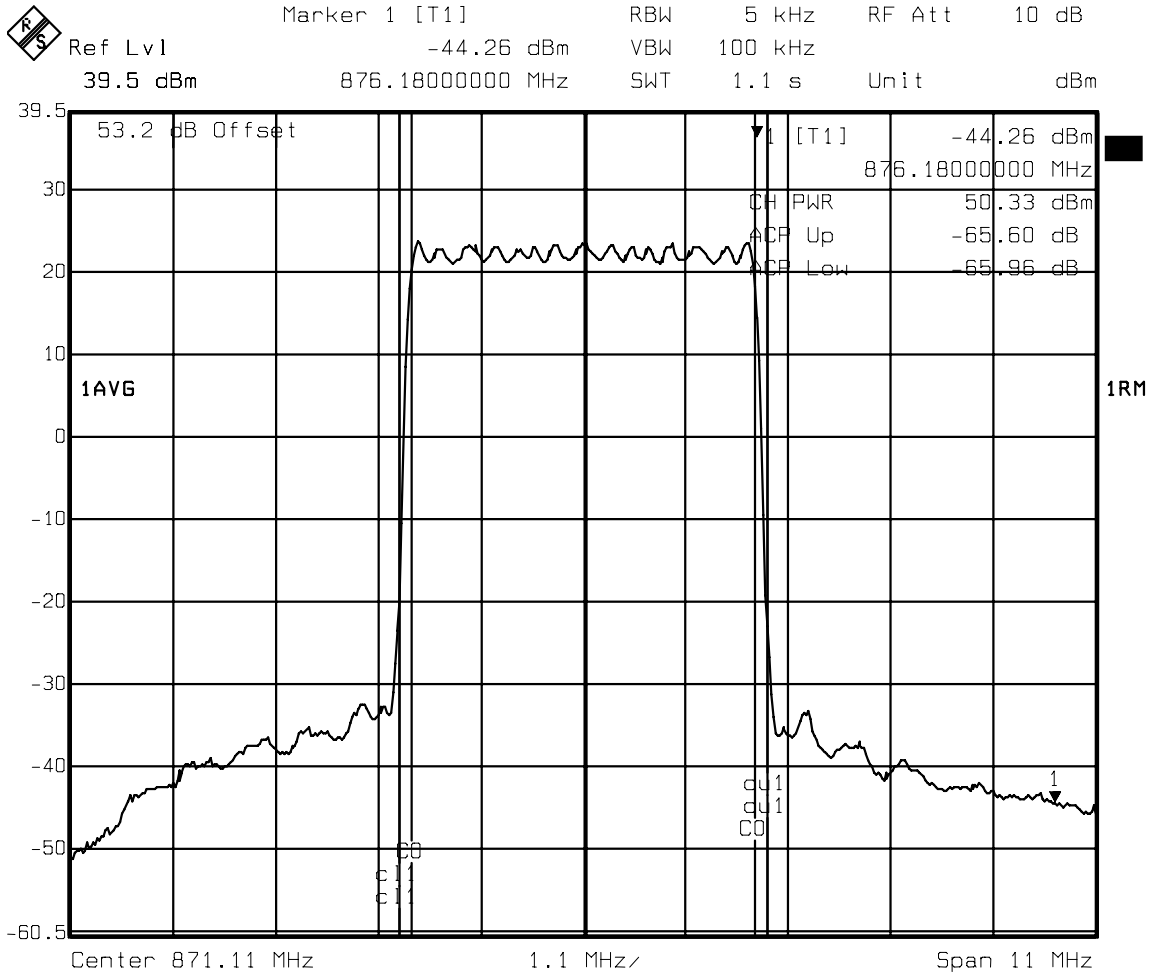


Figure 63 : 1.98 MHz offsets single-carrier, channel 1019



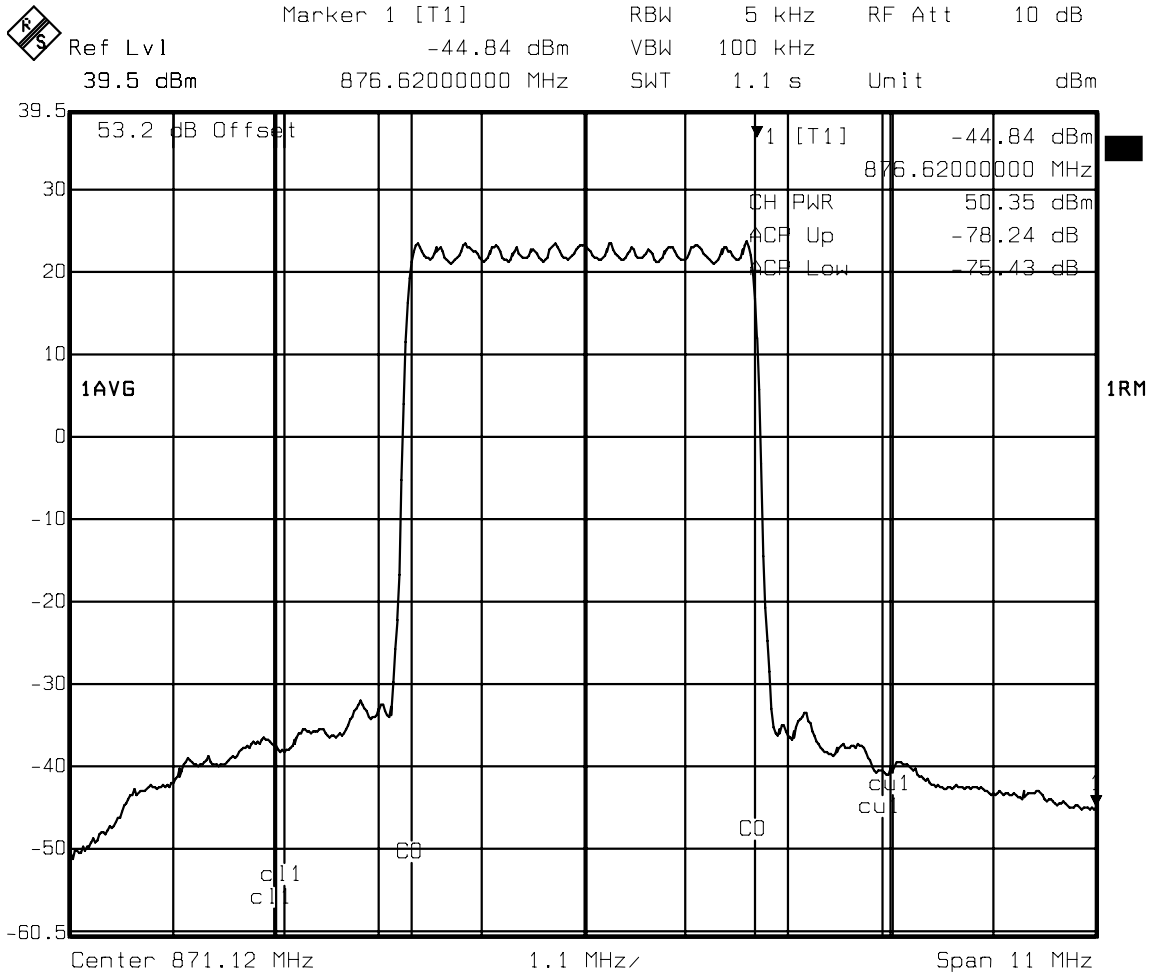
Date: 14.DEC.2006 13:30:46

Figure 64 : 750 kHz offsets 3-carrier, channel 1019-37-78, IS-95



Date: 14.DEC.2006 13:14:40

Figure 65 : 1.98 MHz offsets 3-carrier, channel 1019-37-78, IS-95



Date: 14.DEC.2006 13:17:41

Figure 66 : 750 kHz offsets single-carrier, channel 363, IS-856 QPSK

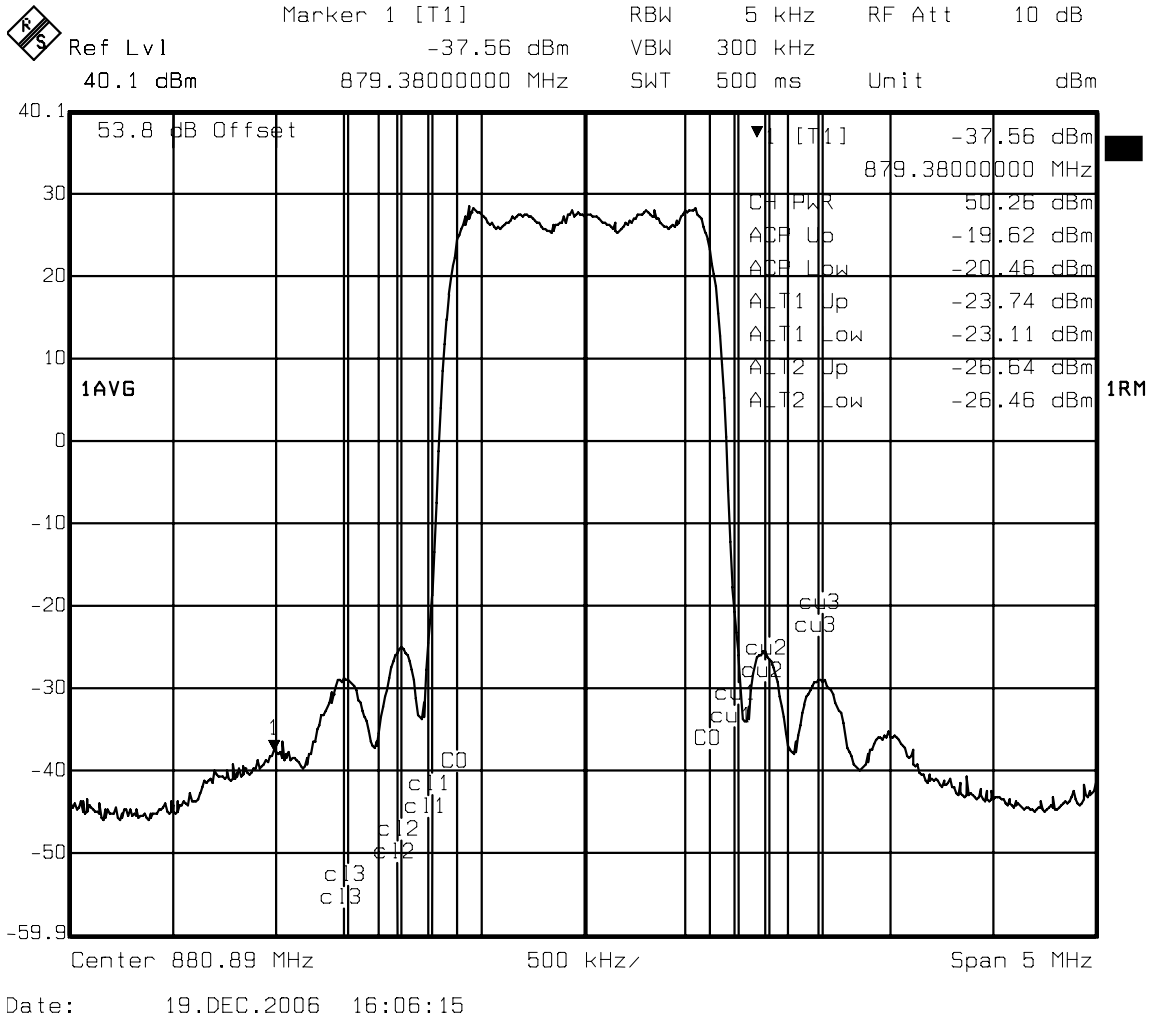


Figure 67 : 1.98 MHz offsets single-carrier, channel 363, IS-856 QPSK

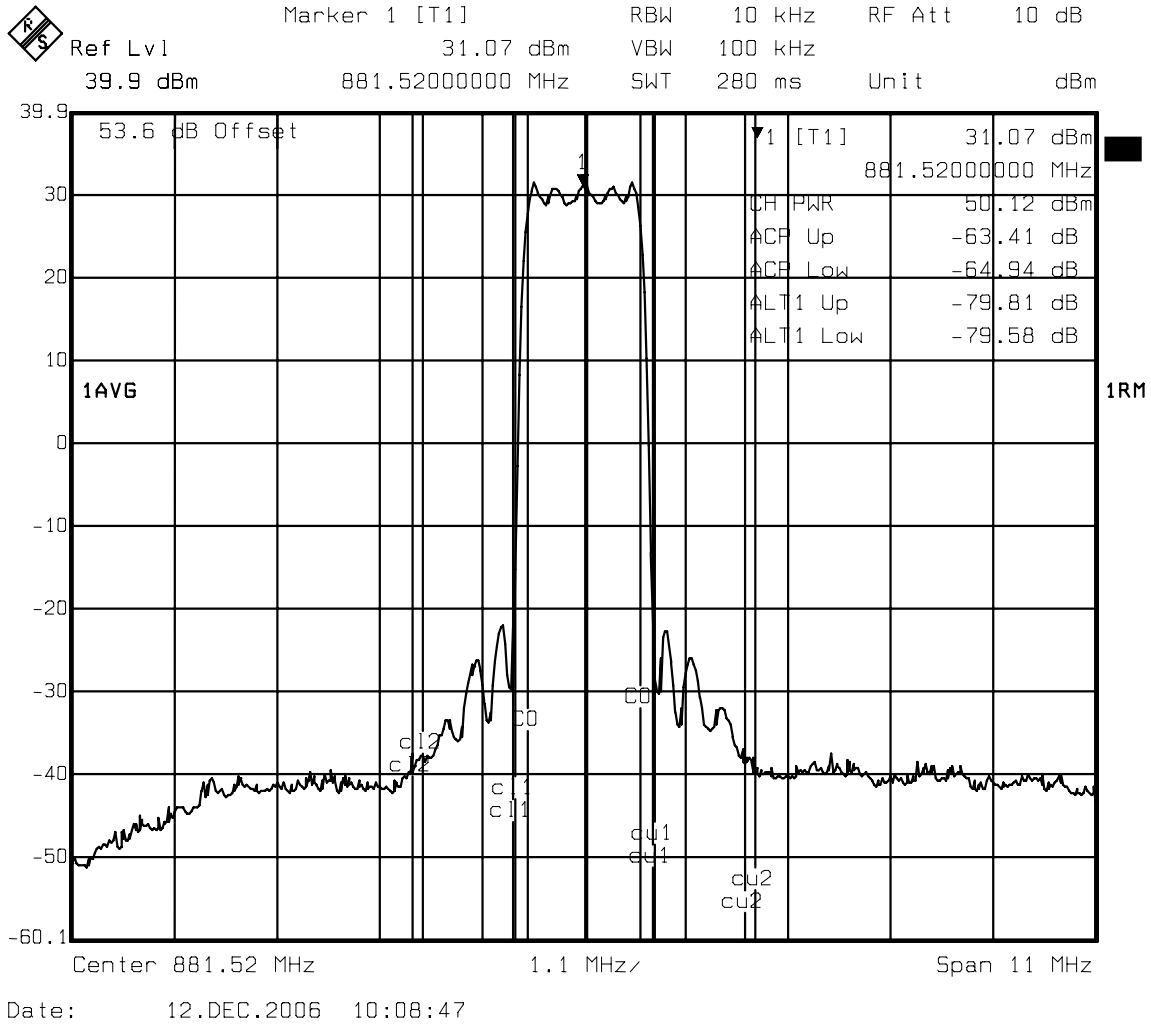
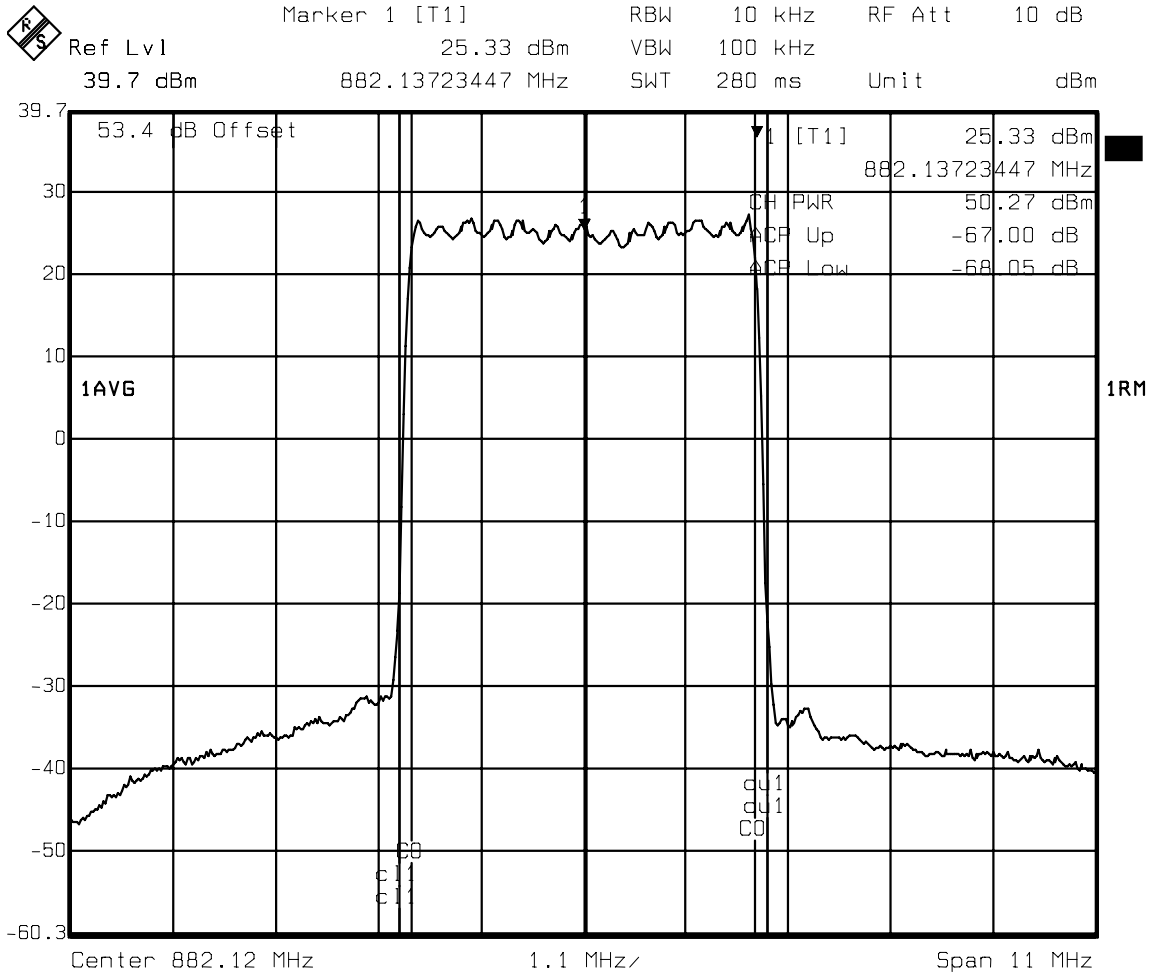
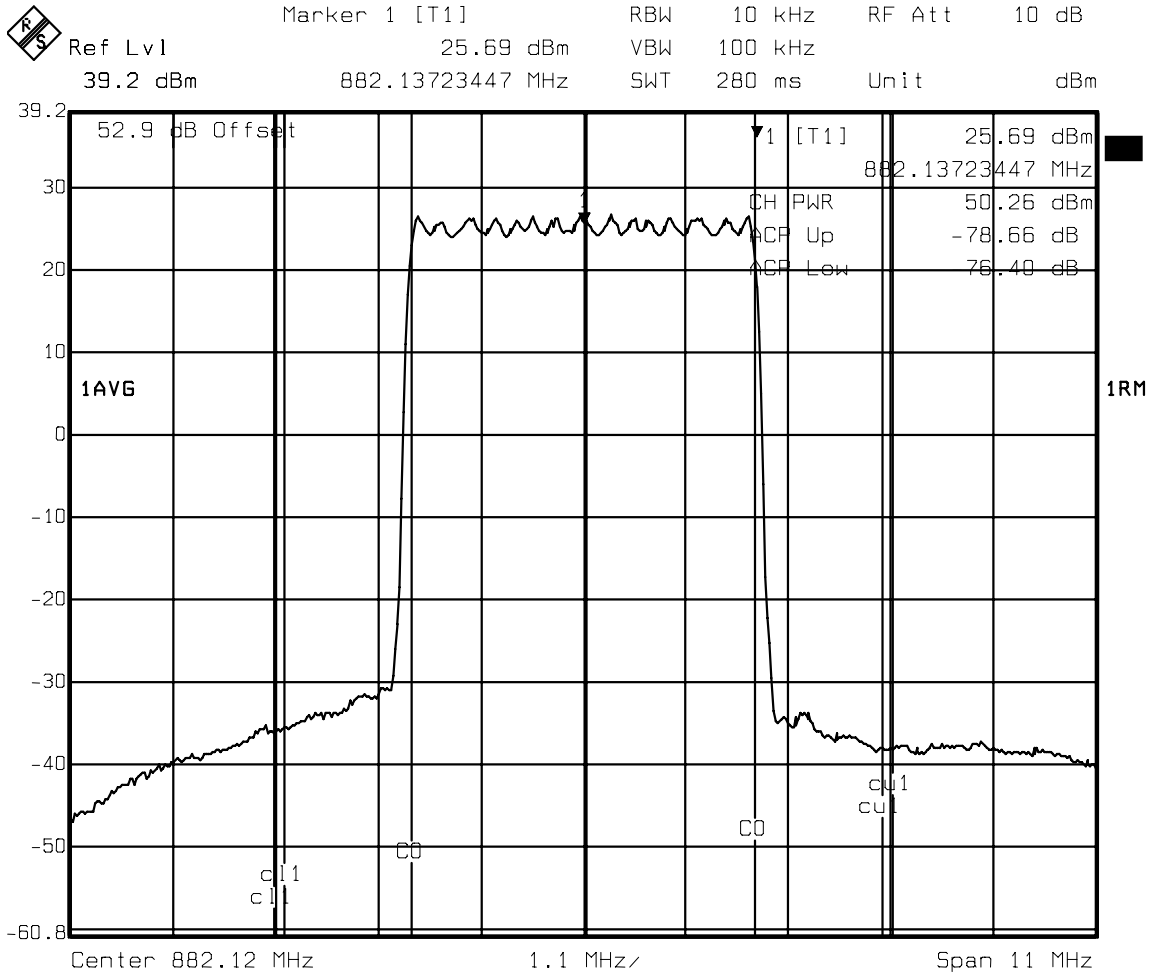


Figure 68 : 750 kHz offsets 3-carrier, channel 363-404-445, IS-856 8PSK



Date: 13.DEC.2006 15:30:15

Figure 69 : 1.98MHz offsets 3-carrier, channel 363-404-445, IS-856 8PSK



Date: 13.DEC.2006 15:51:28

Figure 70 : 750 kHz offsets 3-carrier, channel 363-404 (IS-856 16QAM) and 445 (IS-95)

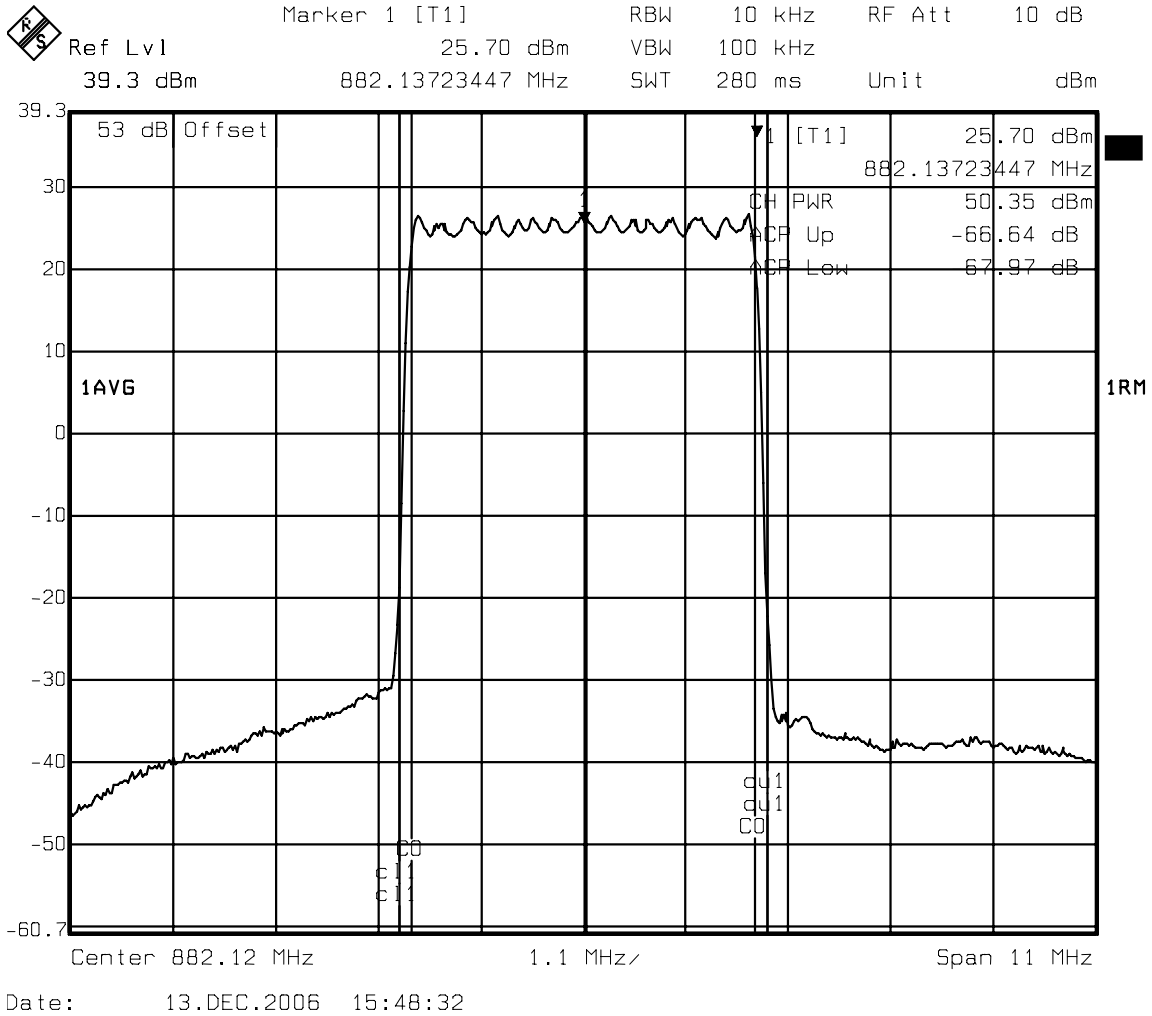


Figure 71 : 1.98 MHz offsets 3-carrier, channel 363-404 (IS-856 16QAM) and 445 (IS-95)

