Certification Test Report

CFR 47 FCC Part 22, Subpart H
CFR 47 FCC Part 2, Subpart J
Industry Canada RSS 129

Star Solutions iCell 1xRTT +DOrA Macro BSS 800MHz

FCC ID # S52-5-02-00-07-1
IC ID # 8076A-50200071

Project Code CG-1147

(Report CG-1147-RA-1-3)
Revision: 3

(This report supersedes CG-1147-RA-1-2)

February 10, 2010

Prepared for:	Star Solutions
Author:	Daryl Therens Senior Test Specialist
Approved by:	Nick Kobrosly Director of Canadian Operations

Report Summary

Test Facility:	**National Technical Systems, Canada** Product Integrity Laboratory 5151-47th Street, NE Calgary Alberta T3J 3R2
Accreditation Numbers:	0214.22 Electrical 0214.23 Mechanical Accredited by A2LA The American Association for Laboratory Accreditation CLIENTS SERVED: All interested parties FIELDS OF TESTING: Electrical/Electronic, Mechanical/Physical ACCREDITATION DATE:: May 14, 2009 VALID TO: February 28, 2010
Applicant:	Star Solutions 120 – 4600 Jacombs Road Richmond, BC, Canada V6V 3B1
Customer Representative:	Name: Azadeh Farzin Phone #: (604) 276-0055, x244 Email Address: azadeh.farzin@starsolutions.com

EUT Description[1]

EUT Description	Manufacturer	Model	Revision	Serial Number
iCell 1X + DOrA Macro BSS, 2F/3S 800MHz	Star Solutions	12231448GS	A3	16ZWY4SJ1LC1

[1] See section 2.1 for more detail.

Test Summary

Appendix	Test/Requirement Description	Deviations* from:			Pass / Fail	Applicable FCC Rule Parts	Applicable Industry Canada Rule Parts
		Base Standard	Test Basis	NTS Procedure			
A	RF Power Output	No	No	No	PASS	FCC 2.1046, 22.913,	RSS-129, 9.1, 9.2.3
B	Occupied Bandwidth (26dB emission bandwidth)	No	No	No	PASS	FCC 2.1049, 22.917,	N/A
B	Occupied Bandwidth (99% emission bandwidth)	No	No	No	PASS	N/A	RSS-Gen, 4.6.1
C	Conducted Spurious Emissions - Band Edge	No	No	No	PASS	FCC 2.1051, 22.917,	RSS-129, 8.1.2
C	Unwanted Emissions (offset frequencies > ± 750 kHz and > ± 1.98 MHz)	No	No	No	PASS	N/A	RSS-129, 8.1.2
C	Conducted Spurious Emissions	No	No	No	PASS	FCC 2.1051, 22.917,	RSS-129, 8.1.2
C	Receiver Spurious Emissions	No	No	No	PASS	N/A	RSS-129, 10
D	TX Frequency Stability	No	No	No	PASS	FCC 2.1055, 22.355,	RSS-129, 9.2.1
E	Field Strength of Spurious Emissions	No	No	No	PASS	FCC 2.1053, 22.917,	RSS-Gen, RSS-129, 10

Test Result: The product presented for testing complied with test requirements as shown above.

Prepared By: Daryl Therens 2010.02.10 14:58:25 -07'00'
Daryl Therens
Senior Test Specialist

Reviewed By: Digitally signed by Deniz Demirci
Reason: On behalf of Glen Moore
Date: 2010.02.11 09:38:00 -07'00'
Glen Moore
Wireless/EMC Manager

Approved By: Alex Mathews 2010.02.11 09:59:34 -07'00'
Alex Mathews
Quality Management Representative

Table of Contents

Register of Revisions

Revision	Date	Description of Revisions
1	January 20, 2010	Initial release for review
2	January 28, 2010	Updated section 2.1 after customer review
3	February 10, 2010	Updated after ATCB review

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to describe the tests applied by NTS Canada to demonstrate compliance of the iCell 1xRTT + DOrA Macro BSS 800 MHz from Star Solutions to FCC Part 22 Subpart H, FCC Part 2 Subpart J, and equivalent sections of Industry Canada's RSS-129, RSS-Gen.

The configuration tested is the worst case combination of radio, power amplifier, and ACS equipment and covers off all product configurations.

2.0 EUT DESCRIPTION

2.1 CONFIGURATION

	Name	Model	Revision	Serial Number
EUT	iCell 1X + DOrA Macro BSS, 2F/3S 800MHz, which contains the below items;			
	iCell 1x BTS Assembly, Macro 800MHz, with GPS Receiver, Dual PS, -48Vdc	24242262GS	C9	166DG5NGDRQP
	iCell DOrA BTS Assembly, Macro 800MHz, Dual PS, -48Vdc	24244244GS	A9	17HGY4TJ1LD0
	iCell SCPA, Macro 800MHz, -48Vdc	24246024GS	A3	17HFY4TJ1LCT 17HFY4TJ1LCU 17HFY4TJ1LCS 1012009082600303 1012009082600304 1012009082600313
	Fullband ACS	24242560GS	B0	1012009070601235
	A"A1 ACS	24246624GS	A2	17FSYBJJ1NN8
	A2B1 ACS	24242410GS	B4	1661YBJJ1NNA
	B2	24242414GS	B1	1012009080500819
Classification	Base-station			
Modulation	1xRTT, EVDO (8PSK, QPSK, 16QAM)			
Frequency Range	See section 2.4			
Size	89"H x 33"W x 54"D (shipping dimensions)			
Weight	600-800 lbs (shipping weight)			

General Functional Description	The Macro BSS is a part of Star Solutions end-to-end all IP-based wireless communication solution providing the mobility and media in a packet-based environment. The Macro BSS is built in a standard rack dimensioned to customer specified network requirements. It consists following sub components: • Base Station Controller (BSC) • Base Transceiver Station (BTS) - 1xRTT • Base Transceiver Station (BTS) - EVDO • Ethernet switch • Circuit breakers • Alarm and Control Module (ACM) • Single Carrier Power Amplifier (SCPA) • Antenna Combining System (ACS) - 4 variants (Fullband, A"A1, A2B1, B2)

2.2 EUT POWER

Voltage	-48 Vdc
Number of Feeds	1
Gauge of cable	#4 AWG minimum
Current Draw	45A

2.3 EUT CABLING

Item	Routing		Description	Length
	From	To		
1	EUT	Attenuator/ Load	Sucoflex RF Cable for Main Ant. Port (1xRTT)	3m
2	EUT	Attenuator/ Load	Sucoflex RF Cable for Diversity Ant. Port (EVDO)	3m
3	EUT	GPS Splitter	LMR400 RF Cable for GPS Port	8m
4	EUT	Variable DC Power Supply	#2 AWG DC Power Cables	10m

2.4 FREQUENCIES

The following table lists the lowest and highest supported channels per ACS variant.

ACS Type	Lowest Supported Channel	Highest Supported Channel
Fullband	1019	771
A"A1	1018	159
A2B1	226	492
B2	512	594

The following table lists the channels tested that meet the FCC Part 22.917 -13dBm limit at the applicable band / block edges.

ACS Type	Tested Channel Number (Block)	Frequency (MHz)	Applicable Band / Block Edge and Frequency (MHz)
Fullband	1019 (A")	869.88	Lower Band A" edge (869 MHz)
	305 (A)	879.15	Upper Block A edge (880 MHz)
	361 (B)	880.83	Lower Block B edge (880 MHz)

ACS Type	Tested Channel Number (Block)	Frequency (MHz)	Applicable Band / Block Edge and Frequency (MHz)
	638 (B)	889.14	Upper Block B edge (890 MHz)
	692 (A')	890.76	Lower Block A' edge (890 MHz)
	692 (A')	890.76	Upper Block A' edge (891.5 MHz)
	742 (B')	892.26	Lower Block B' edge (891.5 MHz)
	771 (B')	893.13	Upper Band B' edge (894 MHz)
A"A1	1018 (A")	869.85	Lower Band A" edge (869 MHz)
	159 (A)	874.77	Upper Block A edge (880 MHz)
A2B1	226 (A)	876.78	Lower Band A" edge (869 MHz)
	305 (A)	879.15	Upper Block A edge (880 MHz)
	362 (B)	880.86	Lower Block B edge (880 MHz)
	492 (B)	884.76	Upper Block B edge (890 MHz)
B2	512 (B)	885.36	Lower Block B edge (880 MHz)
	594 (B)	887.82	Upper Block B edge (890 MHz)

3.0 TEST ENVIRONMENT

3.1 NORMAL TEST CONDITIONS

Temperature:	20 – 23 °C
Relative Humidity:	28 – 35 %
Atmospheric pressure:	883 – 890 mbar
Nominal test voltage:	-48Vdc

APPENDICES

APPENDIX A: POWER OUTPUT

A.1. Base Standard & Test Basis

Base Standard	FCC Part 22.913; IC RSS-129, 9.1, 9.2.3
Test Basis	FCC 2.1046
Test Method	TIA/EIA 603

A.2. Specifications

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 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.

A.3. FCC Limit

FCC Part 22.913

The effective radiated power (ERP) of transmitters in the Cellular Radiotelephone Service must not exceed the limits in this section.

(a) Maximum ERP. In general, the effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. However, for those systems operating in areas more than 72 km (45 miles) from international borders that:

2) Extend coverage on a secondary basis into cellular unserved areas, as those areas are defined in 22.949, the ERP of base transmitters and cellular repeaters of such systems must not exceed 1000 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

A.4. Deviations

Deviation Number	Time & Date	Description and Justification of Deviation	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
none						

A.5. Test Method

The EUT was setup via a PC and Star Solutions software to transmit at maximum power in both 1xRTT and EVDO modes, at the low, middle, and high ends of the frequency bands supported. EVDO measurements were made in at different modulation types and data rates. The RF output power was measured using the spectrum analyzer with a maximum peak detector.

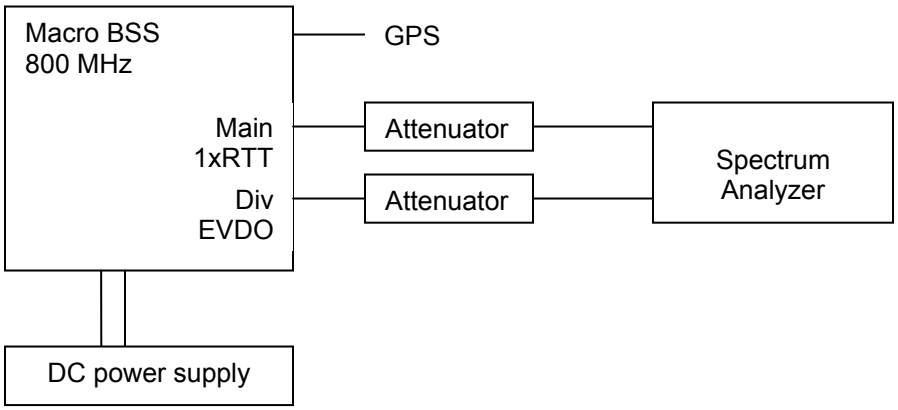
The Macro BSS utilizes four duplexer (ACS) variants (fullband, A"A1, A2B1, and B2). Each type was tested, and power measurements were made at the low, middle, and high ends of the frequency bands supported.

A.6. Test Setup

The set-up used for the RF output power test is illustrated below. RF output power measurements were referenced to the Sector 1 main antenna port for 1xRTT measurements, and to the Sector 1 diversity

antenna port for EVDO measurements. Sector 2 and 3 main / diversity antenna ports were terminated into 50Ω loads.

Figure 1: Power Output Setup



A.7. Test Results

To reduce the number of Figures, only plots for the maximum 1xRTT and EVDO RF output powers are shown.

Table 1: 1xRTT RF Power Output

ACS Type	Channel Number (Block)	Modulation	Frequency (MHz)	Measured Peak RF Output Power (dBm)
Fullband	1019 (A")	1xRTT	869.88	47.88
	500 (B)	1xRTT	885	47.88
	771 (B')	1xRTT	893.13	47.62
A"A1	1018 (A")	1xRTT	869.85	48.31
	80 (A)	1xRTT	872.4	48.32
	159 (A)	1xRTT	874.77	48.78
A2B1	226 (A)	1xRTT	876.78	47.79
	424 (B)	1xRTT	882.72	48.22
	492 (B)	1xRTT	884.76	48.28
B2	512 (B)	1xRTT	885.36	47.48
	553 (B)	1xRTT	886.59	47.98
	594 (B)	1xRTT	887.82	48.42

Table 2: EVDO RF Power Output

ACS Type	Channel Numbers (Block)	Modulation	Frequency (MHz)	Measured Peak RF Output Power (dBm)
Fullband	500 (B)	8PSK, 1843.2 kbps 1 slot	885	47.17
	500 (B)	8PSK, 921.6 kbps 2 slots	885	47.81
	500 (B)	QPSK, 38.4 kbps, 16 slots	885	47.36

ACS Type	Channel Numbers (Block)	Modulation	Frequency (MHz)	Measured Peak RF Output Power (dBm)
	500 (B)	QPSK, 1228.8 kbps, 1 slot	885	47.63
	500 (B)	16QAM, 2457.6 kbps 1slot	885	47.65
	500 (B)	16QAM, 1536 kbps 2 slots	885	47.52
	1019 (A")	8PSK, 921.6 kbps 2 slots	869.88	48.00
	1019 (A")	QPSK, 1228.8 kbps, 1 slot	869.88	48.01
	1019 (A")	16QAM, 2457.6 kbps 1slot	869.88	47.85
	771 (B')	8PSK, 921.6 kbps 2 slots	893.13	47.82
	771 (B')	QPSK, 1228.8 kbps, 1 slot	893.13	47.73
	771 (B')	16QAM, 2457.6 kbps 1slot	893.13	47.75
A"A1	1018 (A")	8PSK, 921.6 kbps 2 slots	869.85	48.08
	1018 (A")	QPSK, 1228.8 kbps, 1 slot	869.85	48.54
	1018 (A")	16QAM, 2457.6 kbps 1slot	869.85	48.29
	80 (A)	8PSK, 921.6 kbps 2 slots	872.4	48.88
	80 (A)	QPSK, 1228.8 kbps, 1 slot	872.4	48.56
	80 (A)	16QAM, 2457.6 kbps 1slot	872.4	48.06
	159 (A)	8PSK, 921.6 kbps 2 slots	874.77	48.41
	159 (A)	QPSK, 1228.8 kbps, 1 slot	874.77	48.29
	159 (A)	16QAM, 2457.6 kbps 1slot	874.77	48.06
A2B1	226 (A)	8PSK, 921.6 kbps 2 slots	876.78	48.46
	226 (A)	QPSK, 1228.8 kbps, 1 slot	876.78	48.39
	226 (A)	16QAM, 2457.6 kbps 1slot	876.78	48.09
	424 (B)	8PSK, 921.6 kbps 2 slots	882.72	47.75
	424 (B)	QPSK, 1228.8 kbps, 1 slot	882.72	47.80
	424 (B)	16QAM, 2457.6 kbps 1slot	882.72	47.91

ACS Type	Channel Numbers (Block)	Modulation	Frequency (MHz)	Measured Peak RF Output Power (dBm)
	492 (B)	8PSK, 921.6 kbps 2 slots	884.76	48.07
	492 (B)	QPSK, 1228.8 kbps, 1 slot	884.76	47.90
	492 (B)	16QAM, 2457.6 kbps 1slot	884.76	47.86
B2	512 (B)	8PSK, 921.6 kbps 2 slots	885.36	47.94
	512 (B)	QPSK, 1228.8 kbps, 1 slot	885.36	47.93
	512 (B)	16QAM, 2457.6 kbps 1slot	885.36	47.97
	553 (B)	8PSK, 921.6 kbps 2 slots	886.59	48.04
	553 (B)	QPSK, 1228.8 kbps, 1 slot	886.59	47.80
	553 (B)	16QAM, 2457.6 kbps 1slot	886.59	47.60
	594(B)	8PSK, 921.6 kbps 2 slots	887.82	48.03
	594(B)	QPSK, 1228.8 kbps, 1 slot	887.82	48.45
	594(B)	16QAM, 2457.6 kbps 1slot	887.82	48.26

Note: All final reported values are corrected values.

Figure 2: 1xRTT RF Power, Channel 159

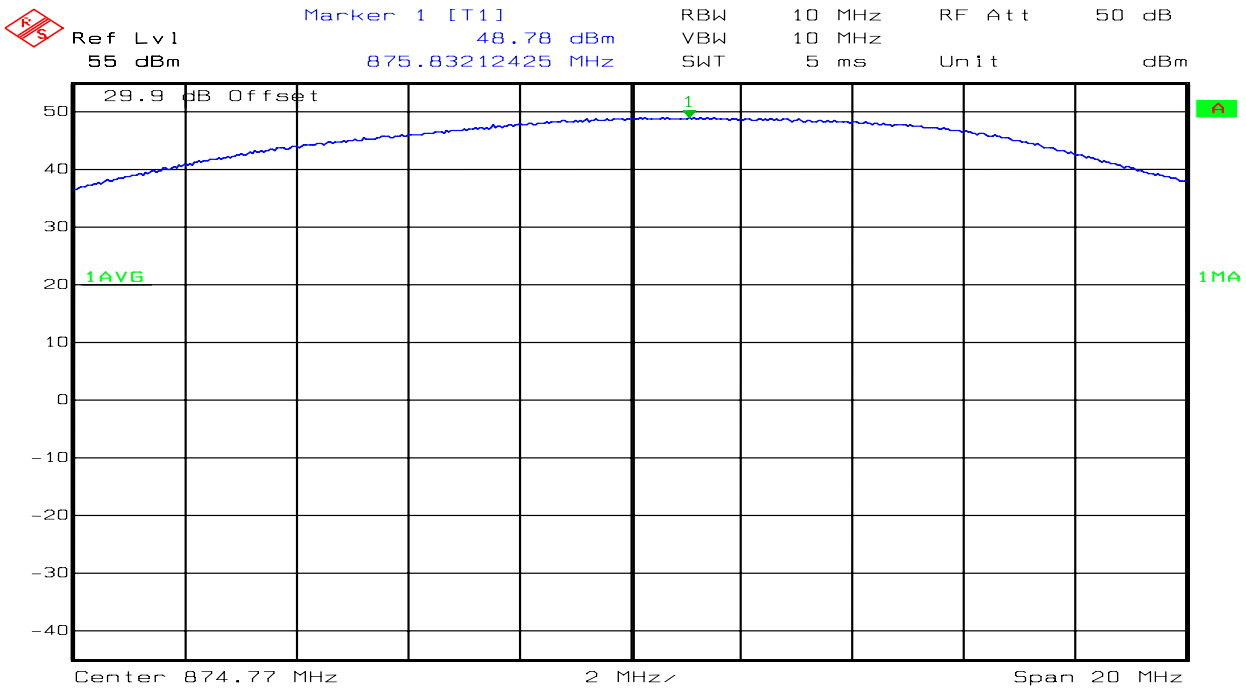
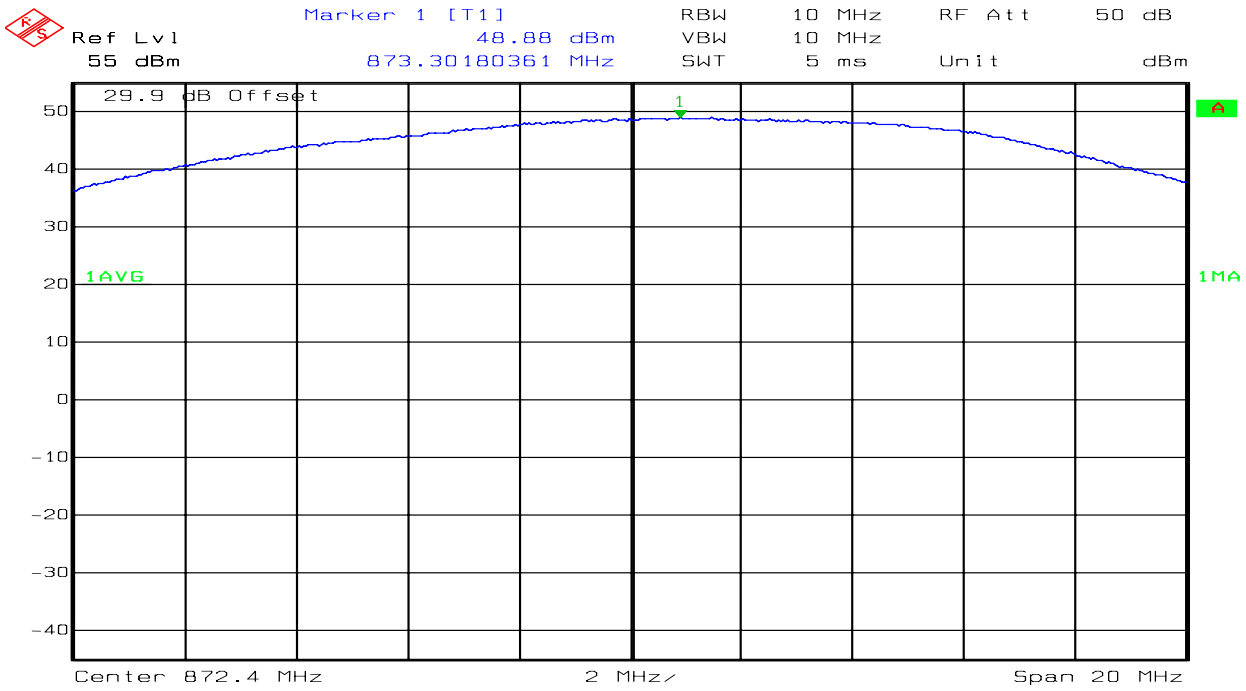


Figure 3: EVDO RF Power, 8PSK, 921.6kbps, Channel 80



A.8. Tested By

This testing was conducted in accordance with the ISO 17025:2005 scope of accreditation, table 1; Quality Manual.

Name: Daryl Therens
Senior Test Specialist

A.9. Test Dates

Test Start: November 30, 2009
Test Complete: December 15, 2009

APPENDIX B: OCCUPIED BANDWIDTH

B.1. Base Standard & Test Basis

Base Standard	FCC Part 22.917; IC RSS-Gen, 4.6.1
Test Basis	FCC PART 2.1049
Test Method	FCC PART 2.1049 / 22.917

B.2. Specifications

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.

B.3. Deviations

Deviation Number	Time & Date	Description and Justification of Deviation	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
none						

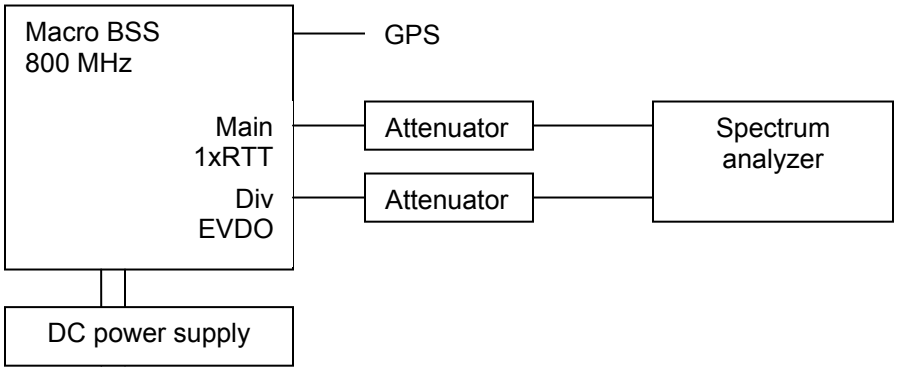
B.4. Test Method

The EUT was setup via a PC and Star Solutions software to transmit at maximum power in both 1xRTT and EVDO modes. EVDO measurements were made in at different modulation types and data rates. Industry Canada occupied bandwidth was measured using the 99% channel power feature of the spectrum analyzer. A maximum peak detector was used for all measurements. Occupied bandwidth measurements were performed on Sector 1 main antenna port for 1xRTT measurements, and on Sector 1 diversity antenna port for EVDO measurements. Sector 2 and 3 main / diversity antenna ports were terminated into 50Ω loads.

B.5. Test Setup

The test setup for Occupied BW is as illustrated below.

Figure 4: Occupied BW Setup



B.6. Test Results

1xRTT mode: to reduce the number of Figures, only a typical maximum plot for the IC and FCC methods are shown.

EVDO mode: to reduce the number of Figures, only a typical maximum plot for the IC and FCC methods are shown (for each modulation type, and highest data rate).

Table 3: IC 1xRTT Occupied BW

ACS Type	Channel Number (Block)	Modulation	Frequency (MHz)	IC 99% Occupied BW (MHz)
Fullband	1019 (A")	1xRTT	869.88	1.28
	500 (B)	1xRTT	885	1.29
	771 (B')	1xRTT	893.13	1.29
A"A1	1018 (A")	1xRTT	869.85	1.29
	80 (A)	1xRTT	872.4	1.29
	159 (A)	1xRTT	874.77	1.29
A2B1	226 (A)	1xRTT	876.78	1.29
	424 (B)	1xRTT	882.72	1.29
	492 (B)	1xRTT	884.76	1.29
B2	512 (B)	1xRTT	885.36	1.29
	553 (B)	1xRTT	886.59	1.29
	594 (B)	1xRTT	887.82	1.29

Table 4: FCC 1xRTT Occupied BW

ACS Type	Channel Number (Block)	Modulation	Frequency (MHz)	FCC 26dB Occupied BW (MHz)
Fullband	500 (B)	1xRTT	885	1.30

Table 5: IC EVDO Occupied BW

ACS Type	Channel Numbers (Block)	Modulation	Frequency (MHz)	IC 99% Occupied BW (MHz)
Fullband	500 (B)	8PSK, 1843.2 kbps 1 slot	885	1.28
	500 (B)	QPSK, 1228.8 kbps, 1 slot	885	1.29
	500 (B)	16QAM, 2457.6 kbps 1slot	885	1.29
	1019 (A")	8PSK, 1843.2 kbps 1 slot	869.88	1.28
	1019 (A")	QPSK, 1228.8 kbps, 1 slot	869.88	1.28
	1019 (A")	16QAM, 2457.6 kbps 1slot	869.88	1.28
	771 (B')	8PSK, 1843.2 kbps 1 slot	893.13	1.28
	771 (B')	QPSK, 1228.8 kbps, 1 slot	893.13	1.28
	771 (B')	16QAM, 2457.6 kbps 1slot	893.13	1.28
A"A1	1018 (A")	8PSK, 1843.2 kbps 1 slot	869.85	1.28
	1018 (A")	QPSK, 1228.8 kbps, 1 slot	869.85	1.29
	1018 (A")	16QAM, 2457.6 kbps 1slot	869.85	1.29
	80 (A)	8PSK, 1843.2 kbps 1 slot	872.4	1.29
	80 (A)	QPSK, 1228.8 kbps, 1 slot	872.4	1.28
	80 (A)	16QAM, 2457.6 kbps 1slot	872.4	1.29
	159 (A)	8PSK, 1843.2 kbps 1 slot	874.77	1.28
	159 (A)	QPSK, 1228.8 kbps, 1 slot	874.77	1.28
	159 (A)	16QAM, 2457.6 kbps 1slot	874.77	1.28
A2B1	226 (A)	8PSK, 1843.2 kbps 1 slot	876.78	1.29
	226 (A)	QPSK, 1228.8 kbps, 1 slot	876.78	1.29
	226 (A)	16QAM, 2457.6 kbps 1slot	876.78	1.29
	424 (B)	8PSK, 1843.2 kbps 1 slot	882.72	1.29
	424 (B)	QPSK, 1228.8 kbps, 1 slot	882.72	1.29
	424 (B)	16QAM, 2457.6 kbps 1slot	882.72	1.29
	492 (B)	8PSK, 1843.2 kbps 1 slot	884.76	1.29
	492 (B)	QPSK, 1228.8 kbps, 1 slot	884.76	1.28
	492 (B)	16QAM, 2457.6 kbps 1slot	884.76	1.29
B2	512 (B)	8PSK, 1843.2 kbps 1 slot	885.36	1.29
	512 (B)	QPSK, 1228.8 kbps, 1 slot	885.36	1.29
	512 (B)	16QAM, 2457.6 kbps 1slot	885.36	1.29
	553 (B)	8PSK, 1843.2 kbps 1 slot	886.59	1.27
	553 (B)	QPSK, 1228.8 kbps, 1 slot	886.59	1.29
	553 (B)	16QAM, 2457.6 kbps 1slot	886.59	1.29
	594(B)	8PSK, 1843.2 kbps 1 slot	887.82	1.29
	594(B)	QPSK, 1228.8 kbps, 1 slot	887.82	1.29
	594(B)	16QAM, 2457.6 kbps 1slot	887.82	1.29

Table 6: FCC EVDO Occupied BW

ACS Type	Channel Numbers (Block)	Modulation	Frequency (MHz)	FCC 26dB Occupied BW (MHz)
Fullband	500 (B)	8PSK, 1843.2 kbps 1 slot	885	1.33
	500 (B)	QPSK, 1228.8 kbps, 1 slot	885	1.32
	500 (B)	16QAM, 2457.6 kbps 1slot	885	1.32

Figure 5: 1xRTT IC 99% Occupied BW, Channel 500

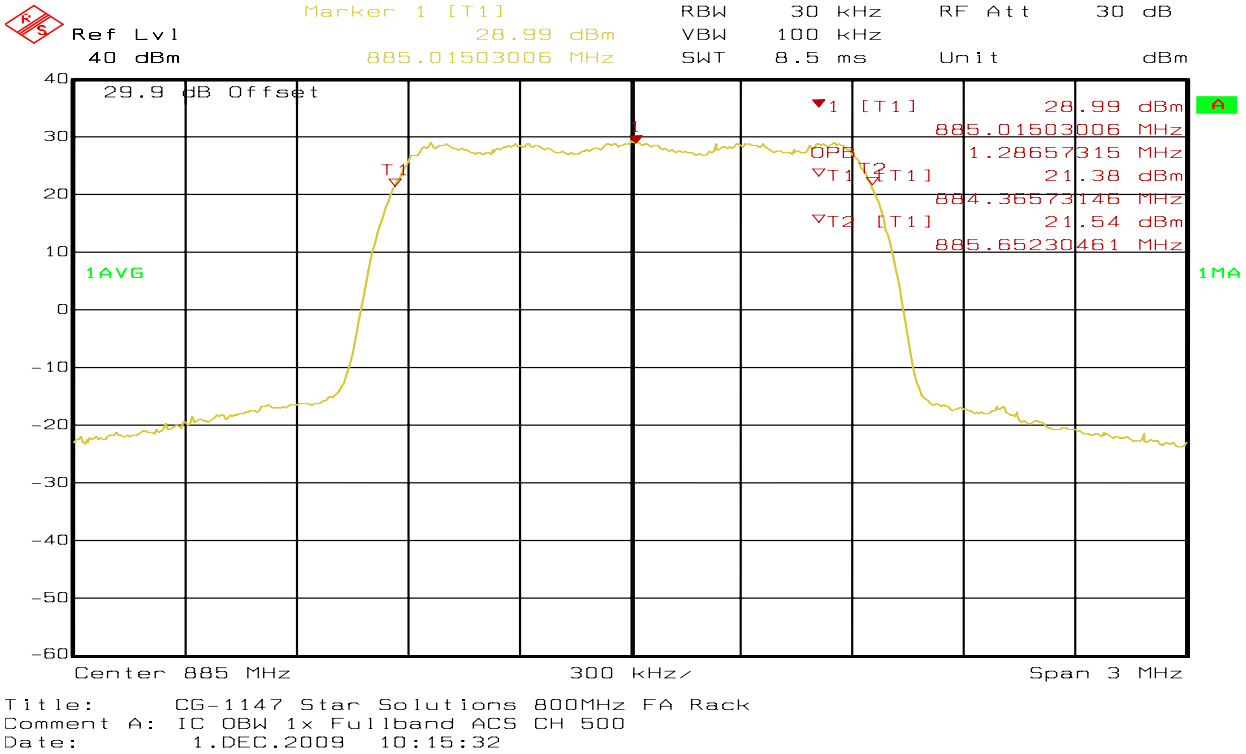


Figure 6: 1xRTT FCC 26dB Occupied BW, Channel 500

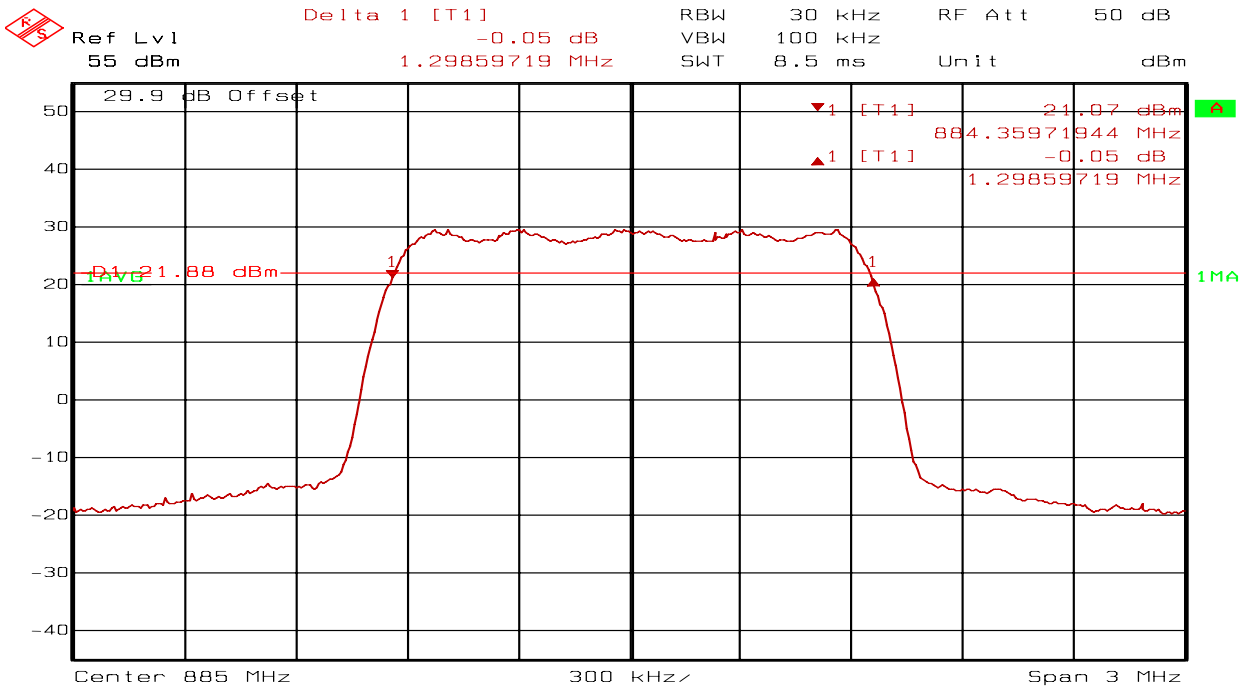


Figure 7: EVDO IC 99% Occupied BW, 8PSK, 1843.2kbps, Channel 80

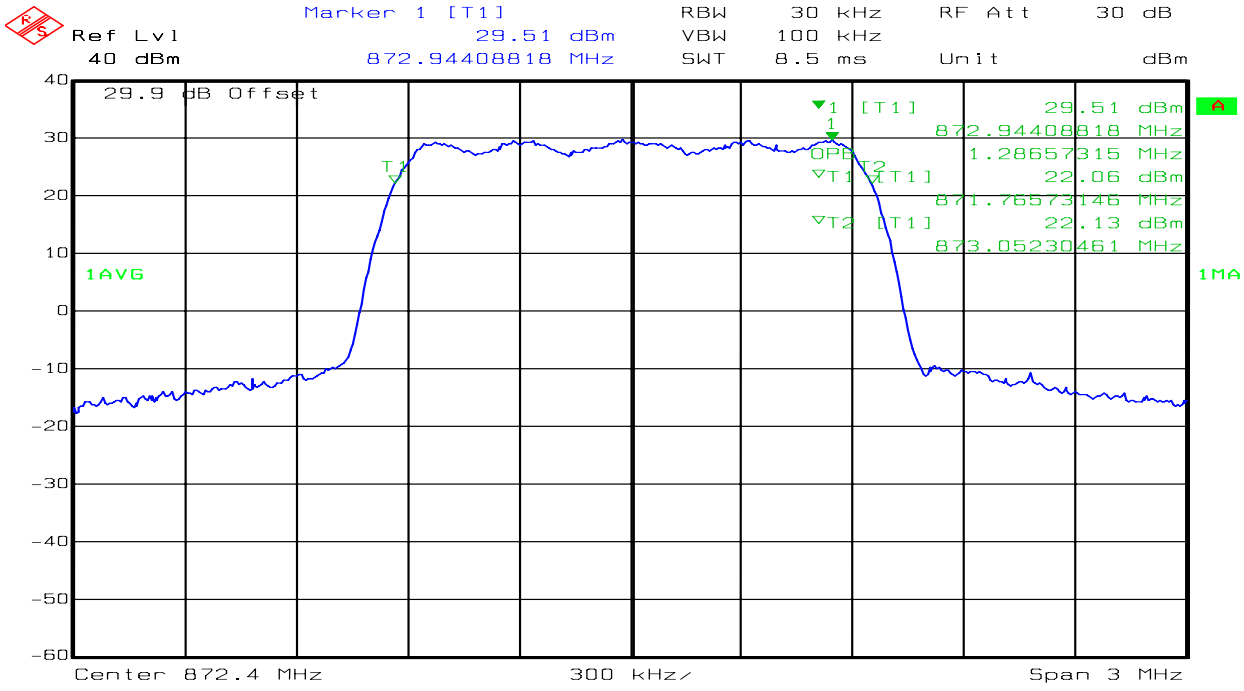


Figure 8: EVDO FCC 26dB Occupied BW, 8PSK, 1843.2kbps, Channel 500

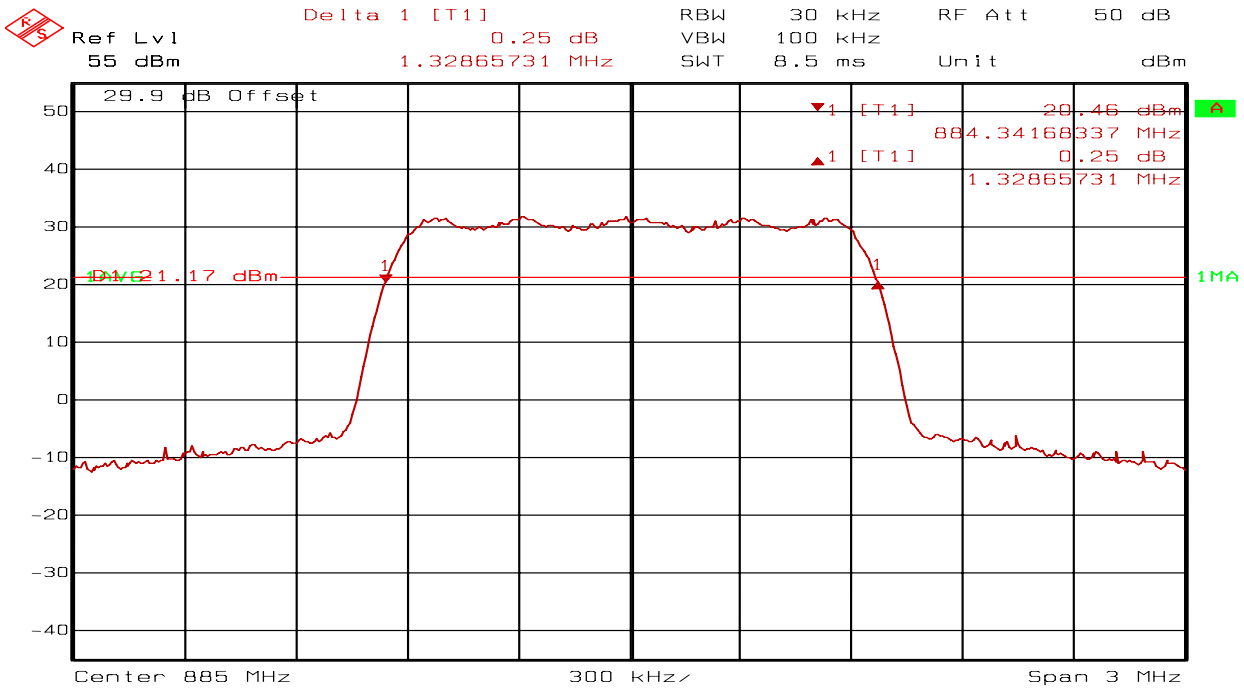


Figure 9: EVDO IC 99% Occupied BW, QPSK, 1228.8kbps, Channel 1018

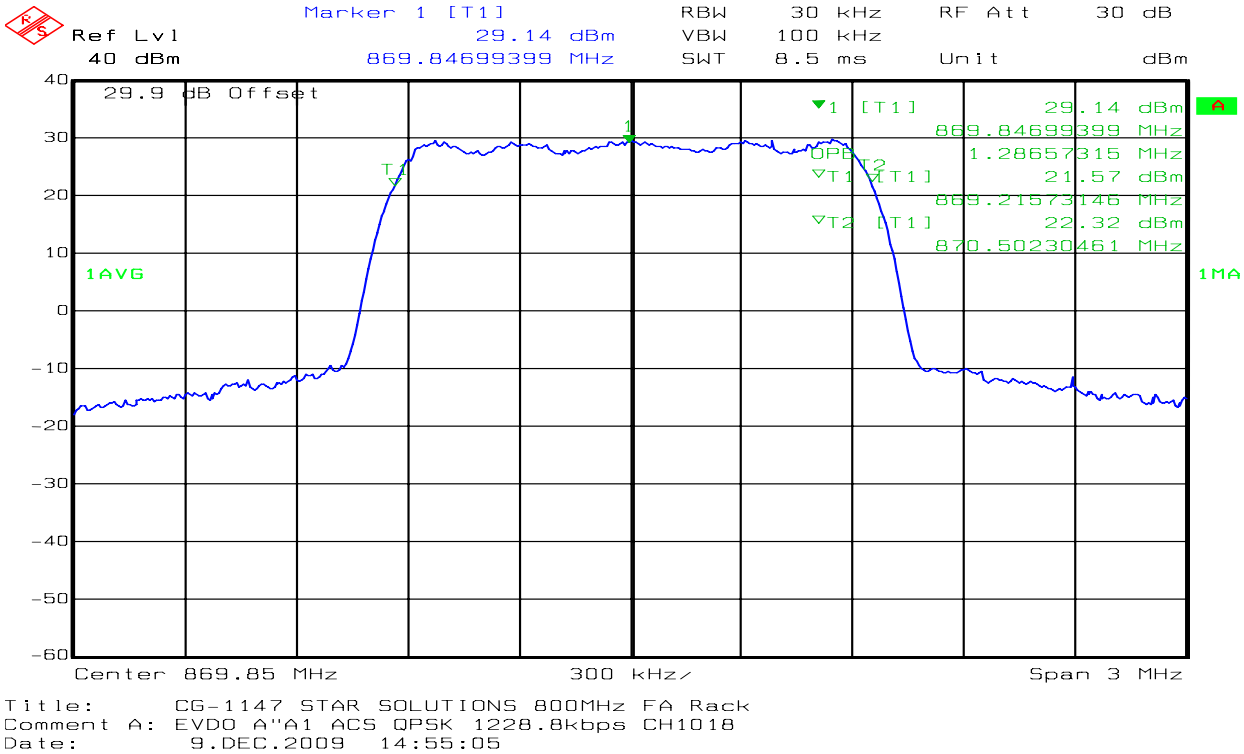


Figure 10: EVDO FCC 26dB Occupied BW, QPSK, 1228.8kbps, Channel 500

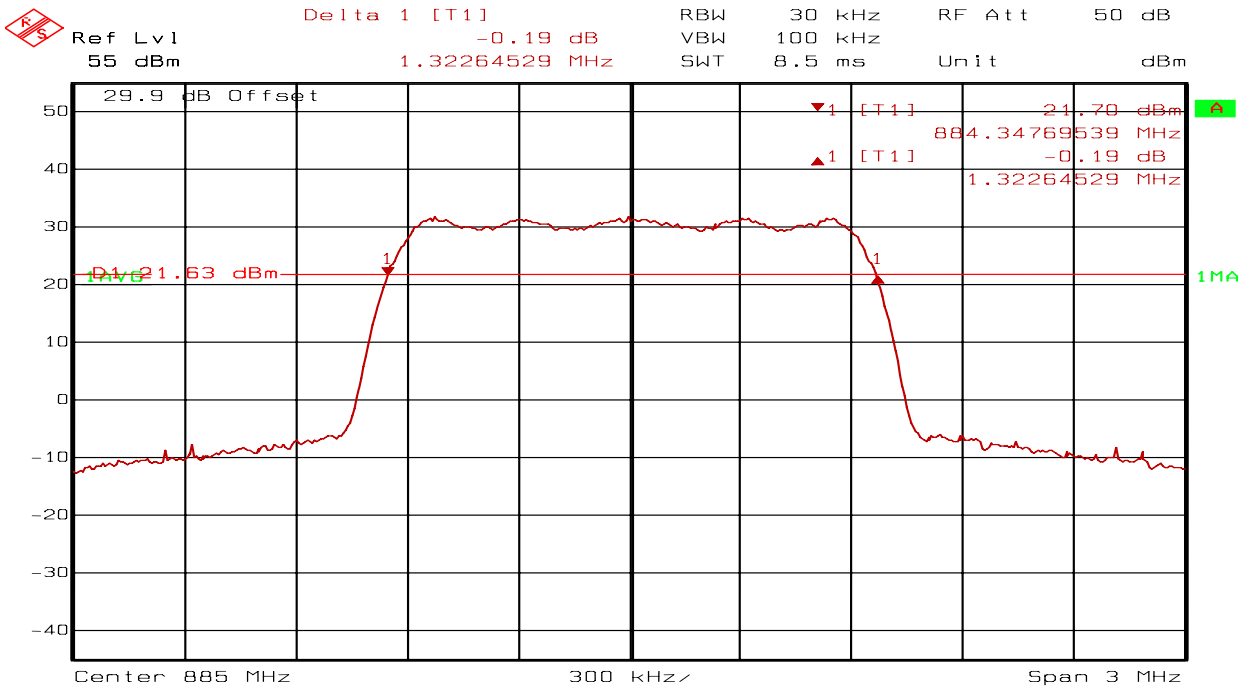


Figure 11: EVDO IC 99% Occupied BW, 16QAM, 2457.6kbps, Channel 80

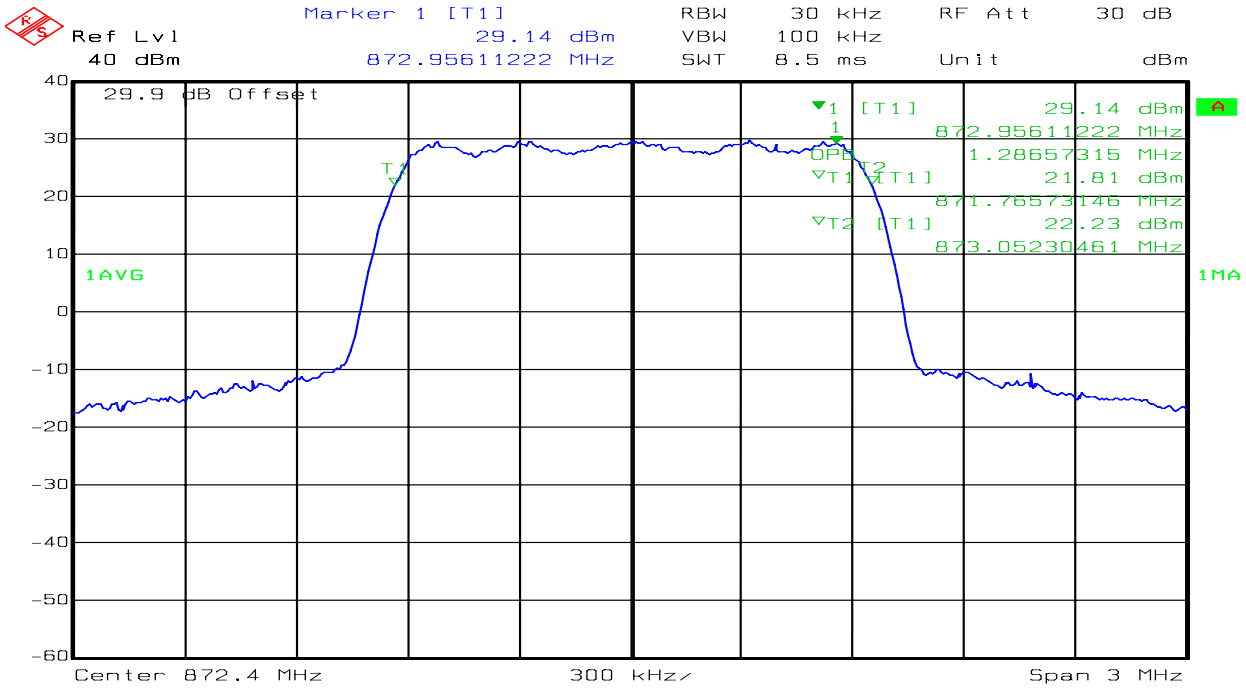
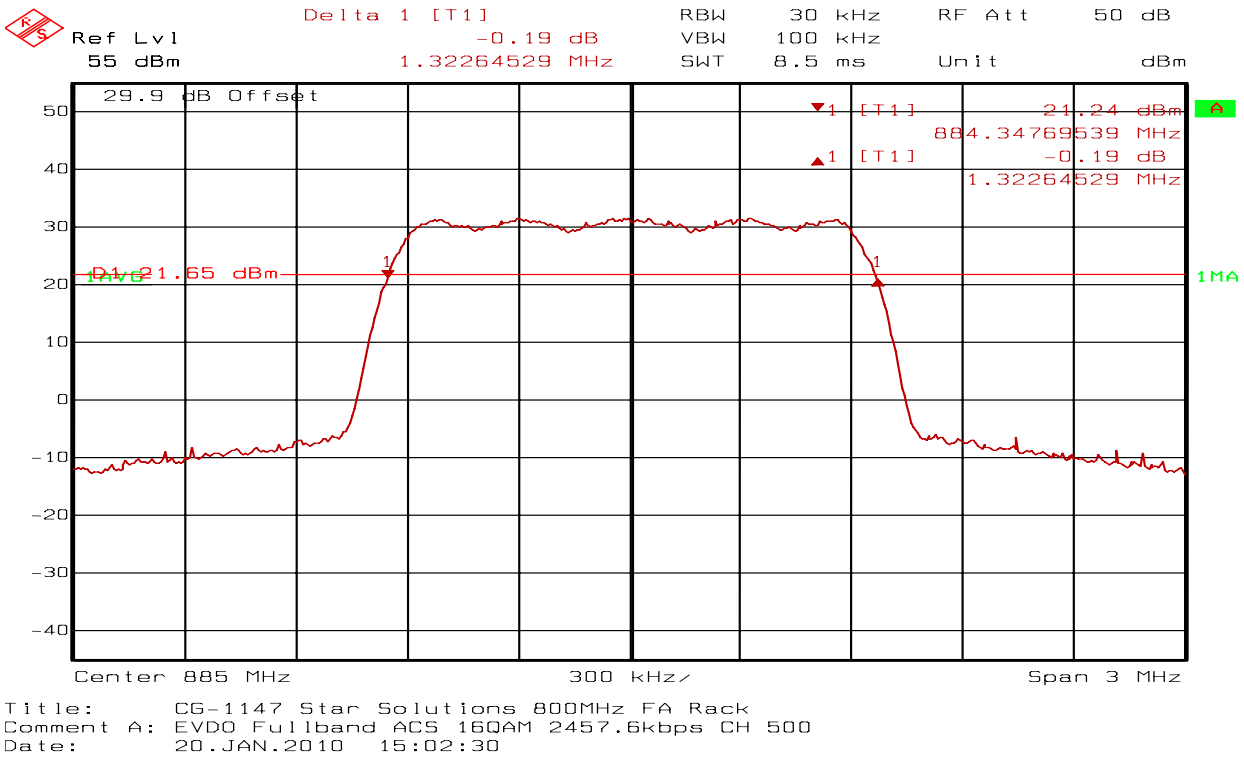


Figure 12: EVDO FCC 26dB Occupied BW, 16QAM, 2457.6kbps, Channel 500



B.7. Tested By

This testing was conducted in accordance with the ISO 17025:2005 scope of accreditation, table 1; Quality Manual.

Name: Daryl Therens
Senior Test Specialist

B.8. Test Dates

Test Start: November 30, 2009
Test Complete: January 20, 2010

APPENDIX C: CONDUCTED SPURIOUS EMISSIONS

C.1. Base Standard & Test Basis

Base Standard	FCC Part 2.1051, 22.917; IC RSS-129, 8.1.2, 10
Test Basis	FCC 2.1051
Test Method	FCC 2.1051

C.2. Specifications

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

(a) In all of the measurements set forth in 2.1051 and 2.1053, 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 frequency shown below:

(1) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(2) If the equipment operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

(3) If the equipment operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 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.

(d) Unless otherwise specified, measurements above 40 GHz shall be performed using a minimum resolution bandwidth of 1 MHz.

FCC Part 22.917 Limit

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.

(a) 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.

(b) 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.

C.3. Deviations

Deviation Number	Time & Date	Description and Justification of Deviation	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
none						

C.4. Test Procedure

The EUT was setup via a PC and Star Solutions software to transmit at maximum power in both 1xRTT and EVDO modes. Measurements were made in both 1xRTT and EVDO modes (different modulation types and data rates), at all Band / Block Edges of the frequency bands supported. Spurious emission measurements were performed on Sector 1 main antenna port for 1xRTT measurements, and on Sector 1 diversity antenna port for EVDO measurements. Sector 2 and 3 main / diversity antenna ports were terminated into 50Ω loads.

The following spectrum analyzer settings were used for the measurement of the antenna port spurious emissions:

15 kHz adjacent to frequency band / block

Channel Power Function

Channel Bandwidth: 15 kHz

Resolution Bandwidth: 1 kHz

Video Bandwidth: 3 kHz

Trace Average: 10 Averages

Detector: Maximum Peak

Span: 30 kHz

Attenuation: 30 dB

Ref. Level: 40 dBm

Ref. Level Offset: Set according to cable/attenuator loss

1 MHz adjacent to frequency band / block

Resolution Bandwidth: 20 kHz

Video Bandwidth: 100 kHz

Trace Average: 100 Averages

Detector: Maximum Peak

Span: 5 MHz

Attenuation: 30 dB

Ref. Level: 40 dBm

Ref. Level Offset: Set according to cable/attenuator loss

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

All other Spurious Emissions up to 10 GHz

Resolution Bandwidth: 1 MHz

Video Bandwidth: 3 MHz

Detector: Maximum Peak

Span: Auto-coupled

Attenuation: Auto-coupled

Ref. Level: Auto-coupled

Ref. Level Offset: Auto-coupled

Calibrated cables and attenuators were used (losses to 10GHz). The calibrated loss is the reference level offset on the spectrum analyzer.

Offset Frequencies > ± 750 kHz and > ± 1.98 MHz from CDMA Center Frequency

Resolution Bandwidth: 30 kHz

Video Bandwidth: 100 kHz

Trace Average: 100 Averages

Detector: Maximum Peak

Span: 5 MHz

Attenuation: 30 dB

Ref. Level: 40 dBm

Ref. Level Offset: Set according to cable/attenuator loss

Receiver Spurious Emissions 30-1000 MHz and 1-3 GHz

Resolution Bandwidth: 5 kHz

Video Bandwidth: 20 kHz

Detector: Maximum Peak

Span: Auto-coupled

Attenuation: Auto-coupled

Ref. Level: Auto-coupled

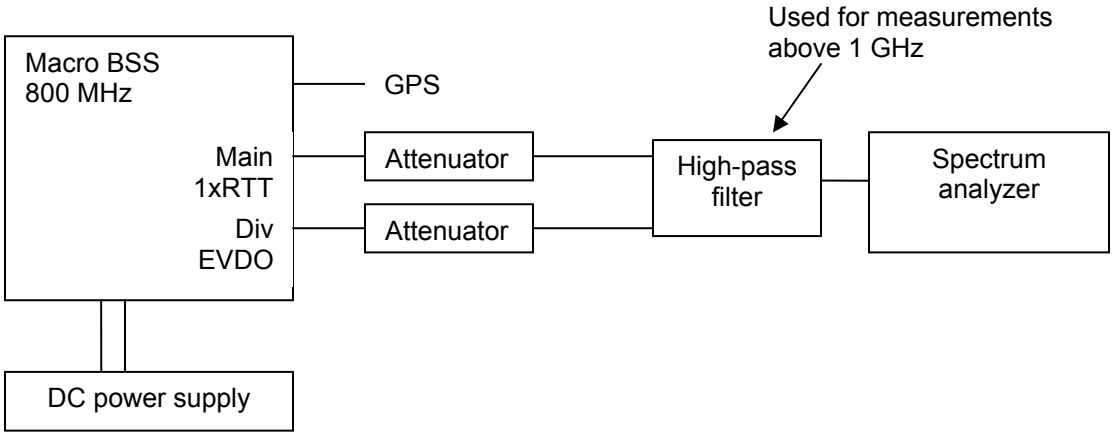
Ref. Level Offset: Auto-coupled

Calibrated cables were used (losses to 10GHz). The calibrated loss is the reference level offset on the spectrum analyzer.

C.5. Test Setup

The test setup for conducted spurious emissions is as shown in the figure below.

Figure 13: Conducted Spurious Emission Setup



C.6. Test Results

The documentation for the Macro BSS 800 MHz states the following channels are supported for the different ACS types.

Table 7: ACS Supported Channels

ACS Type	Lowest Supported Channel	Highest Supported Channel
Fullband	1019	771
A"A1	1018	159
A2B1	226	492
B2	512	594

The frequency spectrum from 4 MHz to 10 GHz was scanned for emissions using the spectrum analyzer settings outlined in the test procedure.

The tables below shows the spurious emissions at the antenna port of the Macro BSS for both 1xRTT and EVDO modes.

To reduce the number of Figures not all plots are shown. For EVDO operation, all modulation types and data rates were tested.

To reduce the number of Figures, only the worst case plots for 2nd and 3rd harmonics, and 4MHz to 1GHz are shown for both 1xRTT and EVDO modes.

The Macro BSS complies with the limit of -13 dBm.

The Macro BSS complies with the 45 dBc and 60 dBc limits at offset frequencies greater than 750 kHz and 1.98 MHz from the CDMA center frequency.

The Macro BSS complies with the receiver spurious emissions limits of 2 and 5 nanowatts (-57 dBm and -53 dBm respectively).

Table 8: Unwanted Emissions, 750 kHz and 1.98 MHz Offset Frequencies, 1xRTT Mode

ACS Type	Channel Number (Block)	Modulation	Frequency (MHz)	Offset from CDMA Center Frequency (MHz)	Level (dBc)	Limit (dBc)	Margin (dB)
Fullband	1019 (A")	1xRTT	869 .88	- 0.750	54.38	45	9.38
	1019 (A")	1xRTT	869 .88	- 1.98	74.24	60	14.24
	1019 (A")	1xRTT	869 .88	+ 0.750	48.46	45	3.46
	1019 (A")	1xRTT	869 .88	+ 1.98	73.07	60	13.07
	500 (B)	1xRTT	885	- 0.750	54.04	45	9.04
	500 (B)	1xRTT	885	- 1.98	73.37	60	13.37
	500 (B)	1xRTT	885	+ 0.750	48.65	45	3.65
	500 (B)	1xRTT	885	+ 1.98	73.47	60	13.47
	771 (B')	1xRTT	893.13	- 0.750	54.42	45	9.42
	771 (B')	1xRTT	893.13	- 1.98	72.63	60	12.63
	771 (B')	1xRTT	893.13	+ 0.750	48.35	45	3.35
	771 (B')	1xRTT	893.13	+ 1.98	73.63	60	13.63

Table 9: Unwanted Emissions, 750 kHz and 1.98 MHz Offset Frequencies, EVDO Mode

ACS Type	Channel Number (Block)	Modulation	Frequency (MHz)	Offset from CDMA Center Frequency (MHz)	Level (dBc)	Limit (dBc)	Margin (dB)
Fullband	1019 (A")	8PSK, 921.6kbps	869 .88	- 0.750	51.15	45	6.15
	1019 (A")	8PSK, 921.6kbps	869 .88	- 1.98	67.09	60	7.09
	1019 (A")	8PSK, 921.6kbps	869 .88	+ 0.750	46.2	45	1.2
	1019 (A")	8PSK, 921.6kbps	869 .88	+ 1.98	64.05	60	4.05
	1019 (A")	QPSK, 1228.8kbps	869 .88	- 0.750	51.16	45	6.16
	1019 (A")	QPSK, 1228.8kbps	869 .88	- 1.98	67.11	60	7.11
	1019 (A")	QPSK, 1228.8kbps	869 .88	+ 0.750	46.03	45	1.03
	1019 (A")	QPSK, 1228.8kbps	869 .88	+ 1.98	64.5	60	4.5
	1019 (A")	16QAM, 2457.6kbps	869 .88	- 0.750	51.29	45	6.29
	1019 (A")	16QAM, 2457.6kbps	869 .88	- 1.98	66.28	60	6.28
	1019 (A")	16QAM, 2457.6kbps	869 .88	+ 0.750	46.11	45	1.11
	1019 (A")	16QAM, 2457.6kbps	869 .88	+ 1.98	64.38	60	4.38
	500 (B)	8PSK, 921.6kbps	885	- 0.750	50.23	45	5.23

ACS Type	Channel Number (Block)	Modulation	Frequency (MHz)	Offset from CDMA Center Frequency (MHz)	Level (dBc)	Limit (dBc)	Margin (dB)
	500 (B)	8PSK, 921.6kbps	885	- 1.98	64.94	60	4.94
	500 (B)	8PSK, 921.6kbps	885	+ 0.750	46.12	45	1.12
	500 (B)	8PSK, 921.6kbps	885	+ 1.98	64.61	60	4.61
	500 (B)	QPSK, 1228.8kbps	885	- 0.750	50.04	45	5.04
	500 (B)	QPSK, 1228.8kbps	885	- 1.98	64.75	60	4.75
	500 (B)	QPSK, 1228.8kbps	885	+ 0.750	45.97	45	0.97
	500 (B)	QPSK, 1228.8kbps	885	+ 1.98	65.37	60	5.37
	500 (B)	16QAM, 2457.6kbps	885	- 0.750	50.74	45	5.74
	500 (B)	16QAM, 2457.6kbps	885	- 1.98	65.52	60	5.52
	500 (B)	16QAM, 2457.6kbps	885	+ 0.750	46.59	45	1.59
	500 (B)	16QAM, 2457.6kbps	885	+ 1.98	65.14	60	5.14
	771 (B')	8PSK, 921.6kbps	893.13	- 0.750	48.61	45	3.61
	771 (B')	8PSK, 921.6kbps	893.13	- 1.98	64.01	60	4.01
	771 (B')	8PSK, 921.6kbps	893.13	+ 0.750	45.57	45	0.57
	771 (B')	8PSK, 921.6kbps	893.13	+ 1.98	64.59	60	4.59
	771 (B')	QPSK, 1228.8kbps	893.13	- 0.750	48.72	45	3.72
	771 (B')	QPSK, 1228.8kbps	893.13	- 1.98	63.9	60	3.9
	771 (B')	QPSK, 1228.8kbps	893.13	+ 0.750	45.62	45	0.62
	771 (B')	QPSK, 1228.8kbps	893.13	+ 1.98	65.13	60	5.13
	771 (B')	16QAM, 2457.6kbps	893.13	- 0.750	48.71	45	3.71
	771 (B')	16QAM, 2457.6kbps	893.13	- 1.98	64.12	60	4.12
	771 (B')	16QAM, 2457.6kbps	893.13	+ 0.750	45.79	45	0.79
	771 (B')	16QAM, 2457.6kbps	893.13	+ 1.98	66.23	60	6.23

Table 10: Conducted Spurious Emissions at Antenna Ports, 1xRTT Mode

ACS Type	Channel Number (Block)	Modulation	Comment	Emission Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
Fullband	1019 (A")	1xRTT	A" Lower Band Edge	869 to 868.985	-20.4	-13	7.4
	771 (B')	1xRTT	B' Upper Band Edge	894 to 894.015	-21.37	-13	8.37
	1019 (A")	1xRTT	2nd harmonic	1739.47896	-31.19	-13	18.19
	1019 (A")	1xRTT	3rd harmonic	2605.21042	-26.69	-13	13.69
	500 (B)	1xRTT	2nd harmonic	1757.51503	-30.92	-13	17.92
	500 (B)	1xRTT	3rd harmonic	2641.28257	-29.15	-13	16.15
	771 (B')	1xRTT	2nd harmonic	1775.55110	-31.38	-13	18.38
	771 (B')	1xRTT	3rd harmonic	2677.35471	-28.02	-13	15.02
	500 (B)	1xRTT	Receiver spurious	30-1000	-75	-57	18
	500 (B)	1xRTT	Receiver spurious	1000-3000	-71	-53	18
A"A1	1018 (A")	1xRTT	A" Lower Band Edge	869 to 868.985	-20.49	-13	7.49
	159 (A)	1xRTT	A Upper Block Edge	880 to 880.015	-40.66	-13	27.66
	1018 (A")	1xRTT	2nd harmonic	1739.47896	-31.08	-13	18.08
	1018 (A")	1xRTT	3rd harmonic	2605.21042	-26.50	-13	13.5
	80 (A)	1xRTT	2nd harmonic	1739.47896	-30.47	-13	17.47
	80 (A)	1xRTT	3rd harmonic	2605.21042	-25.04	-13	12.04
	159 (A)	1xRTT	2nd harmonic	1739.47896	-28.35	-13	15.35
	159 (A)	1xRTT	3rd harmonic	2623.24649	-24.63	-13	11.63
A2B1	226 (A)	1xRTT	A" Lower Band Edge	869 to 868.985	-36.49	-13	23.49
	492 (B)	1xRTT	B Upper Block Edge	890 to 890.015	-40.76	-13	27.76
	226 (A)	1xRTT	2nd harmonic	1739.47896	-29.98	-13	16.98
	226 (A)	1xRTT	3rd harmonic	2623.24649	-27.56	-13	14.56
	424 (B)	1xRTT	2nd harmonic	1757.51503	-30.03	-13	17.03
	424 (B)	1xRTT	3rd harmonic	2641.28257	-24.68	-13	11.68
	492 (B)	1xRTT	2nd harmonic	1757.51503	-29.51	-13	16.51
	492 (B)	1xRTT	3rd harmonic	2641.28257	-25.63	-13	12.63
B2	512 (B)	1xRTT	B Lower Block Edge	880 to 879.985	-35.31	-13	22.31
	594 (B)	1xRTT	B Upper Block Edge	890 to 890.015	-40.48	-13	27.48
	512 (B)	1xRTT	2nd harmonic	1757.51503	-32.73	-13	19.73
	512 (B)	1xRTT	3rd harmonic	2641.28257	-30.50	-13	17.50
	553 (B)	1xRTT	2nd harmonic	1757.51503	-30.84	-13	17.84
	553 (B)	1xRTT	3rd harmonic	2659.31864	-26.20	-13	13.20
	594 (B)	1xRTT	2nd harmonic	1775.55110	-30.59	-13	17.59
	594 (B)	1xRTT	3rd harmonic	2659.31864	-25.06	-13	12.06

Table 11: Conducted Spurious Emissions at Antenna Ports, EVDO Mode

ACS Type	Channel Number (Block)	EVDO Modulation	Comment	Emission Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
Fullband	1019 (A")	8PSK, 921.6kbps	A" Lower Band Edge	869 to 868.985	-15.43	-13	2.43
	1019 (A")	8PSK, 1843.2kbps	A" Lower Band Edge	869 to 868.985	-15.15	-13	2.15
	1019 (A")	QPSK, 38.4kbps	A" Lower Band Edge	869 to 868.985	-15.83	-13	2.83
	1019 (A")	QPSK, 1228.8kbps	A" Lower Band Edge	869 to 868.985	-15.45	-13	2.45
	1019 (A")	16QAM, 1536kbps	A" Lower Band Edge	869 to 868.985	-14.10	-13	1.10
	1019 (A")	16QAM, 2457.6kbps	A" Lower Band Edge	869 to 868.985	-15.69	-13	2.69
	771 (B')	8PSK, 921.6kbps	B' Upper Band Edge	894 to 894.015	-14.41	-13	1.41
	771 (B')	8PSK, 1843.2kbps	B' Upper Band Edge	894 to 894.015	-13.62	-13	0.62
	771 (B')	QPSK, 38.4kbps	B' Upper Band Edge	894 to 894.015	-14.48	-13	1.48
	771 (B')	QPSK, 1228.8kbps	B' Upper Band Edge	894 to 894.015	-14.39	-13	1.39
	771 (B')	16QAM, 1536kbps	B' Upper Band Edge	894 to 894.015	-13.94	-13	0.94
	771 (B')	16QAM, 2457.6kbps	B' Upper Band Edge	894 to 894.015	-14.30	-13	1.30
	1019 (A")	8PSK, 921.6kbps	2nd harmonic	1739.47896	-34.95	-13	21.95
	1019 (A")	8PSK, 921.6kbps	3rd harmonic	2605.21042	-31.62	-13	18.62
	500 (B)	16QAM, 2457.6kbps	2nd harmonic	1757.51503	-34.62	-13	21.62
	500 (B)	QPSK, 1228.8kbps	3rd harmonic	2641.28257	-31.17	-13	18.17
	771 (B')	QPSK, 1228.8kbps	2nd harmonic	1775.55110	-35.16	-13	22.16
	771 (B')	8PSK, 921.6kbps	3rd harmonic	2677.35471	-30.04	-13	17.04
	500 (B)	16QAM, 1536kbps	Receiver spurious	30-1000	-75	-57	18
	500 (B)	16QAM, 1536kbps	Receiver spurious	1000-3000	-71	-53	18
A"A1	1018 (A")	8PSK, 921.6kbps	A" Lower Band Edge	869 to 868.985	-15.87	-13	2.87
	1018 (A")	8PSK, 1843.2kbps	A" Lower Band Edge	869 to 868.985	-15.34	-13	2.34
	1018 (A")	QPSK, 38.4kbps	A" Lower Band Edge	869 to 868.985	-16.33	-13	3.33

ACS Type	Channel Number (Block)	EVDO Modulation	Comment	Emission Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
	1018 (A")	QPSK, 1228.8kbps	A" Lower Band Edge	869 to 868.985	-15.94	-13	2.94
	1018 (A")	16QAM, 1536kbps	A" Lower Band Edge	869 to 868.985	-13.44	-13	0.44
	1018 (A")	16QAM, 2457.6kbps	A" Lower Band Edge	869 to 868.985	-16.12	-13	3.12
	159 (A)	16QAM, 1536kbps	A Upper Block Edge	880 to 880.015	-40.66	-13	27.66
	1018 (A")	8PSK, 921.6kbps	2nd harmonic	1739.47896	-34.40	-13	21.40
	1018 (A")	QPSK, 1228.8kbps	3rd harmonic	2605.21042	-28.57	-13	15.57
	80 (A)	16QAM, 2457.6kbps	2nd harmonic	1739.47896	-33.70	-13	20.70
	80 (A)	QPSK, 1228.8kbps	3rd harmonic	2605.21042	-28.97	-13	15.97
	159 (A)	QPSK, 1228.8kbps	2nd harmonic	1739.47896	-32.79	-13	19.79
	159 (A)	8PSK, 921.6kbps	3rd harmonic	2623.24649	-35.81	-13	22.81
A2B1	226 (A)	16QAM, 1536kbps	A" Lower Band Edge	869 to 868.985	-35.52	-13	22.52
	492 (B)	16QAM, 1536kbps	B Upper Block Edge	890 to 890.015	-40.77	-13	27.77
	226 (A)	8PSK, 921.6kbps	2nd harmonic	1739.47896	-32.87	-13	19.87
	226 (A)	16QAM, 2457.6kbps	3rd harmonic	2623.24649	-32.29	-13	19.29
	424 (B)	8PSK, 921.6kbps	2nd harmonic	1757.51503	-34.62	-13	21.62
	424 (B)	8PSK, 921.6kbps	3rd harmonic	2641.28257	-29.14	-13	16.14
	492 (B)	8PSK, 921.6kbps	2nd harmonic	1757.51503	-33.66	-13	20.66
	492 (B)	16QAM, 2457.6kbps	3rd harmonic	2641.28257	-31.15	-13	18.15
B2	512 (B)	16QAM, 1536kbps	B Lower Block Edge	880 to 879.985	-35.13	-13	22.13
	594 (B)	16QAM, 1536kbps	B Upper Block Edge	890 to 890.015	-40.38	-13	27.38
	512 (B)	8PSK, 921.6kbps	2nd harmonic	1757.51503	-33.27	-13	20.27
	512 (B)	QPSK, 1228.8kbps	3rd harmonic	2659.31864	-34.59	-13	21.59
	553 (B)	16QAM, 2457.6kbps	2nd harmonic	1757.51503	-32.11	-13	19.11
	553 (B)	16QAM, 2457.6kbps	3rd harmonic	2659.31864	-31.05	-13	18.05

ACS Type	Channel Number (Block)	EVDO Modulation	Comment	Emission Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
	594 (B)	16QAM, 2457.6kbps	2nd harmonic	1775.55110	-30.80	-13	17.80
	594 (B)	16QAM, 2457.6kbps	3rd harmonic	2659.31864	-28.01	-13	15.01

Note: All final reported values are corrected values.

Figure 14: 1xRTT, Unwanted Emissions, 750kHz/1.98MHz Offset Frequencies, CH771

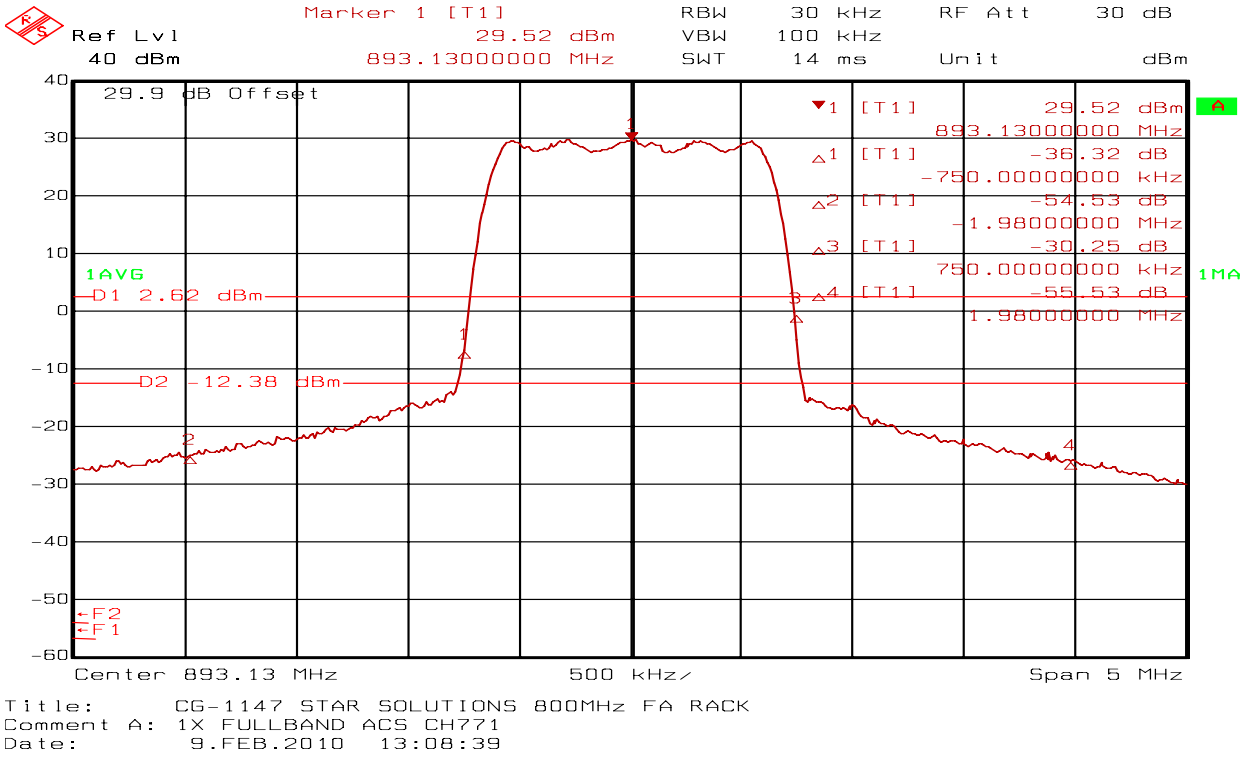
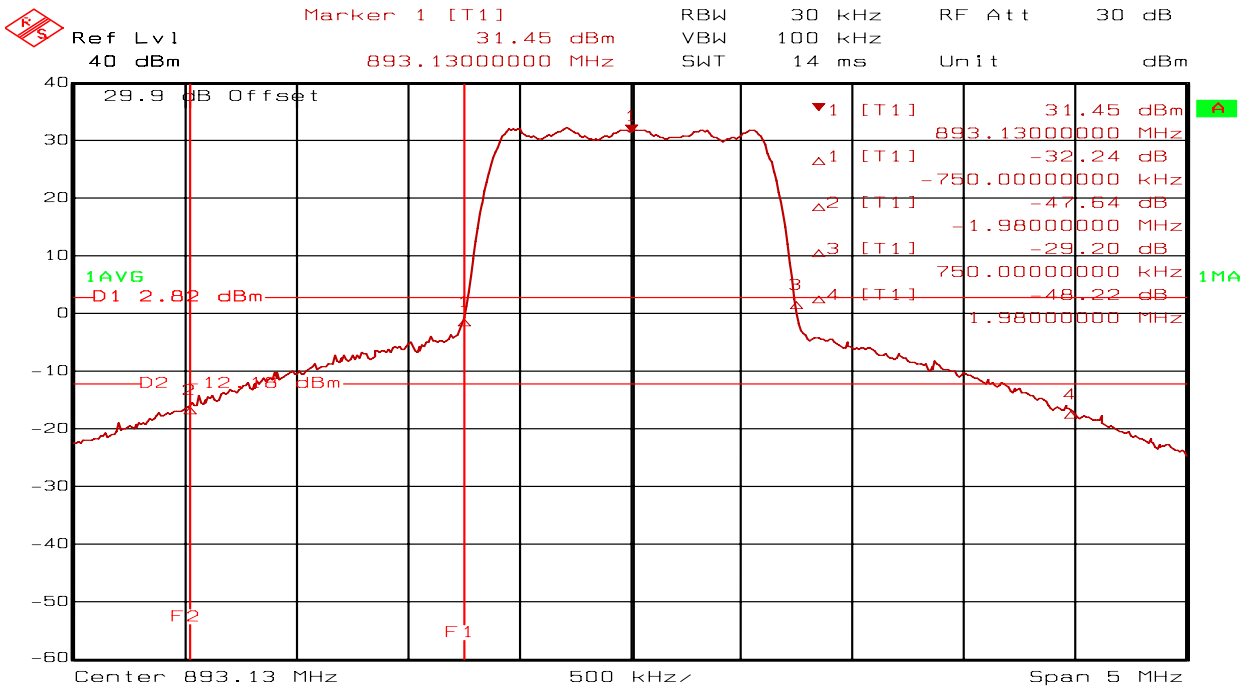
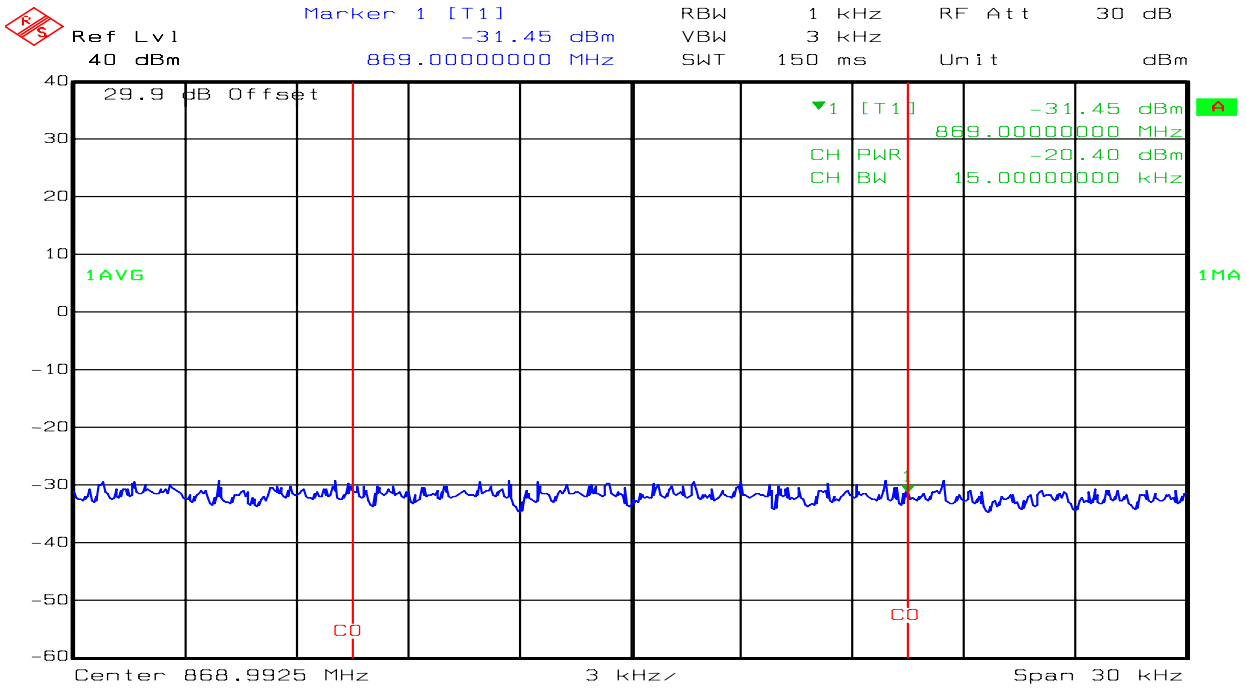


Figure 15: EVDO, Unwanted Emissions, 750kHz/1.98MHz Offset Frequencies, CH771



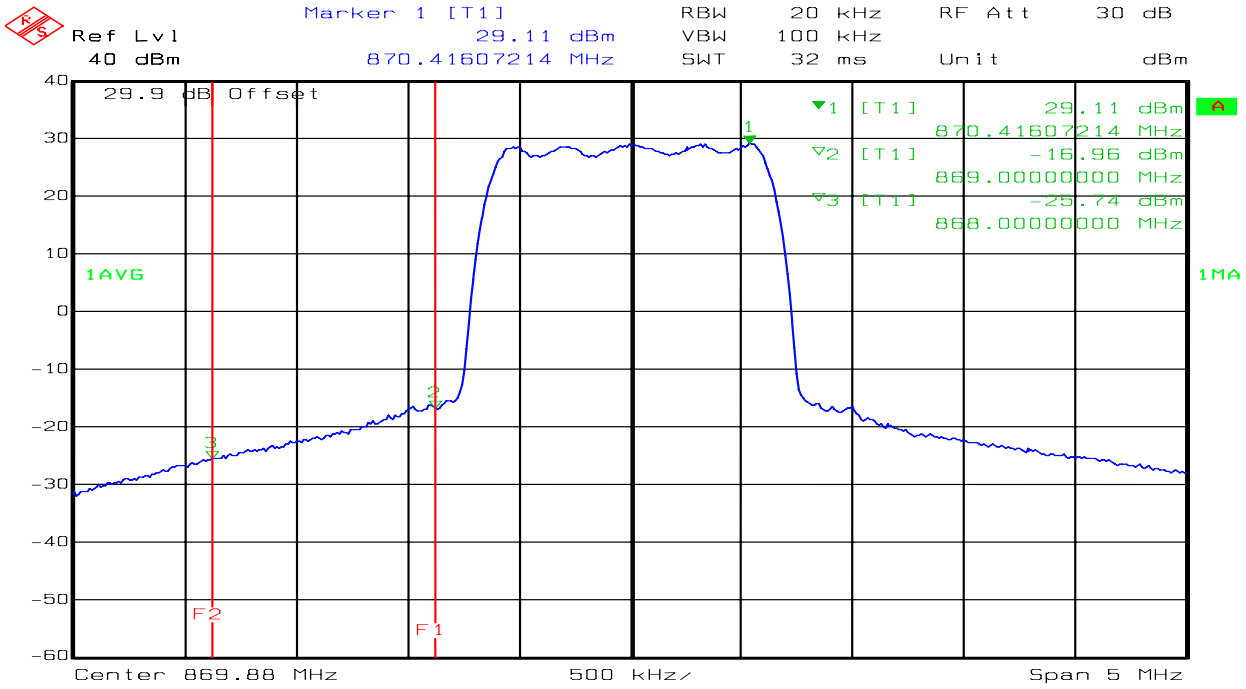
Title: CG-1147 STAR SOLUTIONS 800MHz FA RACK
Comment A: EVDO FULLBAND ACS 8PSK 921.6kbps CH771
Date: 9.FEB.2010 13:24:44

Figure 16: 1xRTT, A" Lower Band Edge, Fullband ACS, CH1019, Adjacent 15kHz



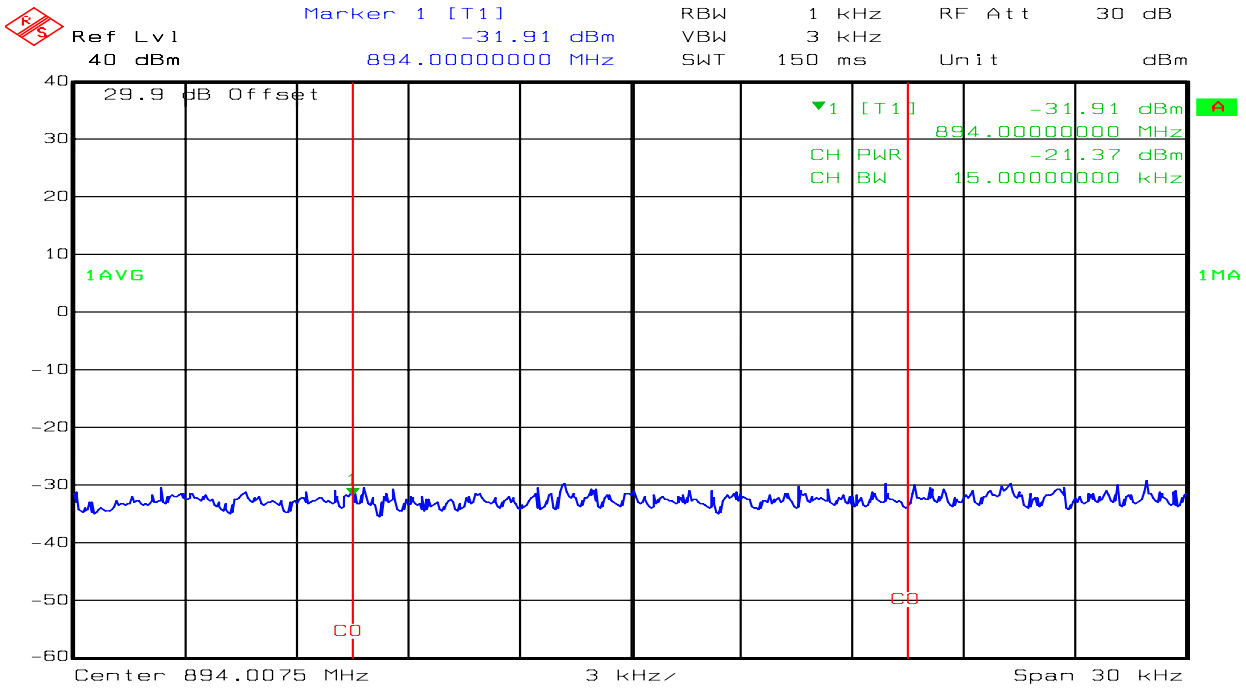
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X FULLBAND ACS CH1019
Date: 3.DEC.2009 11:32:01

Figure 17: 1xRTT, A" Lower Band Edge, Fullband ACS, CH1019, Adjacent 1MHz



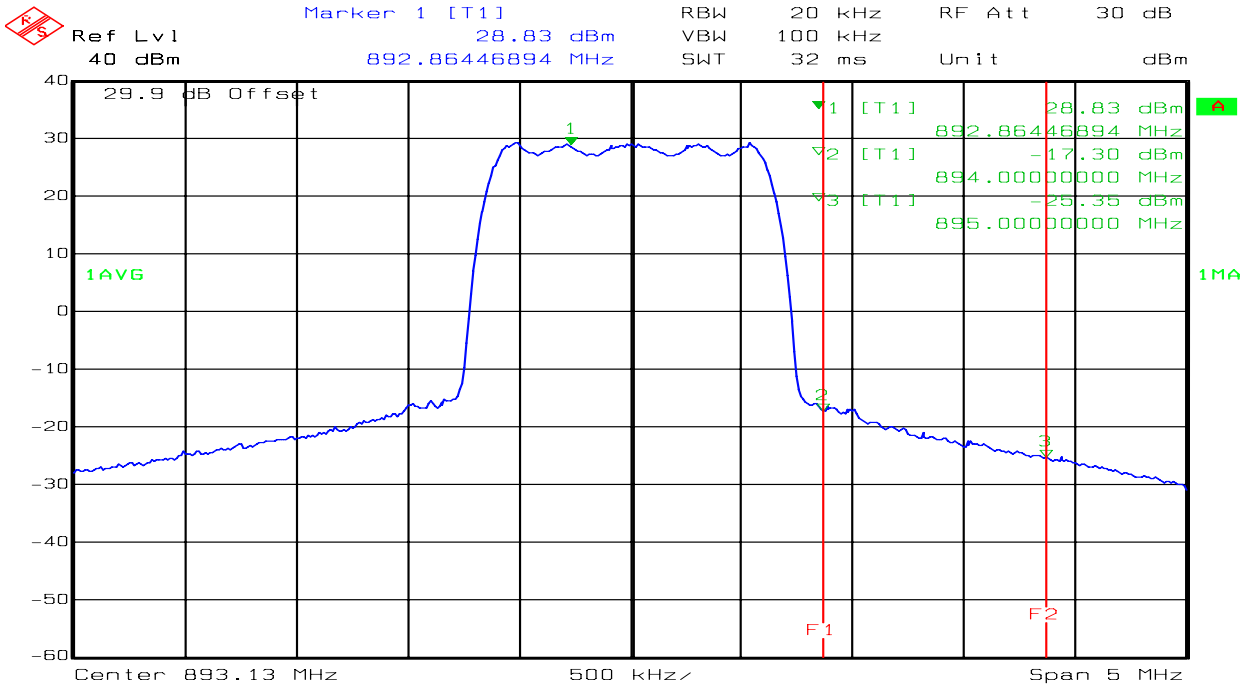
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X FULLBAND ACS CH1019
Date: 3.DEC.2009 11:25:01

Figure 18: 1xRTT, B' Upper Band Edge, Fullband ACS, CH771, Adjacent 15kHz



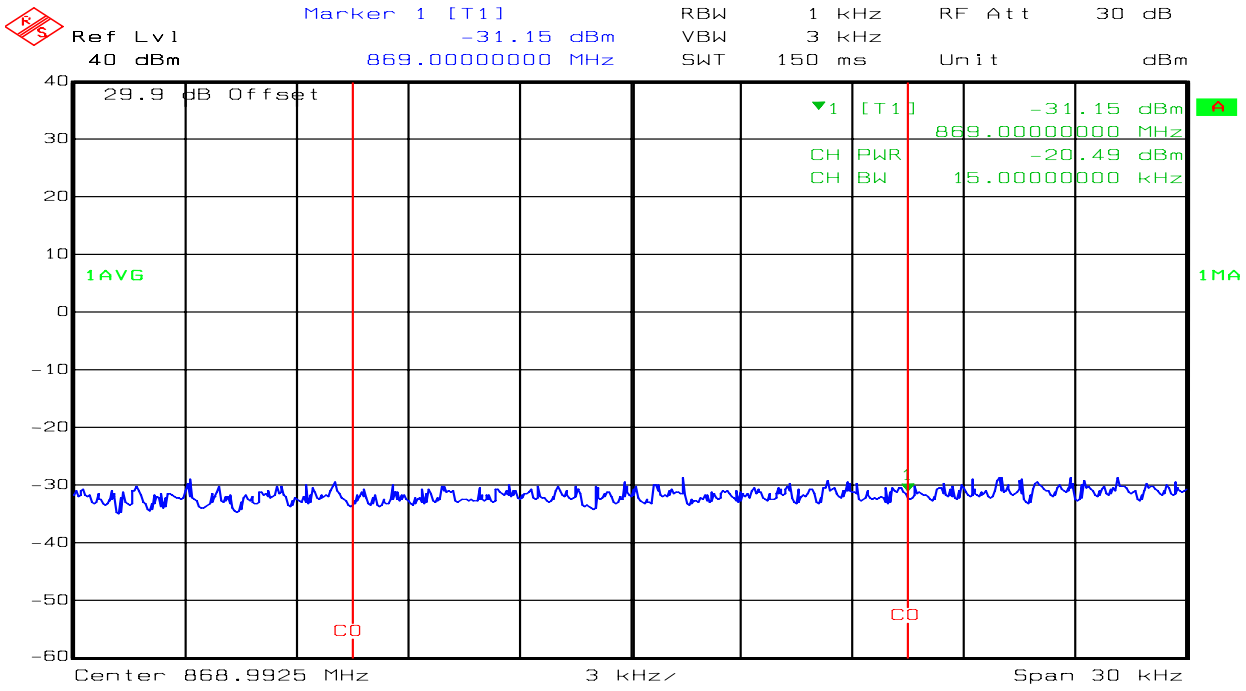
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X FULLBAND ACS CH771
Date: 3.DEC.2009 14:23:17

Figure 19: 1xRTT, B' Upper Band Edge, Fullband ACS, CH771, Adjacent 1MHz



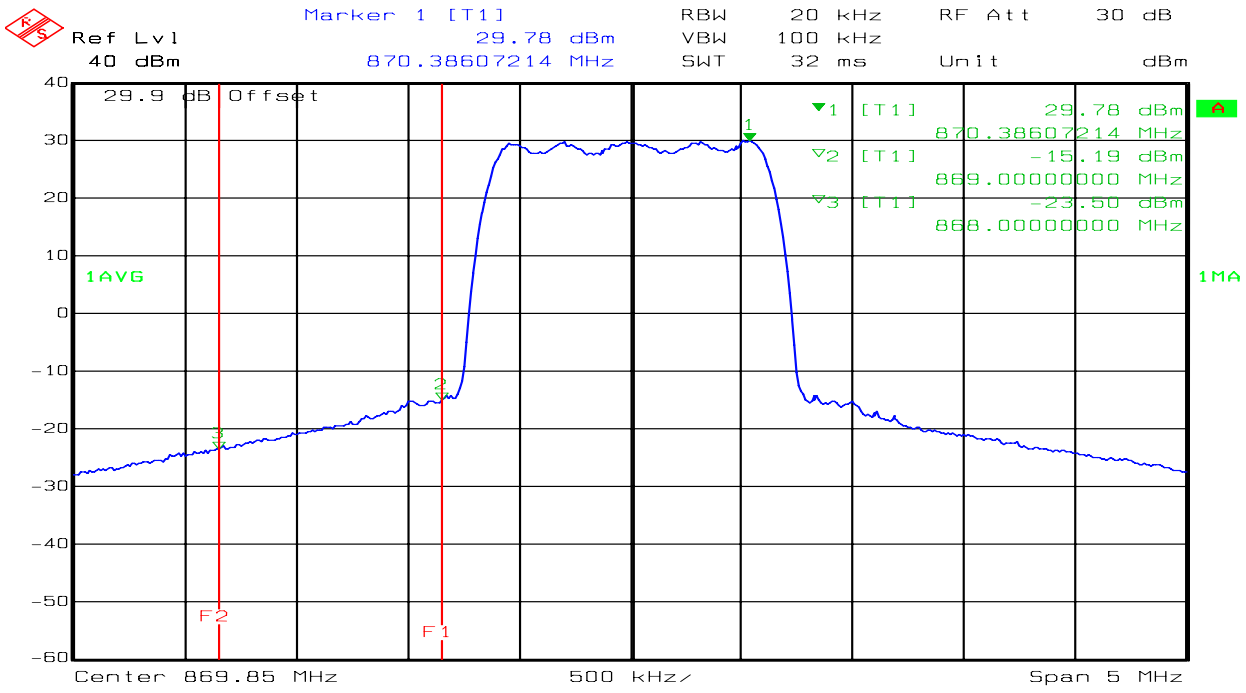
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X FULLBAND ACS CH771
Date: 3.DEC.2009 14:16:21

Figure 20: 1xRTT, A" Lower Band Edge, A"A1 ACS, CH1018, Adjacent 15kHz



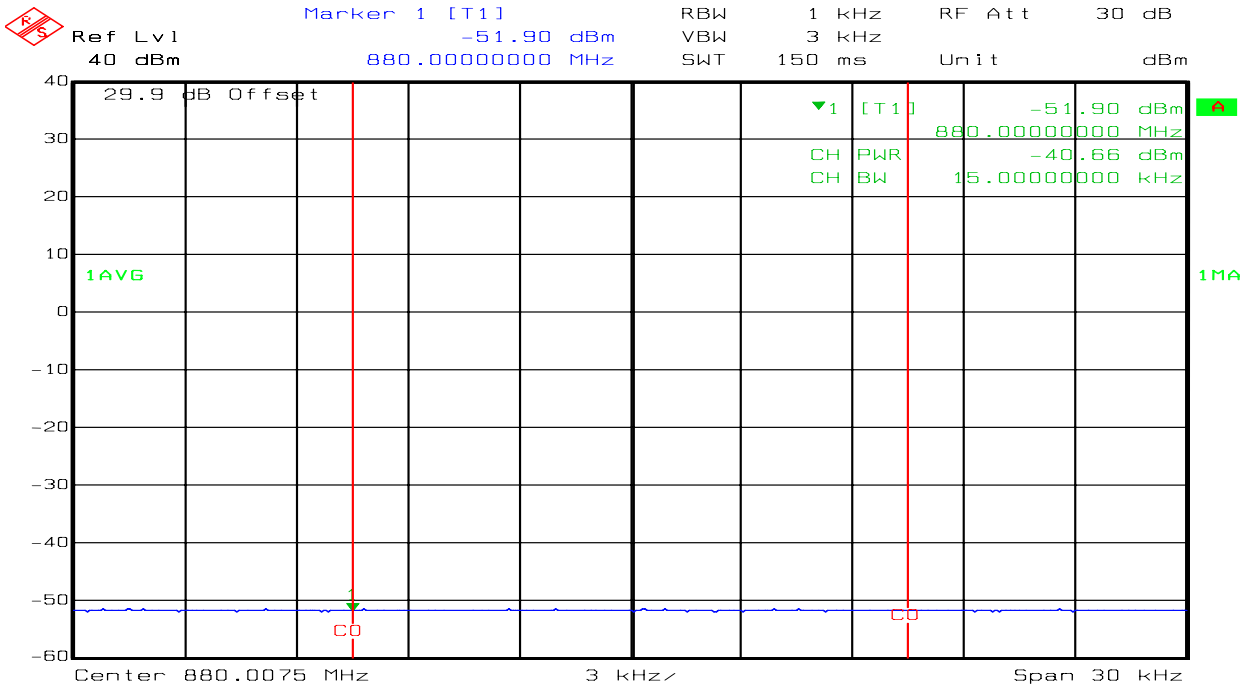
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X A"A1 ACS CH1018
Date: 10.DEC.2009 11:22:32

Figure 21: 1xRTT, A" Lower Band Edge, A"A1 ACS, CH1018, Adjacent 1MHz



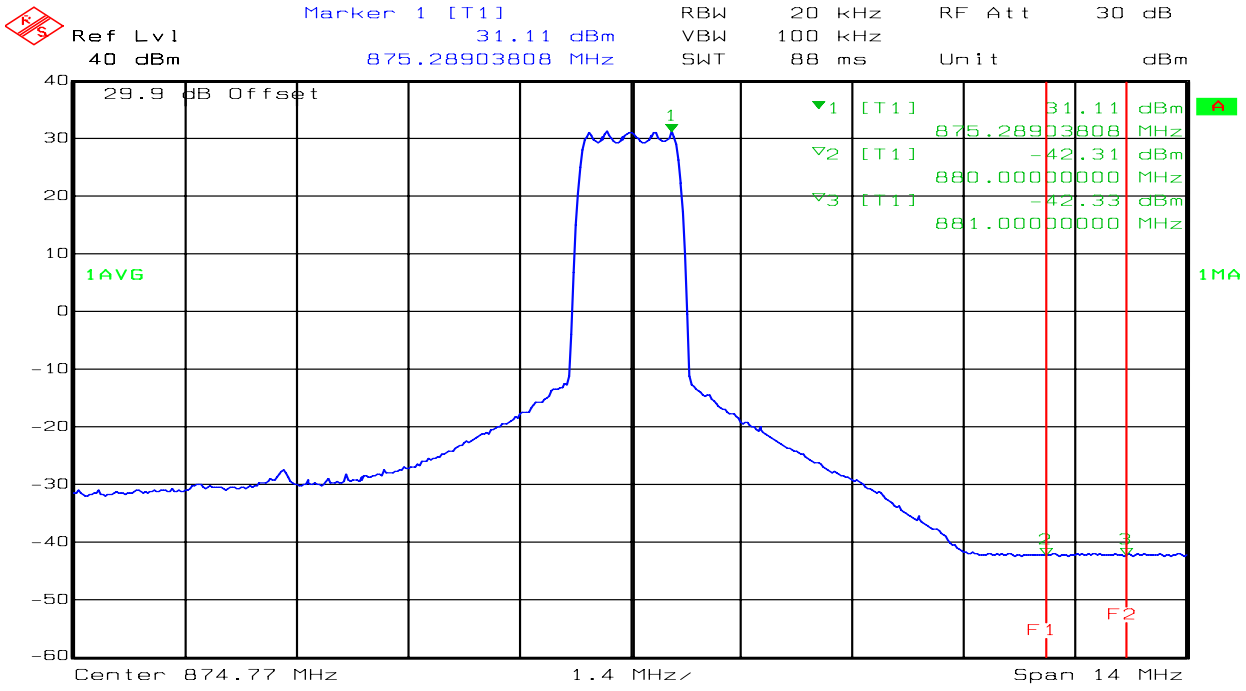
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X A"A1 ACS CH1018
Date: 10.DEC.2009 11:18:17

Figure 22: 1xRTT, A Upper Block Edge, A"A1 ACS, CH159, Adjacent 15kHz



Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X A"A1 ACS CH159
Date: 10.DEC.2009 12:31:18

Figure 23: 1xRTT, A Upper Block Edge, A"A1 ACS, CH159, Adjacent 1MHz




```
Title:      CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:  1X A"A1 ACS CH159
Date:       10.DEC.2009   12:27:15
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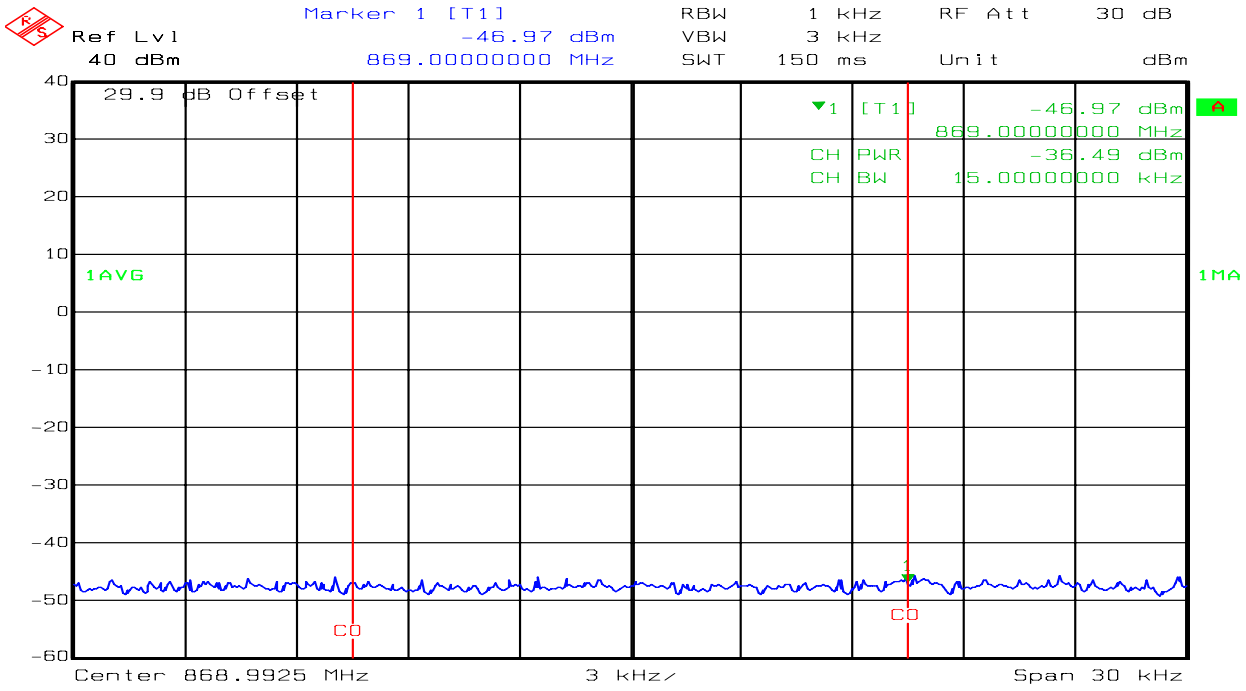
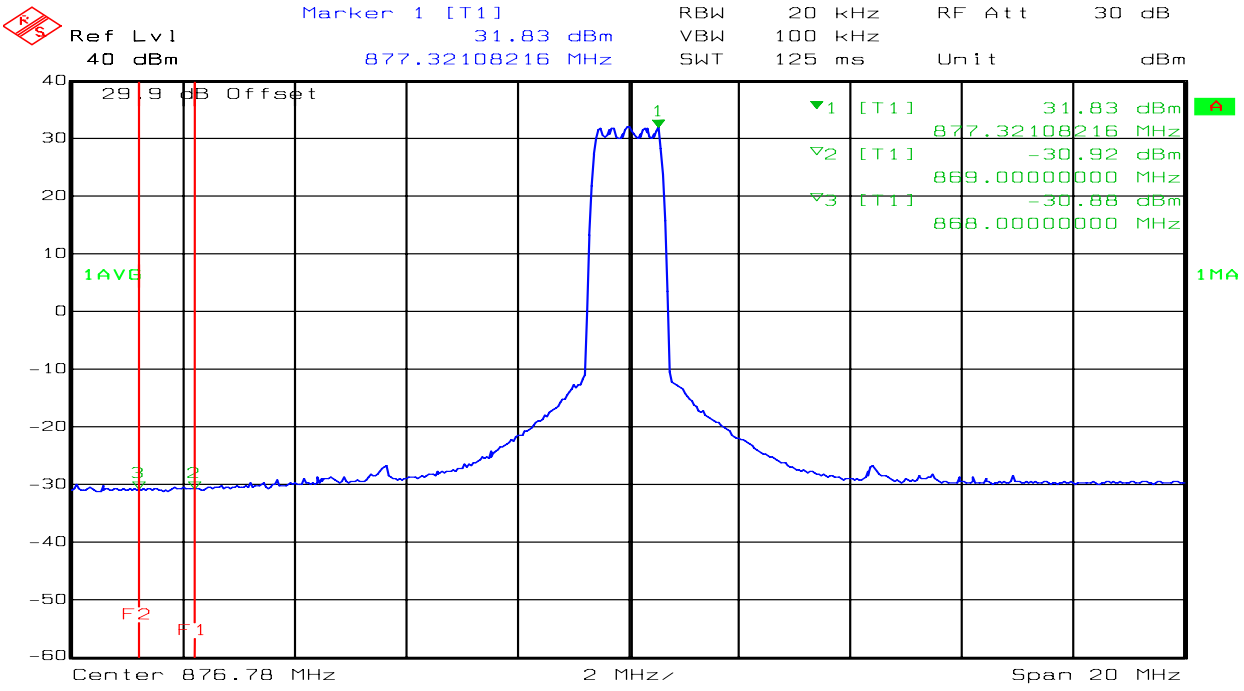
Figure 24: 1xRTT, A" Lower Band Edge, A2B1 ACS, CH226, Adjacent 15kHz



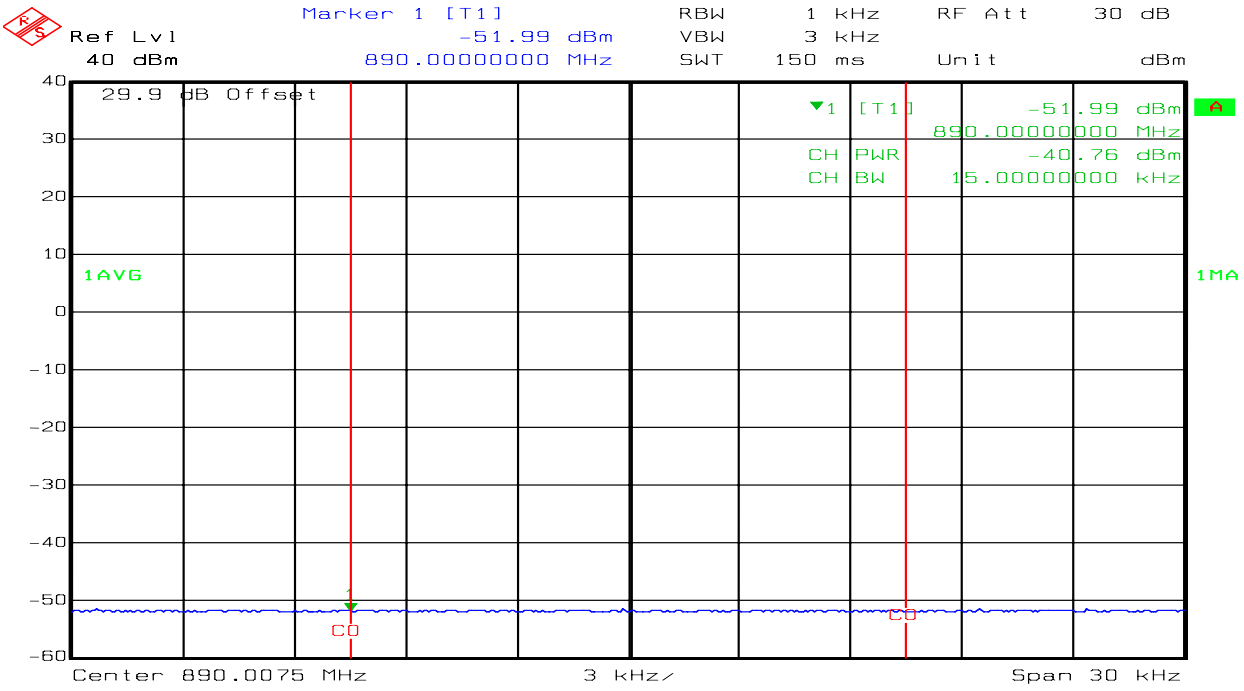

```
Title:      CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:  1X A2B1 ACS CH226
Date:       15.DEC.2009    8:49:46
```

Figure 25: 1xRTT, A" Lower Band Edge, A2B1 ACS, CH226, Adjacent 1MHz



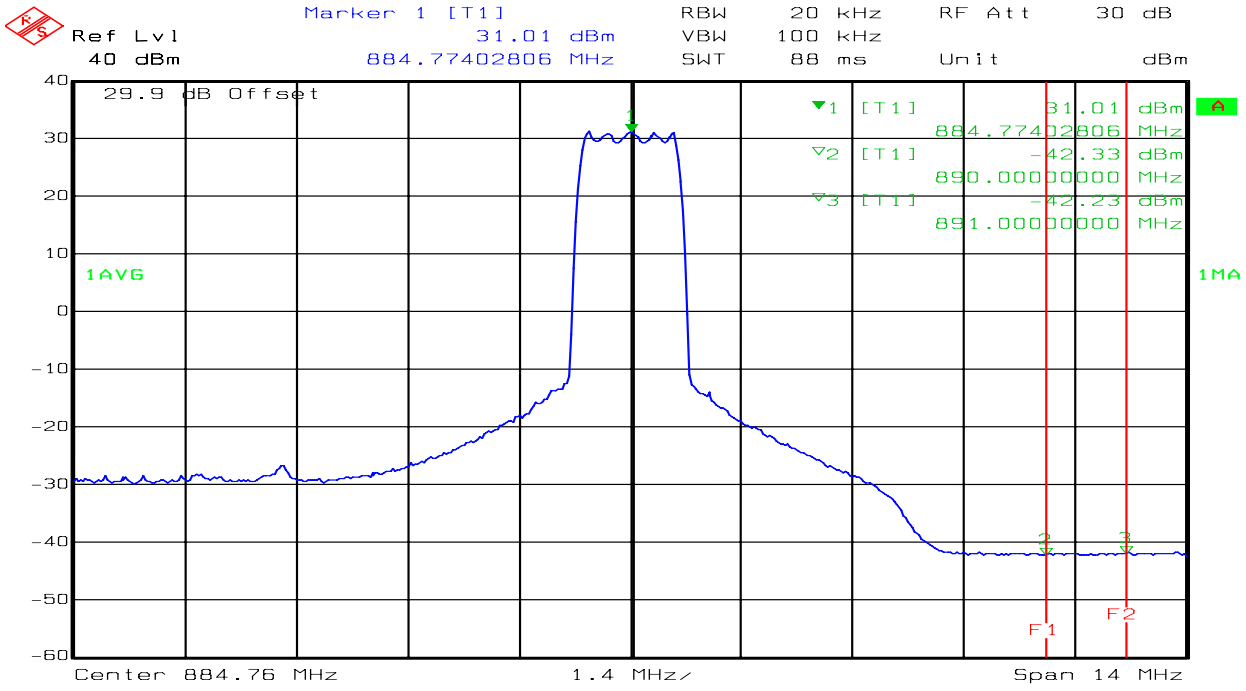
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X A2B1 ACS CH226
Date: 15.DEC.2009 9:34:23

Figure 26: 1xRTT, B Upper Block Edge, A2B1 ACS, CH492, Adjacent 15kHz



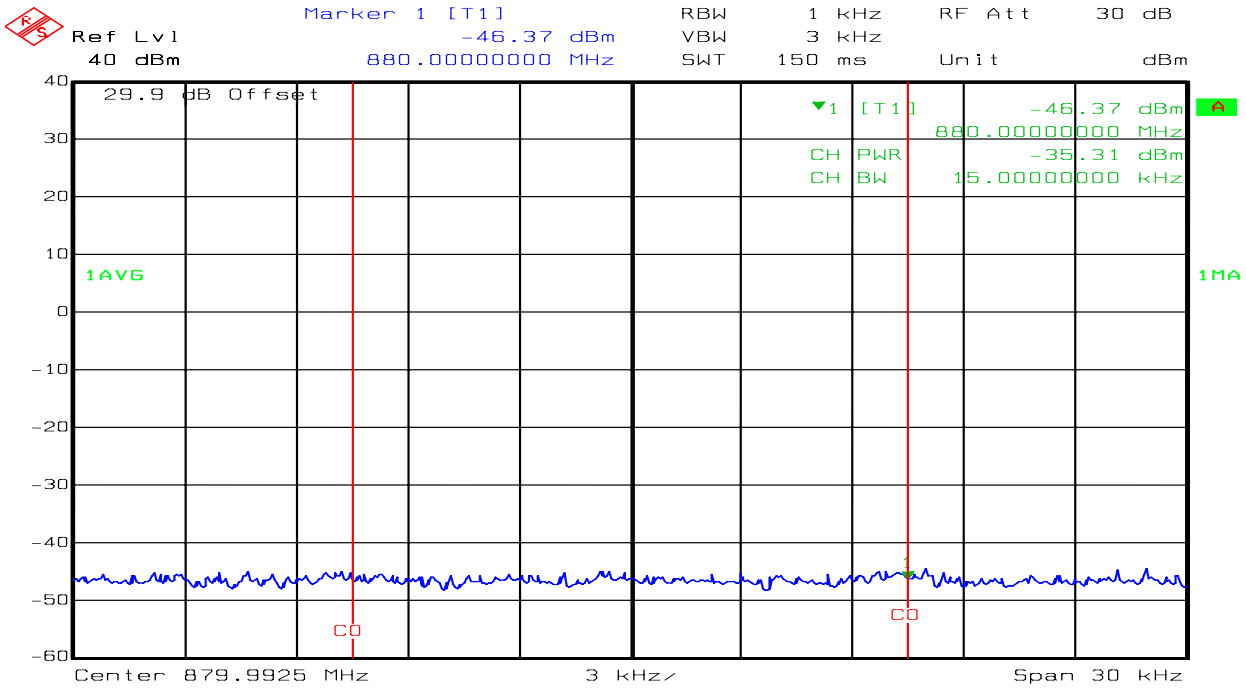
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X A2B1 ACS CH492
Date: 15.DEC.2009 9:09:43

Figure 27: 1xRTT, B Upper Block Edge, A2B1 ACS, CH492, Adjacent 1MHz



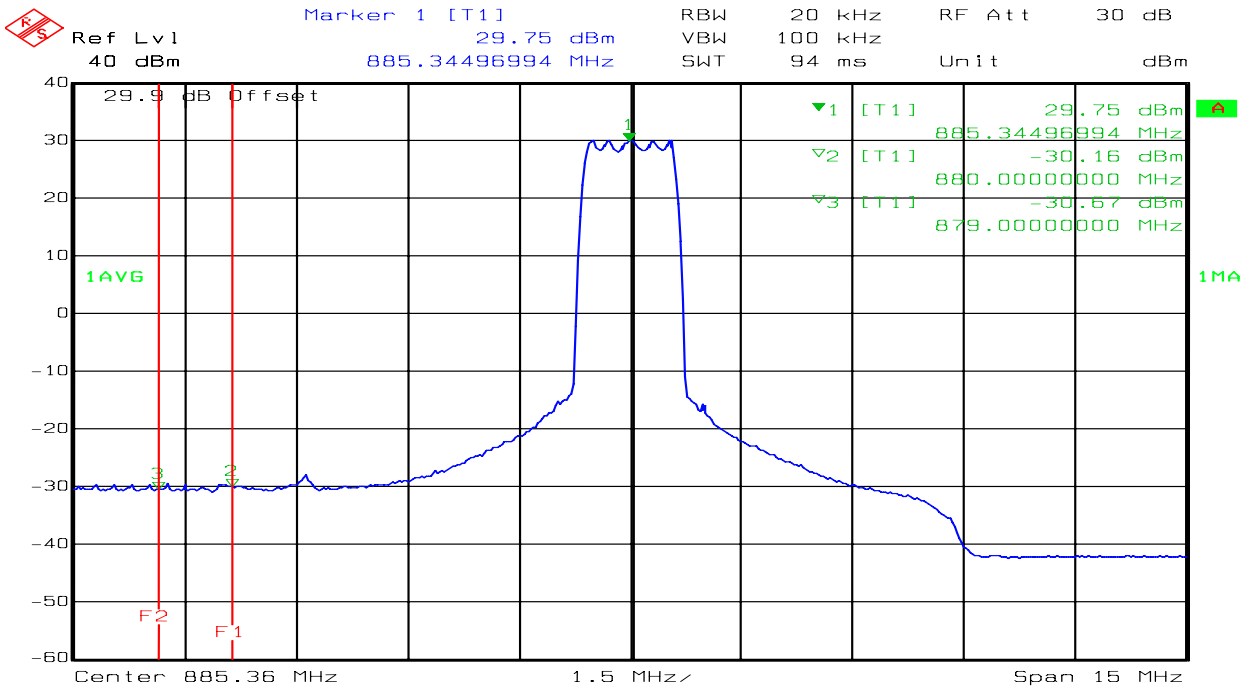

```
Title:      CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:  1X A2B1 ACS CH492
Date:       15.DEC.2009   9:15:28
```

Figure 28: 1xRTT, B Lower Block Edge, B2 ACS, CH512, Adjacent 15kHz



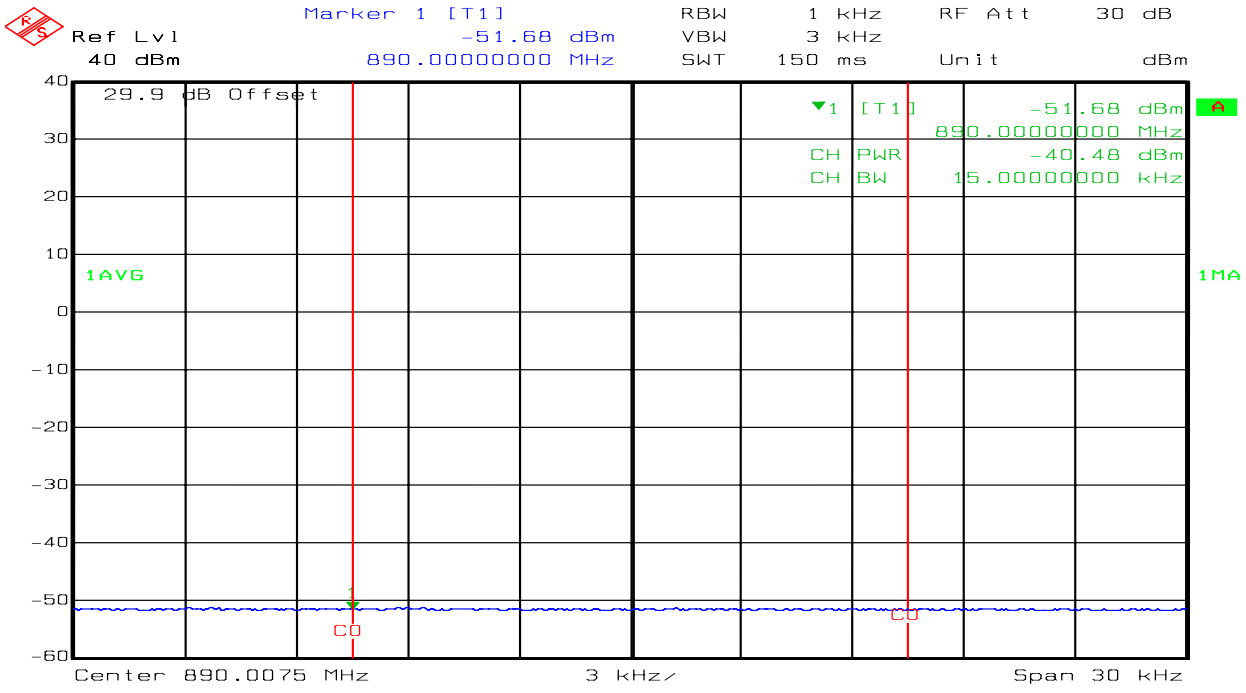

```
Title:      CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:  1X B2 ACS CH512
Date:       16.DEC.2009   11:35:10
```

Figure 29: 1xRTT, B Lower Block Edge, B2 ACS, CH512, Adjacent 1MHz



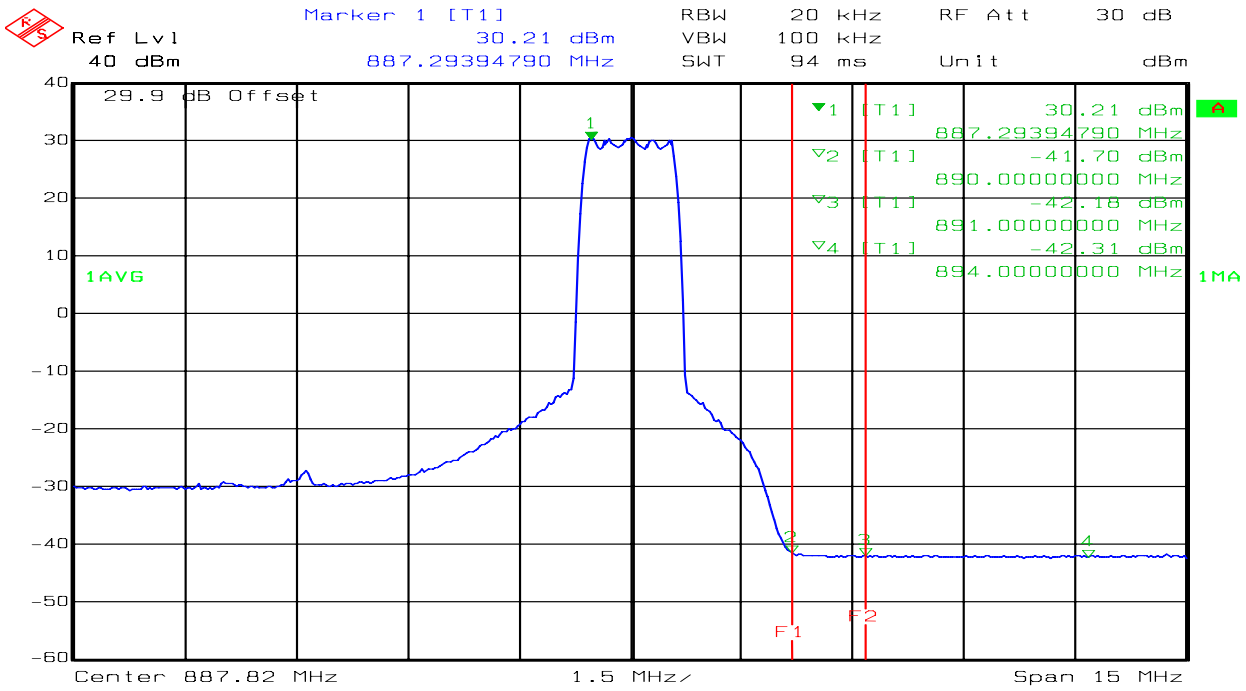

```
Title:      CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:  1X B2 ACS CH512
Date:       16.DEC.2009   12:26:30
```

Figure 30: 1xRTT, B Upper Block Edge, B2 ACS, CH594, Adjacent 15kHz



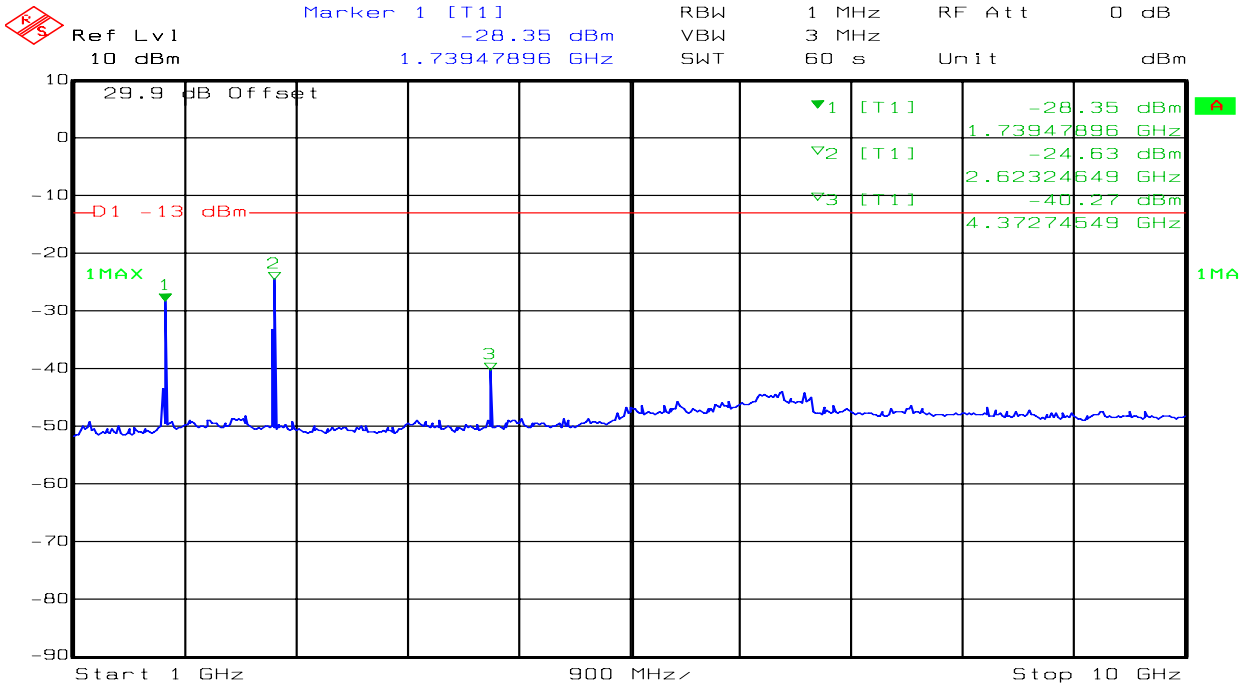

```
Title:      CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:  1X B2 ACS CH594
Date:       16.DEC.2009   11:43:00
```

Figure 31: 1xRTT, B Upper Block Edge, B2 ACS, CH594, Adjacent 1MHz



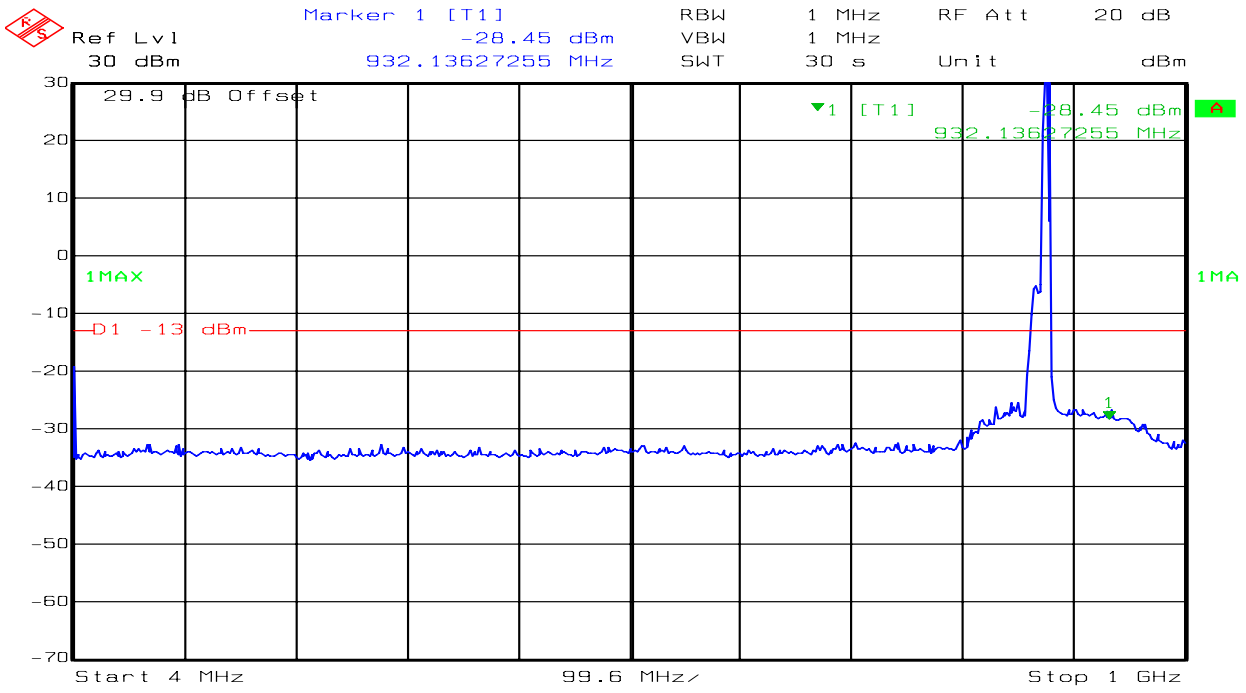
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X B2 ACS CH594
Date: 16.DEC.2009 12:17:13

Figure 32: 1xRTT, 1GHz – 10GHz, A"A1 ACS, CH159, 2nd and 3rd Harmonic



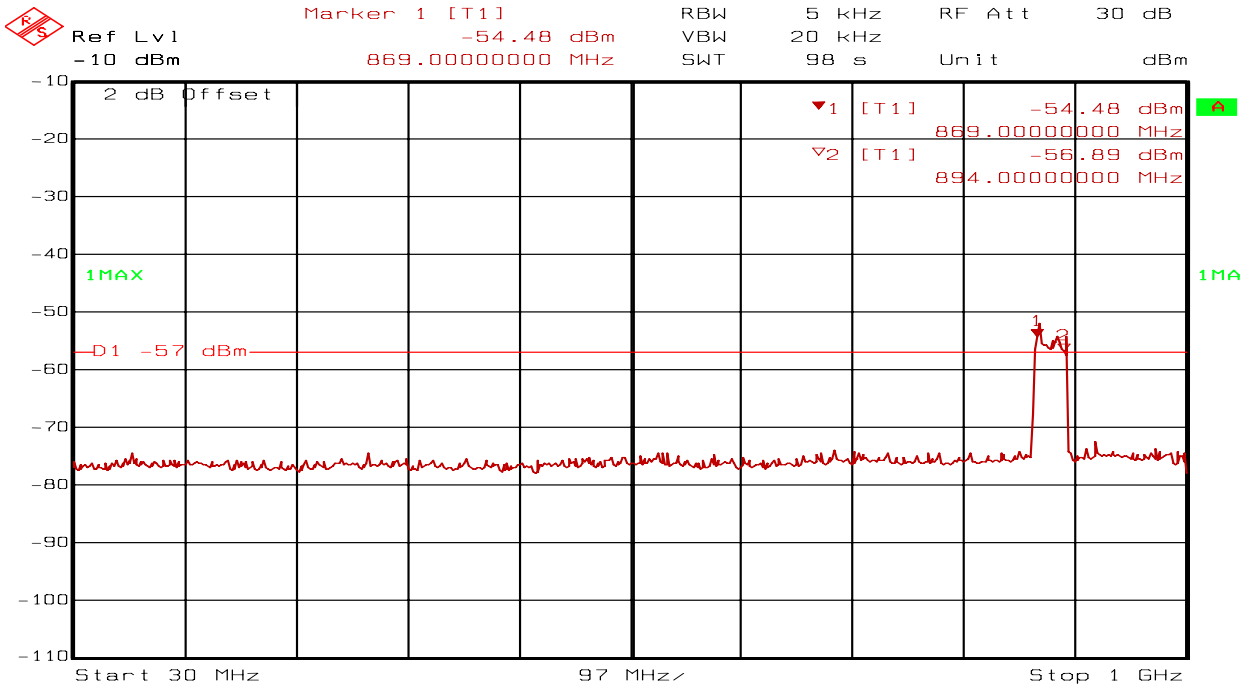
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X A"A1 ACS CH159
Date: 10.DEC.2009 13:24:35

Figure 33: 1xRTT, 4MHz – 1GHz, A"A1 ACS, CH159



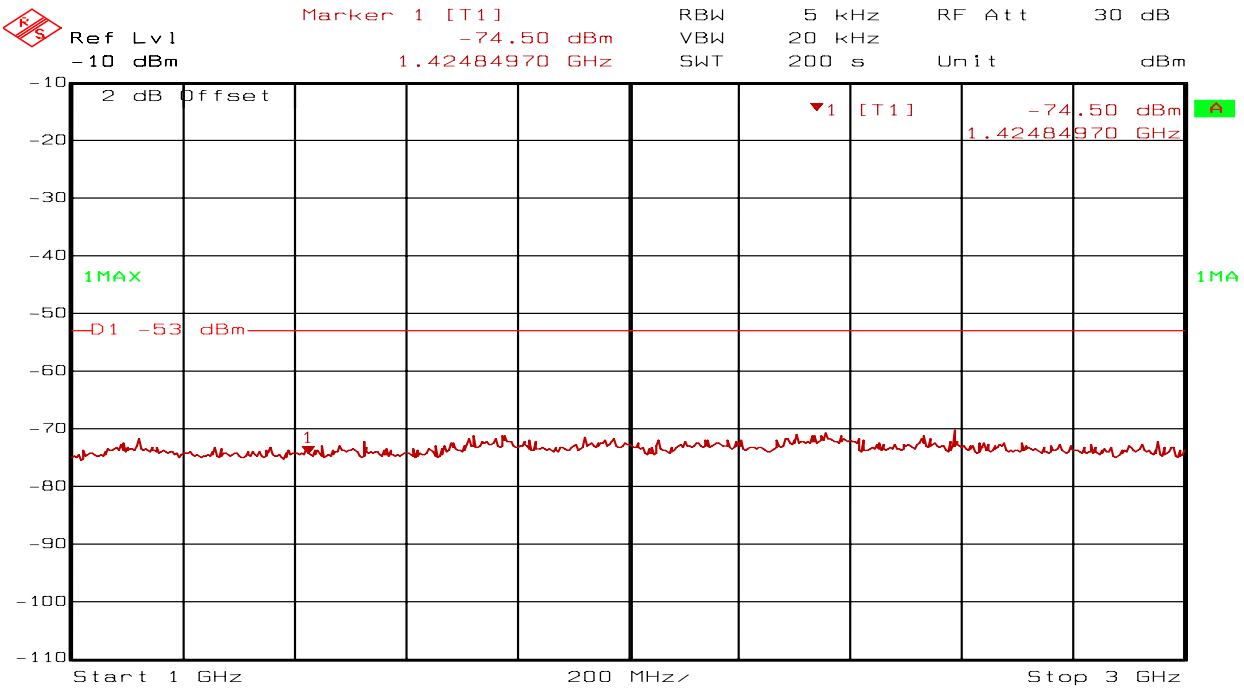
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: 1X A"A1 ACS CH159
Date: 10.DEC.2009 15:55:05

Figure 34: 1xRTT, Receiver Spurious Emissions, 30-1000MHz, Fullband ACS, CH500 (Transmit band leakage)



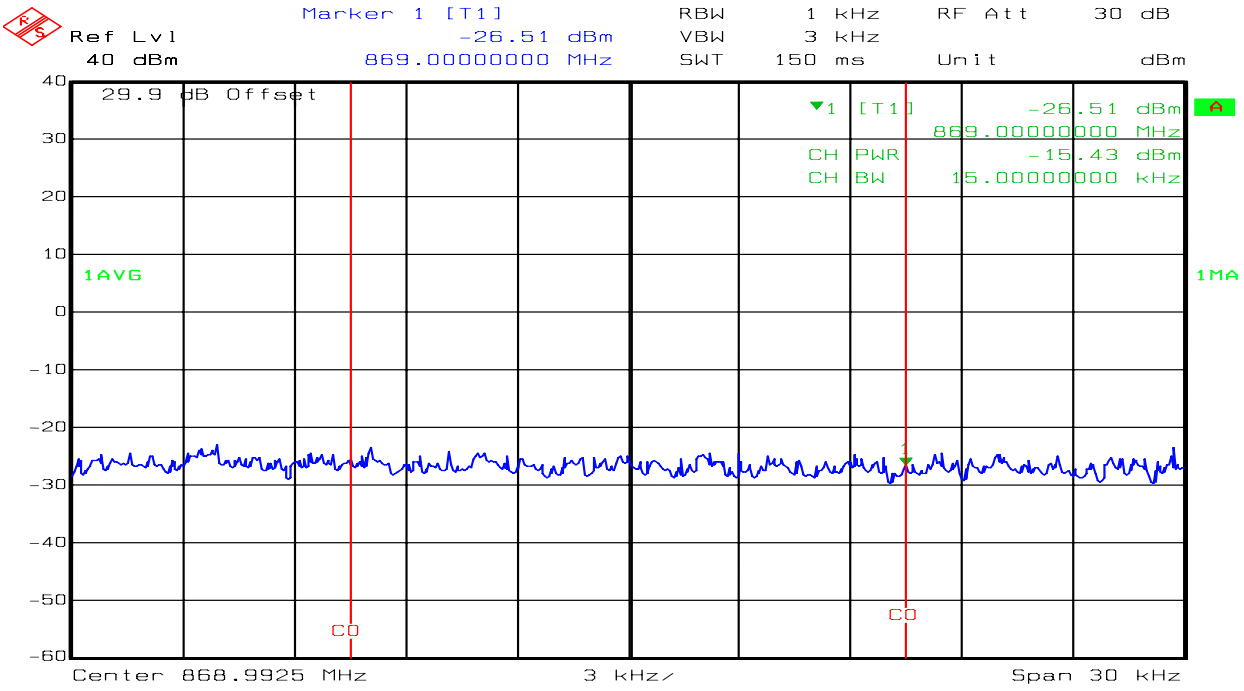
Title: CG-1147 STAR SOLUTIONS 800MHz FA RACK
Comment A: 1X FULLBAND ACS CH500
Date: 9.FEB.2010 15:22:38

Figure 35: 1xRTT, Receiver Spurious Emissions, 1-3GHz, Fullband ACS, CH500



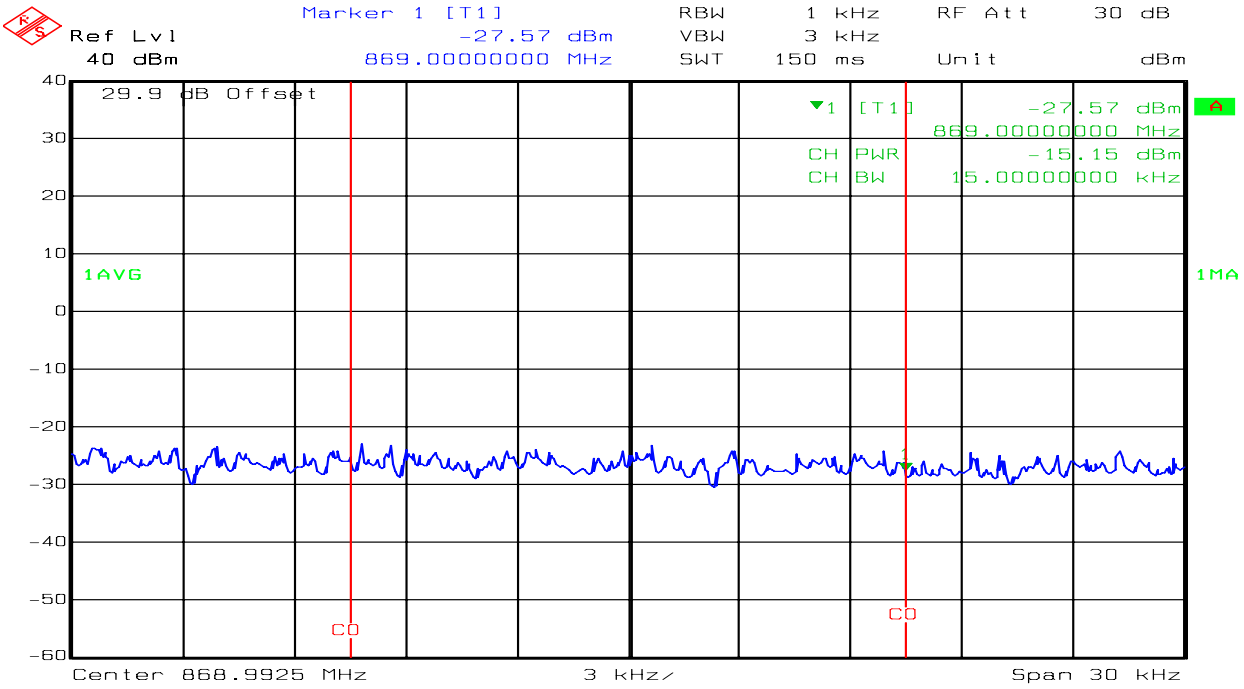
Title: CG-1147 STAR SOLUTIONS 800MHz FA RACK
Comment A: 1X FULLBAND ACS CH500
Date: 9.FEB.2010 15:17:59

Figure 36: 8PSK, 921.6kbps, A" Lower Band Edge, Fullband ACS, CH1019, Adjacent 15kHz



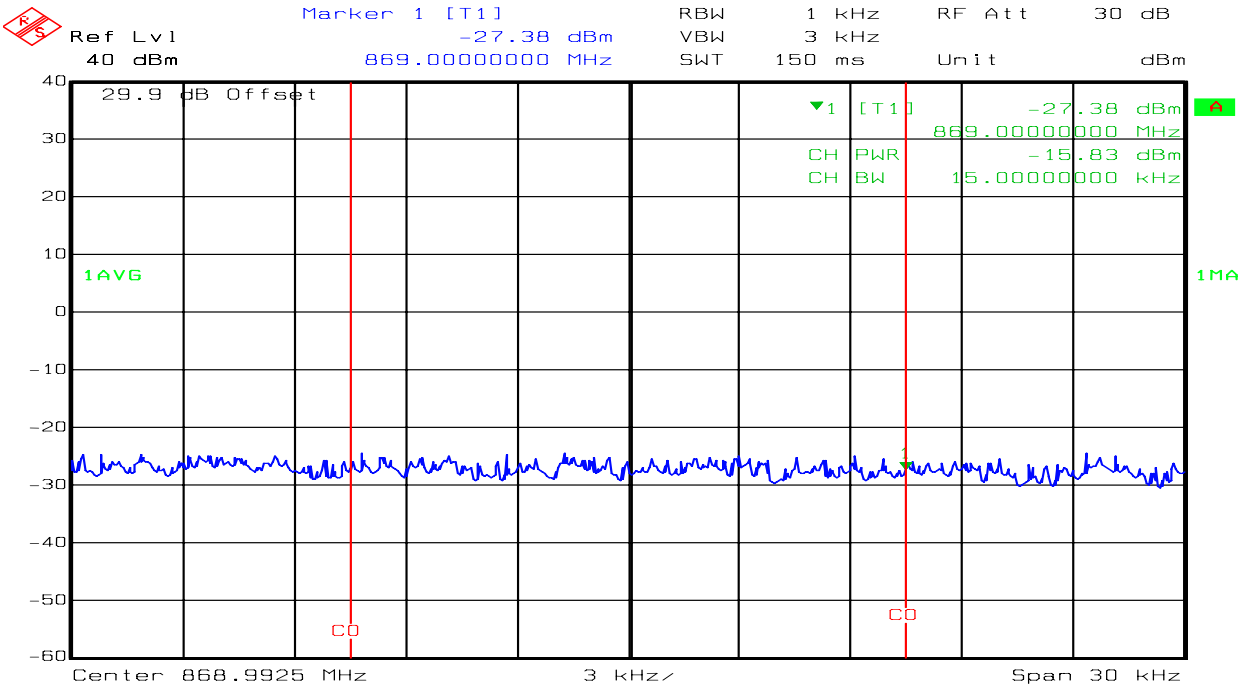
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS 8PSK 921.6kbps CH1019
Date: 3.DEC.2009 10:01:30

Figure 37: 8PSK, 1843.2kbps, A" Lower Band Edge, Fullband ACS, CH1019, Adjacent 15kHz



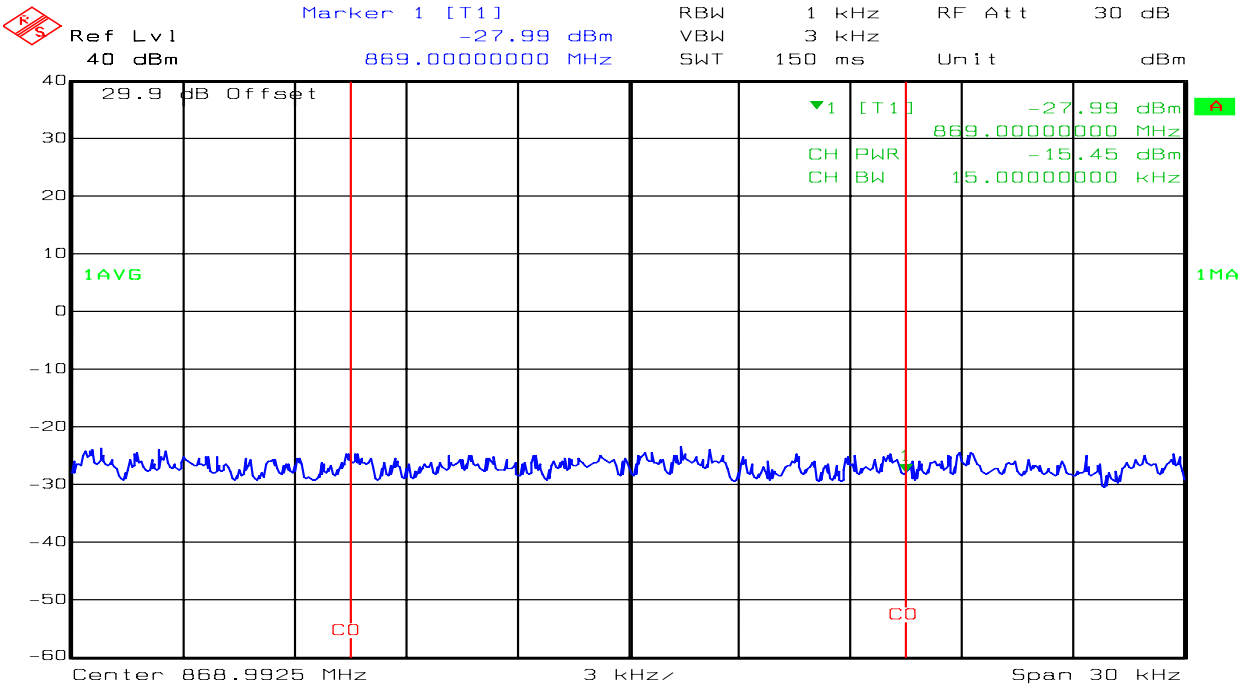
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS 8PSK 1843.2kbps CH1019
Date: 3.DEC.2009 10:07:37

Figure 38: QPSK, 38.4kbps, A" Lower Band Edge, Fullband ACS, CH1019, Adjacent 15kHz



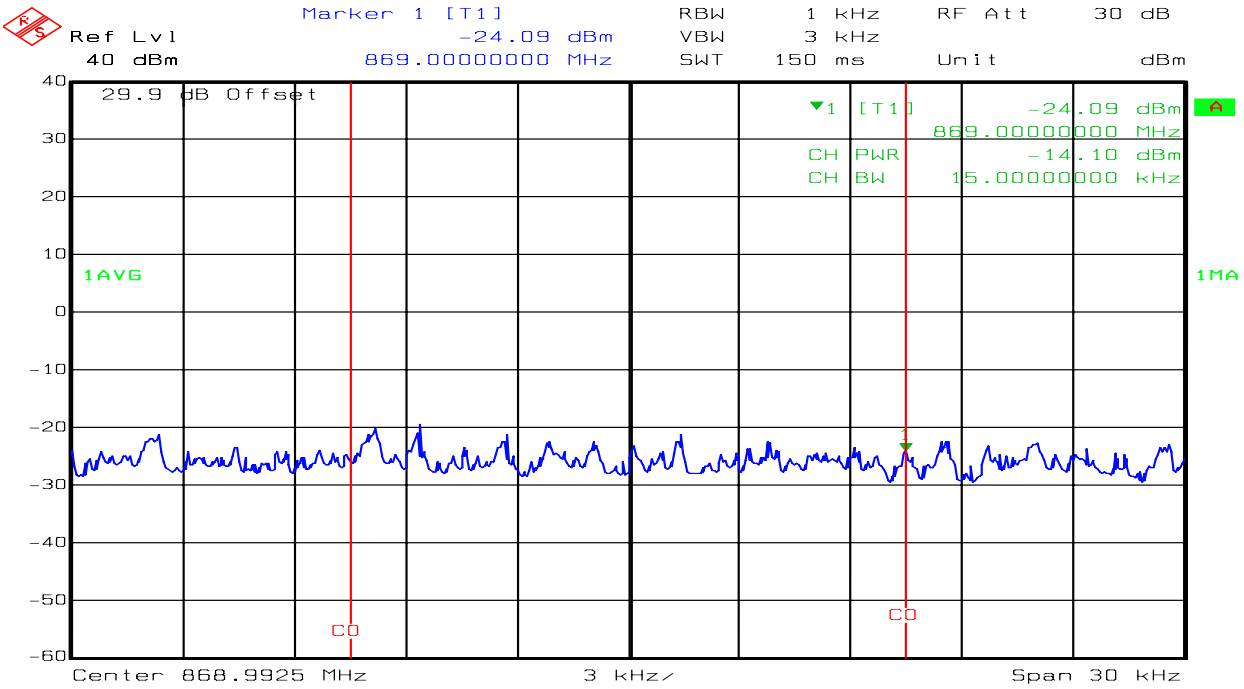
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS QPSK 38.4kbps CH1019
Date: 3.DEC.2009 9:55:44

Figure 39: QPSK, 1228.8kbps, A" Lower Band Edge, Fullband ACS, CH1019, Adjacent 15kHz



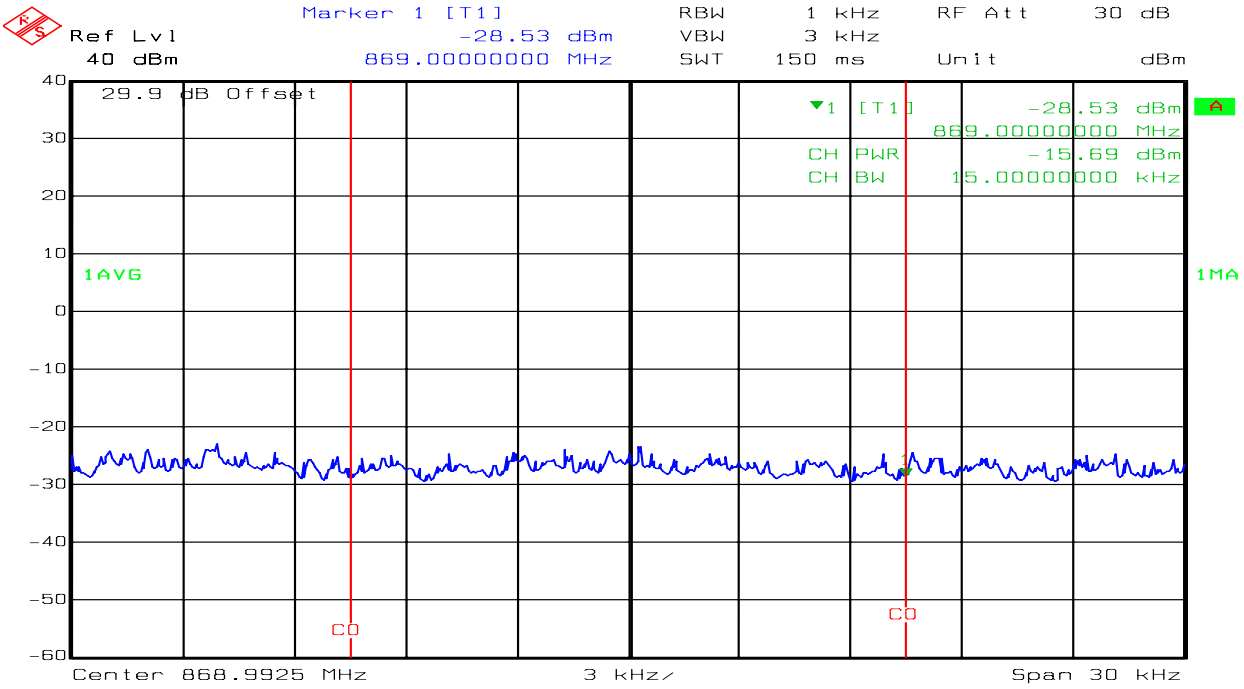
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS QPSK 1228.8kbps CH1019
Date: 3.DEC.2009 9:49:14

Figure 40: 16QAM, 1536kbps, A" Lower Band Edge, Fullband ACS, CH1019, Adjacent 15kHz



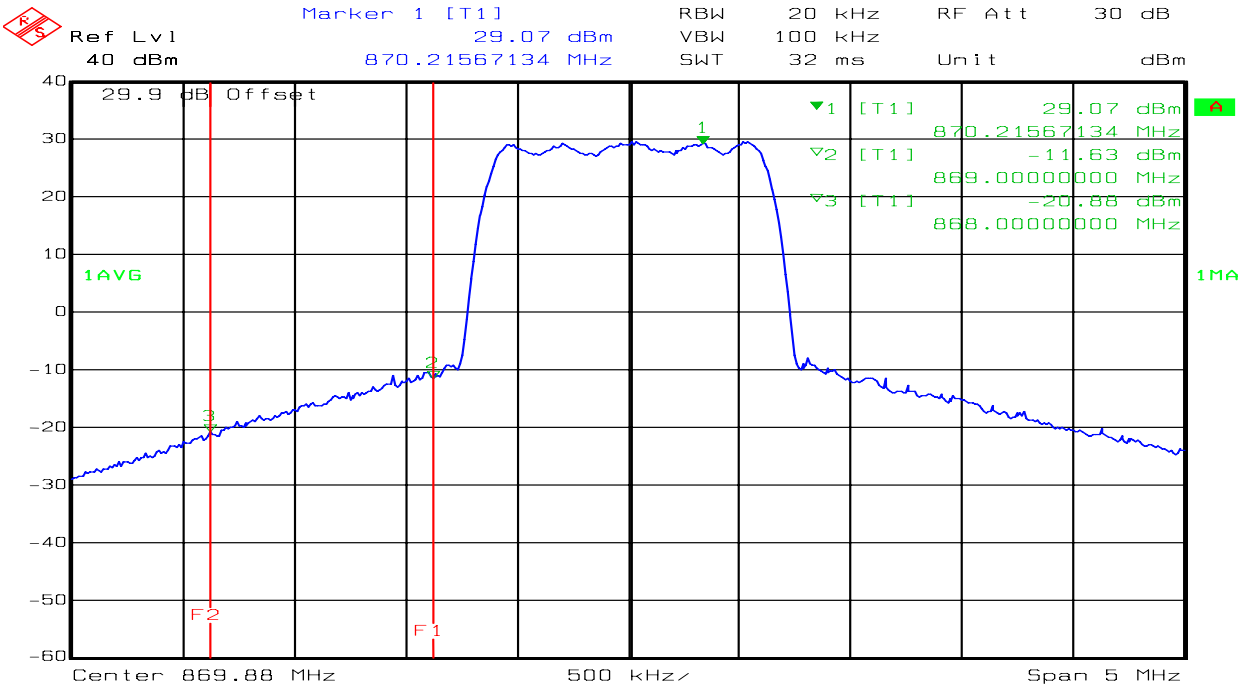
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS 16QAM 1536kbps CH1019
Date: 3.DEC.2009 9:05:47

Figure 41: 16QAM, 2457.6kbps, A" Lower Band Edge, Fullband ACS, CH1019, Adjacent 15kHz




```
Title:       CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:   EVDO FULLBAND ACS 16QAM 2457.6kbps CH1019
Date:          3.DEC.2009    9:42:32
```

Figure 42: 16QAM, 1536kbps, A" Lower Band Edge, Fullband ACS, CH1019, Adjacent 1MHz

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Title:       CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:   EVDO FULLBAND ACS 16QAM 1536kbps CH1019
Date:          3.DEC.2009   11:10:53
```
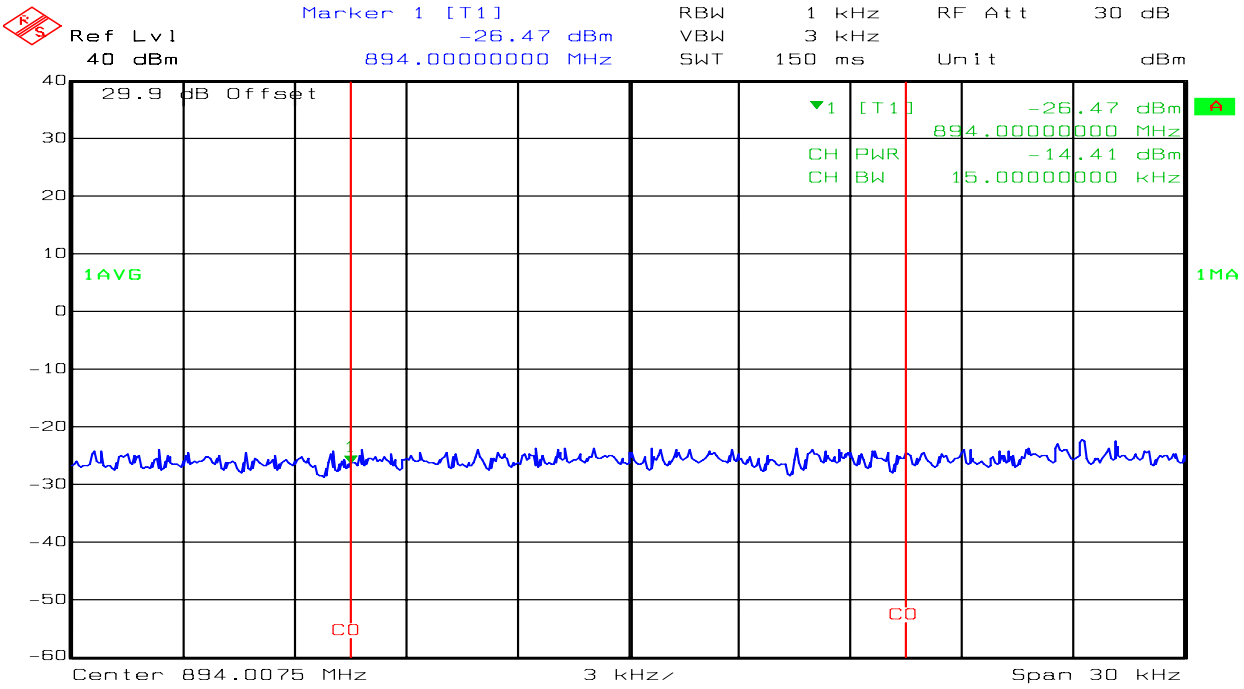
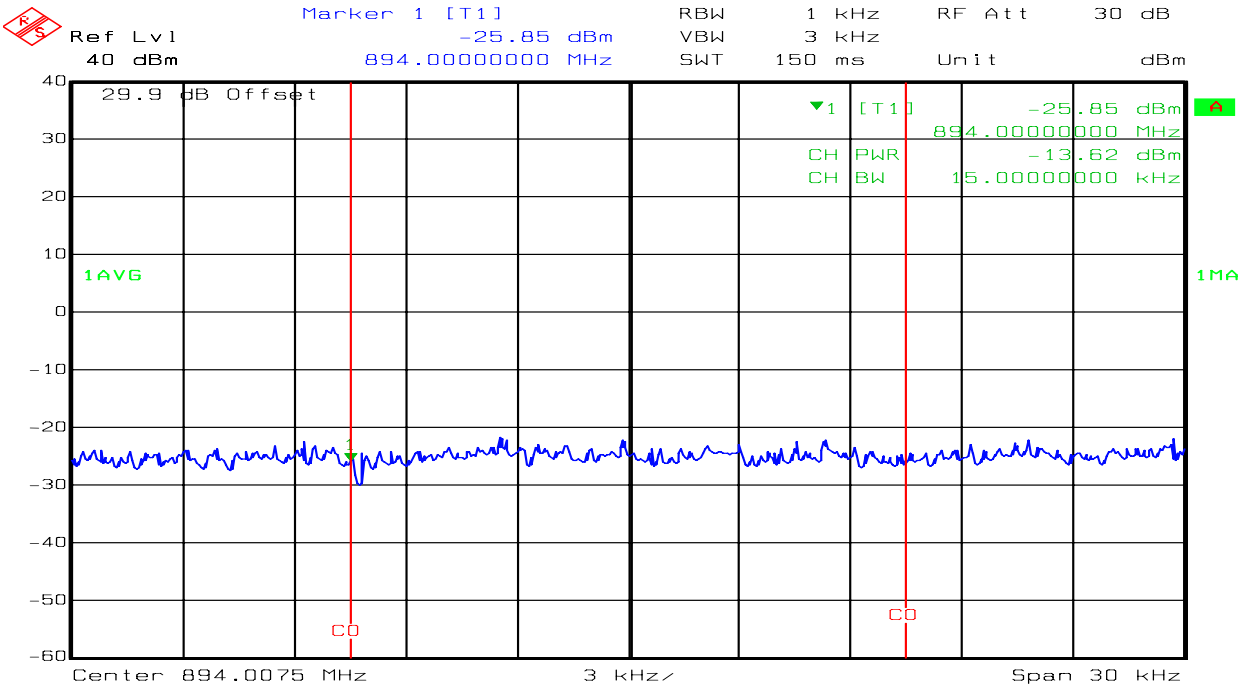

Figure 43: 8PSK, 921.6kbps, B' Upper Band Edge, Fullband ACS, CH771, Adjacent 15kHz



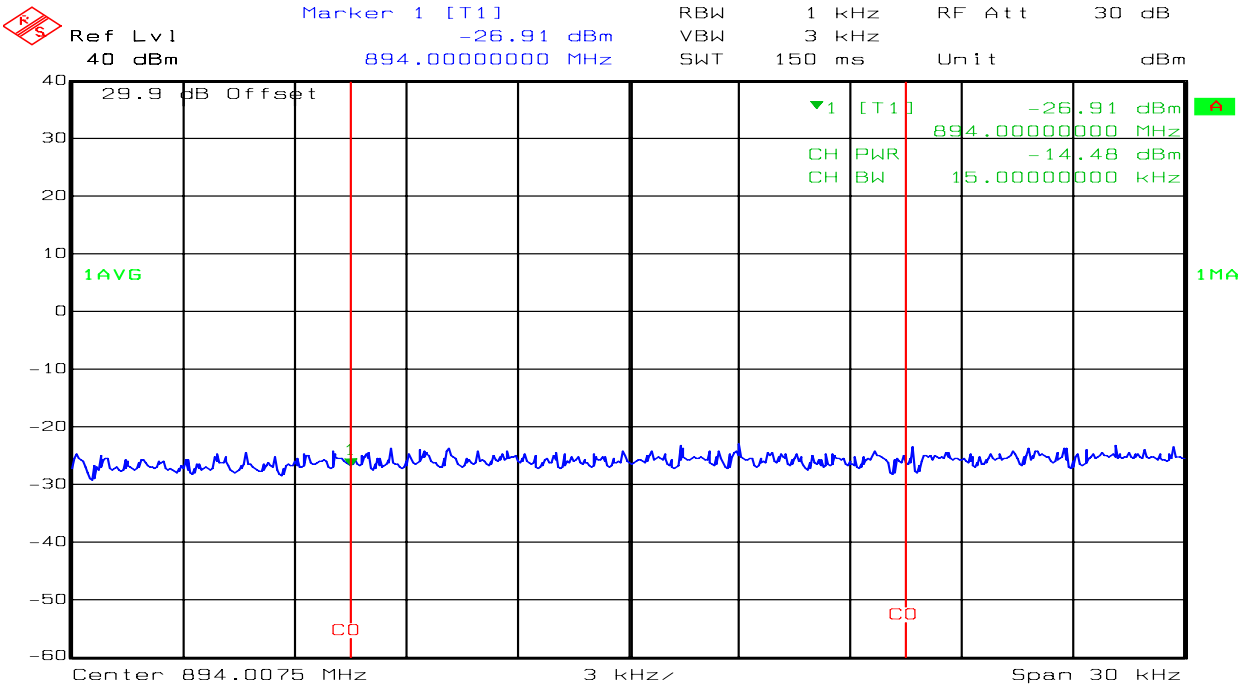
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS 8PSK 921.6kbps CH771
Date: 3.DEC.2009 13:04:03

Figure 44: 8PSK, 1843.2kbps, B' Upper Band Edge, Fullband ACS, CH771, Adjacent 15kHz



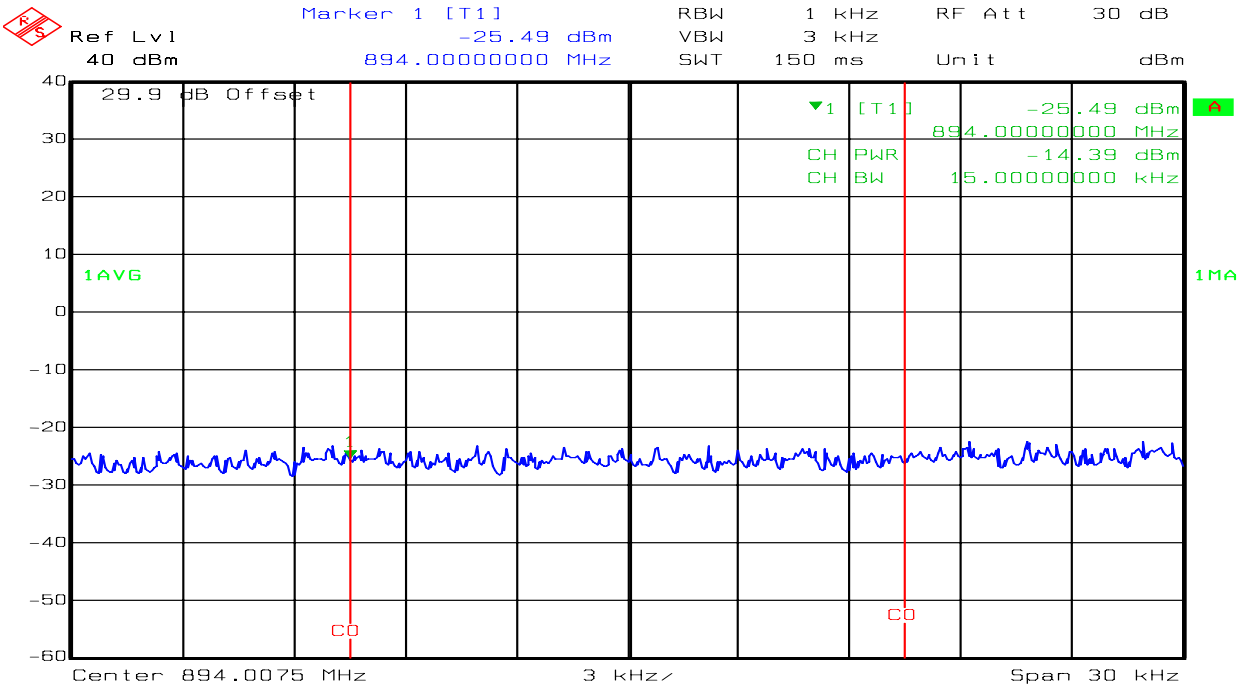
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS 8PSK 1843.2kbps CH771
Date: 3.DEC.2009 13:11:08

Figure 45: QPSK, 38.4kbps, B' Upper Band Edge, Fullband ACS, CH771, Adjacent 15kHz



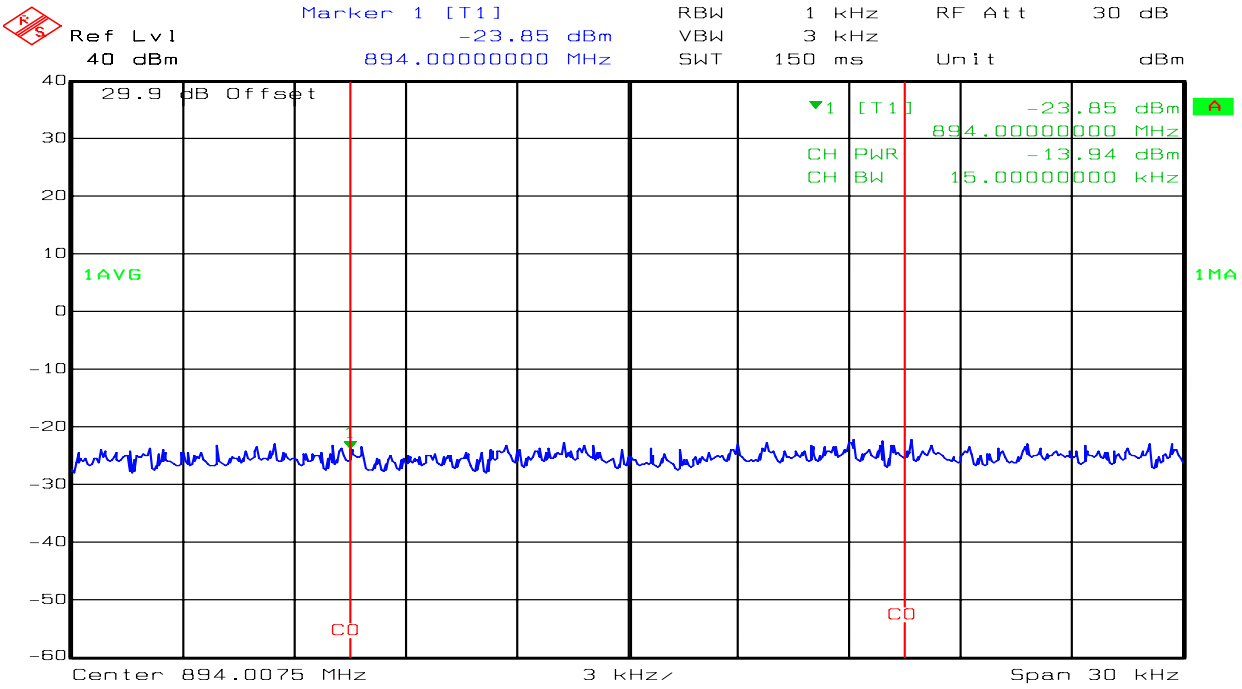
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS QPSK 38.4kbps CH771
Date: 3.DEC.2009 12:57:39

Figure 46: QPSK, 1228.8kbps, B' Upper Band Edge, Fullband ACS, CH771, Adjacent 15kHz



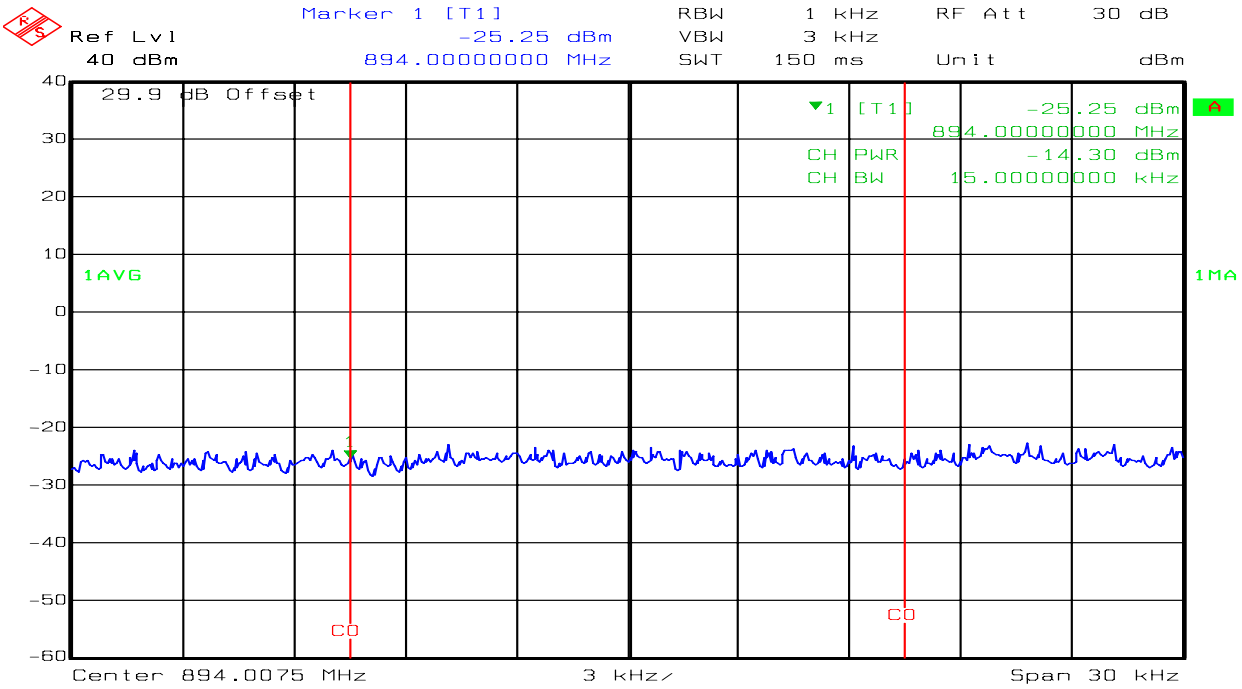
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS QPSK 1228.8kbps CH771
Date: 3.DEC.2009 12:51:23

Figure 47: 16QAM, 1536kbps, B' Upper Band Edge, Fullband ACS, CH771, Adjacent 15kHz



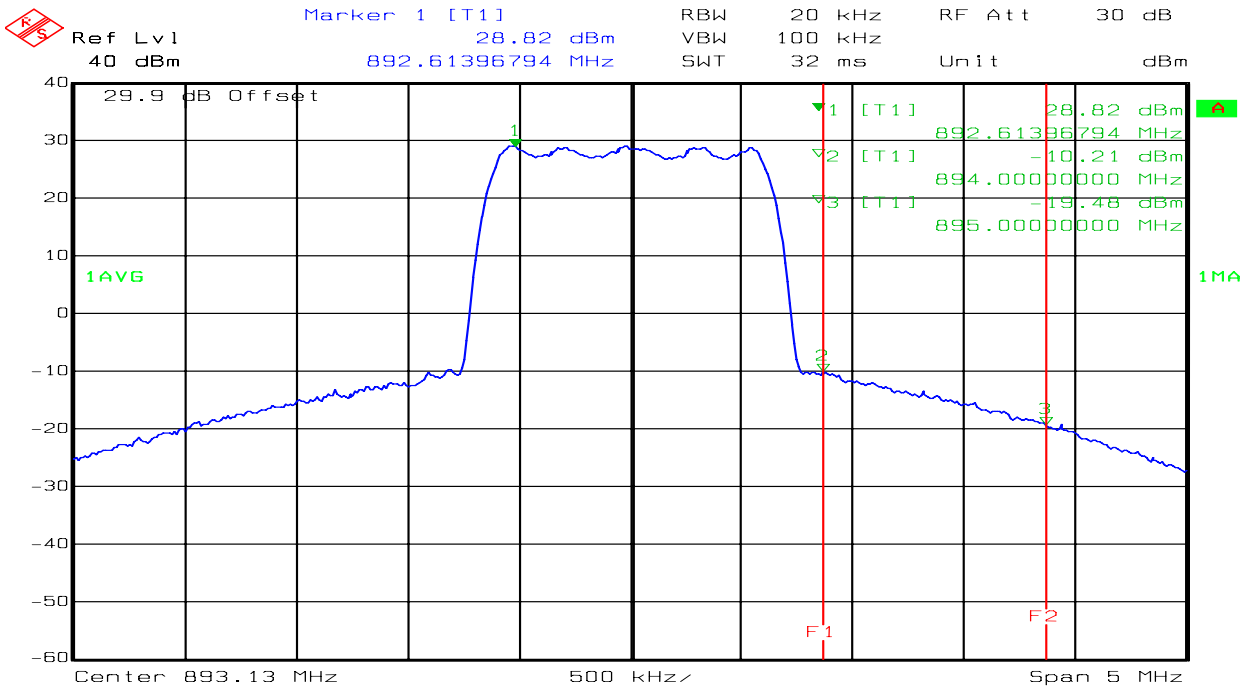
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS 16QAM 1536kbps CH771
Date: 3.DEC.2009 12:37:58

Figure 48: 16QAM, 2457.6kbps, B' Upper Band Edge, Fullband ACS, CH771, Adjacent 15kHz



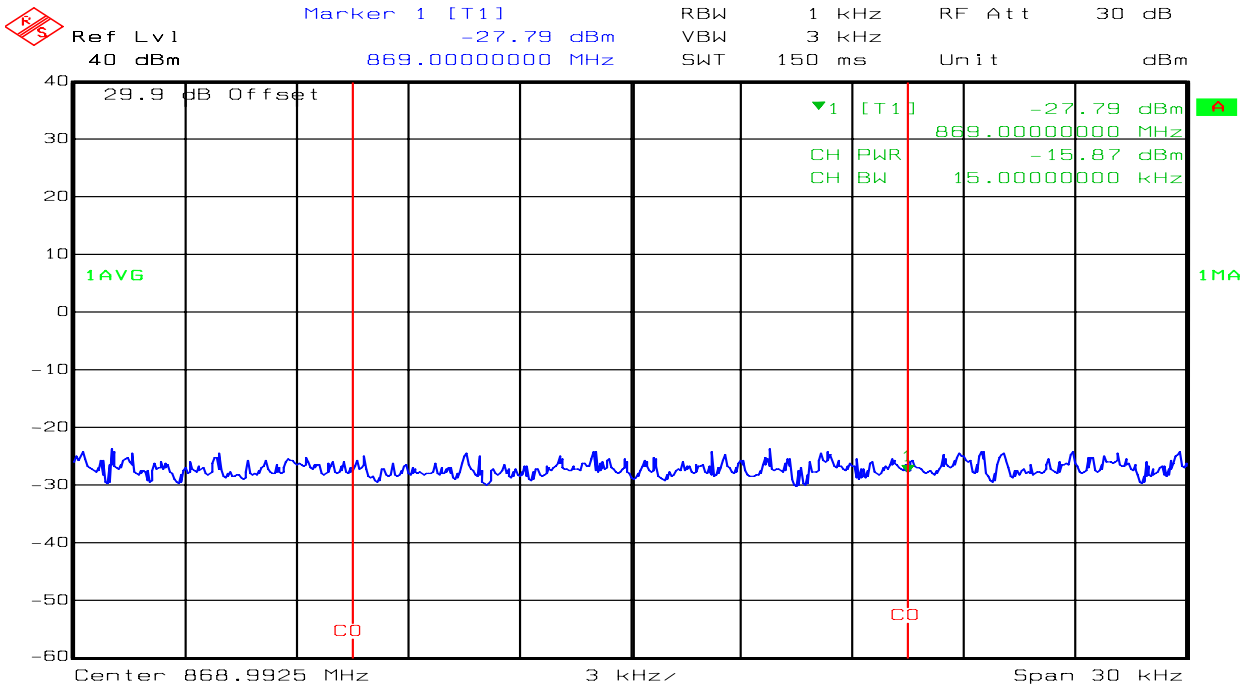
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS 16QAM 2457.6kbps CH771
Date: 3.DEC.2009 12:45:58

Figure 49: 8PSK, 1843.2kbps, B' Upper Band Edge, Fullband ACS, CH771, Adjacent 1MHz



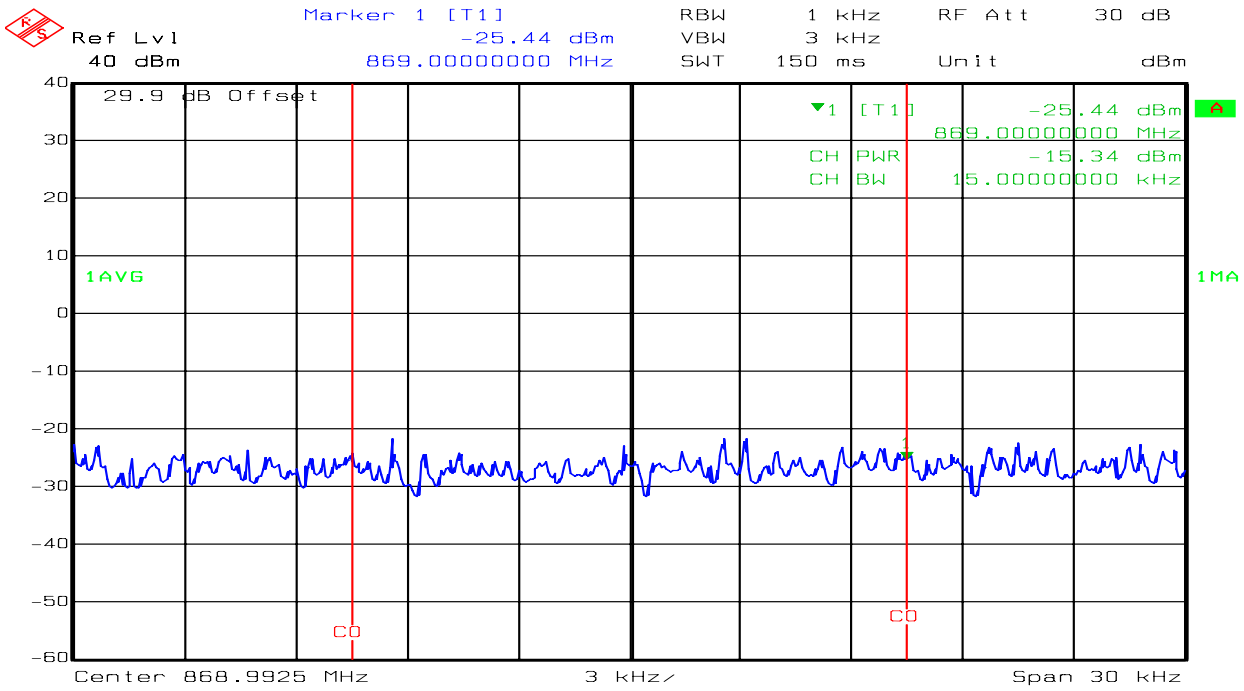
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO FULLBAND ACS 8PSK 1843.2kbps CH771
Date: 3.DEC.2009 13:28:12

Figure 50: 8PSK, 921.6kbps, A" Lower Band Edge, A"A1 ACS, CH1018, Adjacent 15kHz



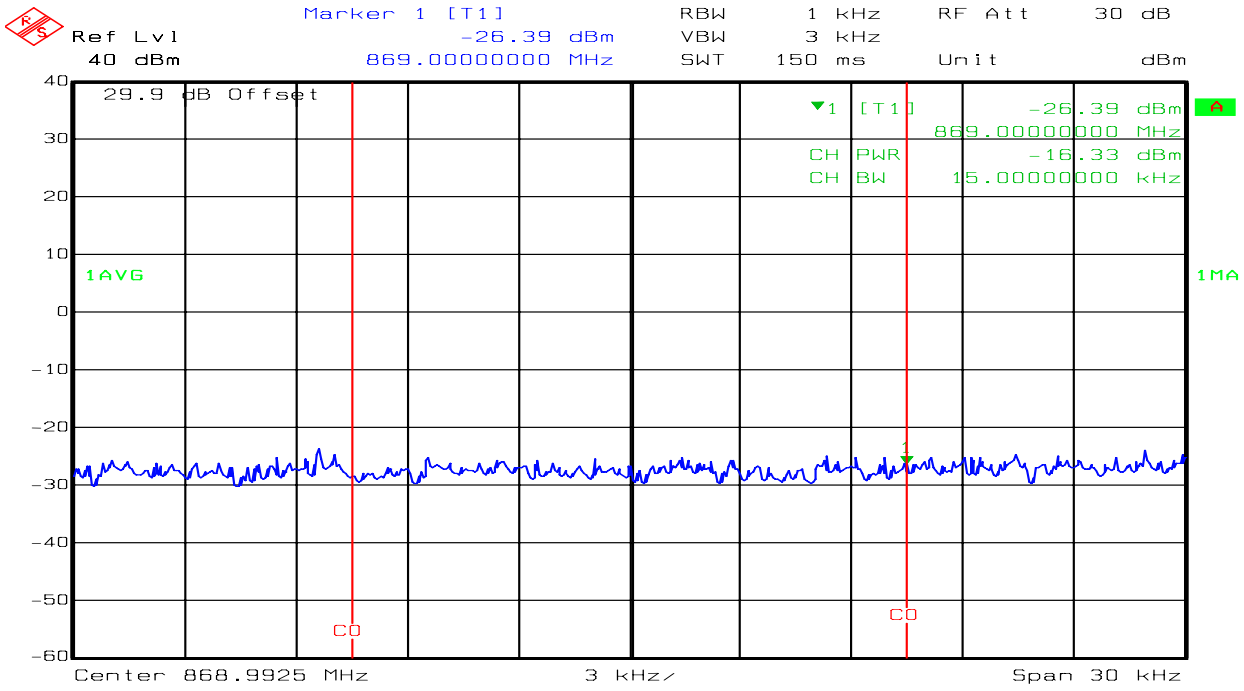
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A"A1 ACS 8PSK 921.6kbps CH1018
Date: 10.DEC.2009 10:12:36

Figure 51: 8PSK, 1843.2kbps, A" Lower Band Edge, A"A1 ACS, CH1018, Adjacent 15kHz



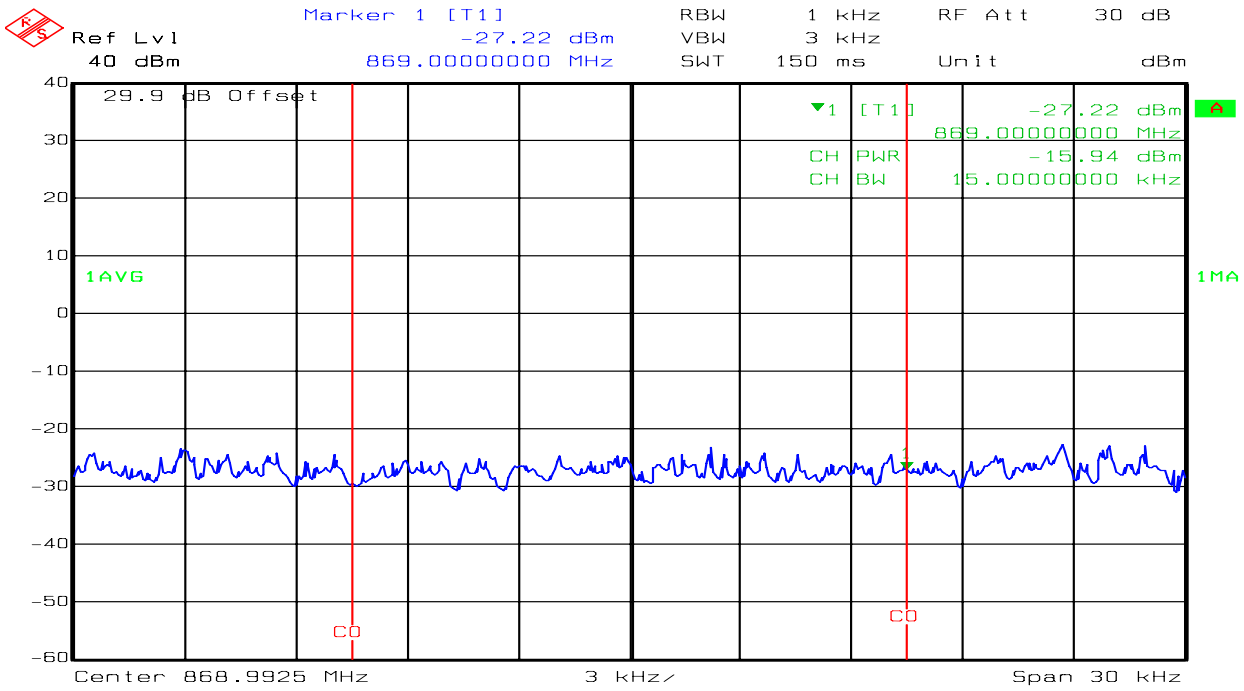
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A"A1 ACS 8PSK 1843.2kbps CH1018
Date: 10.DEC.2009 10:19:31

Figure 52: QPSK, 38.4kbps, A" Lower Band Edge, A"A1 ACS, CH1018, Adjacent 15kHz



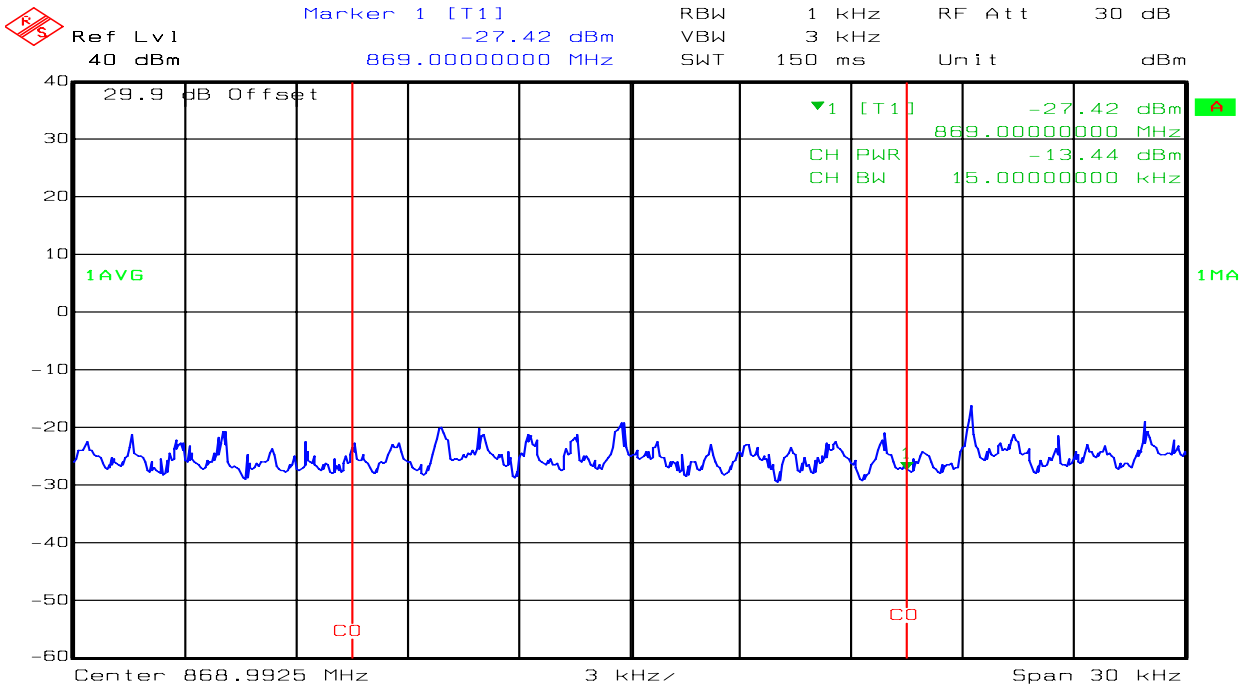
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A"A1 ACS QPSK 38.4kbps CH1018
Date: 10.DEC.2009 10:07:07

Figure 53: QPSK, 1228.8kbps, A" Lower Band Edge, A"A1 ACS, CH1018, Adjacent 15kHz



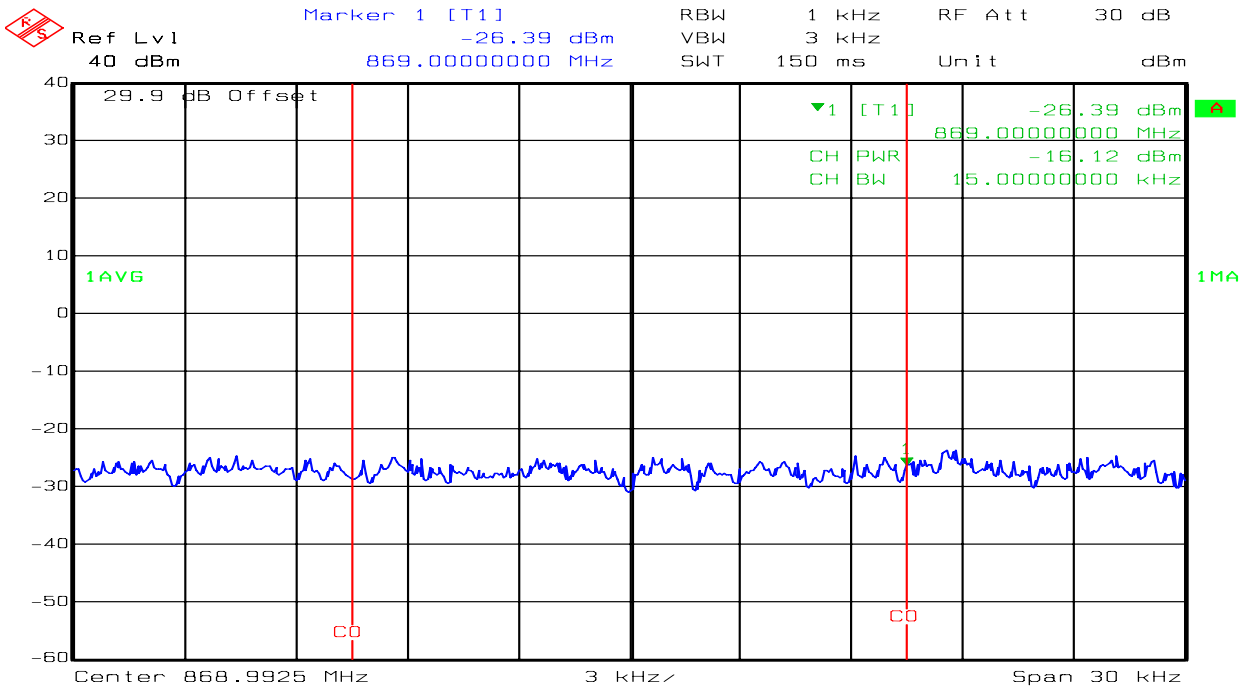
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A"A1 ACS QPSK 1228.8kbps CH1018
Date: 10.DEC.2009 10:00:25

Figure 54: 16QAM, 1536kbps, A" Lower Band Edge, A"A1 ACS, CH1018, Adjacent 15kHz



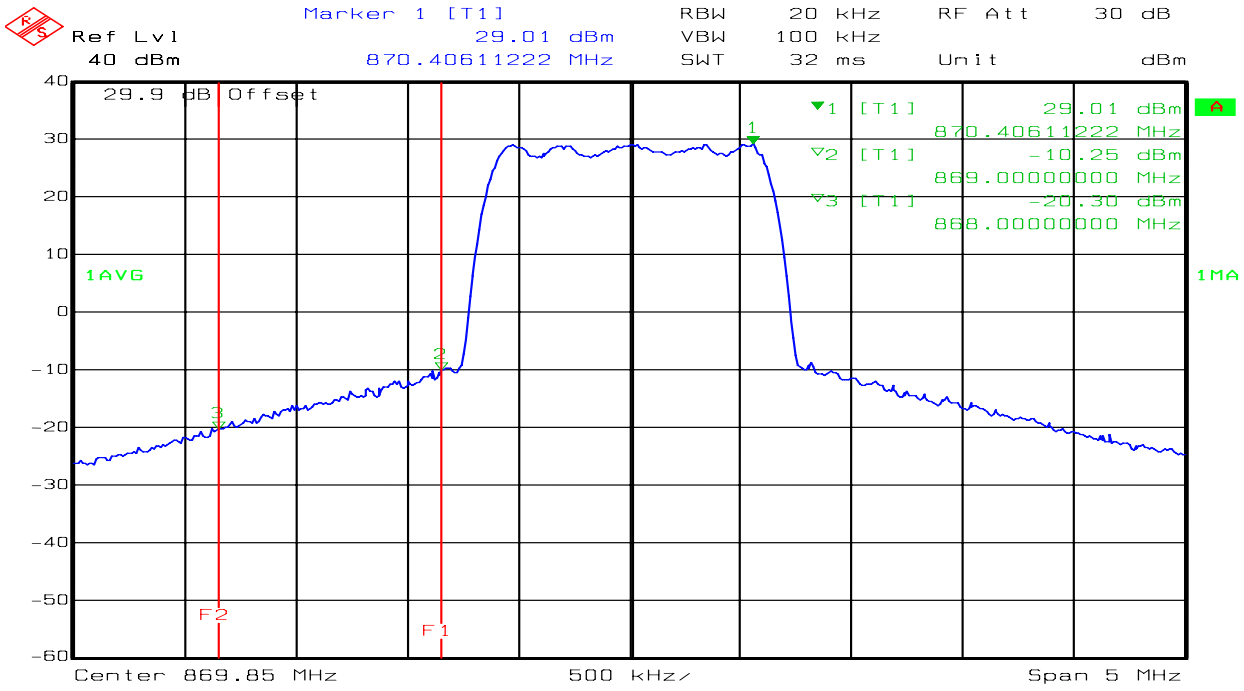
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A"A1 ACS 16QAM 1536kbps CH1018
Date: 10.DEC.2009 9:48:06

Figure 55: 16QAM, 2457.6kbps, A" Lower Band Edge, A"A1 ACS, CH1018, Adjacent 15kHz



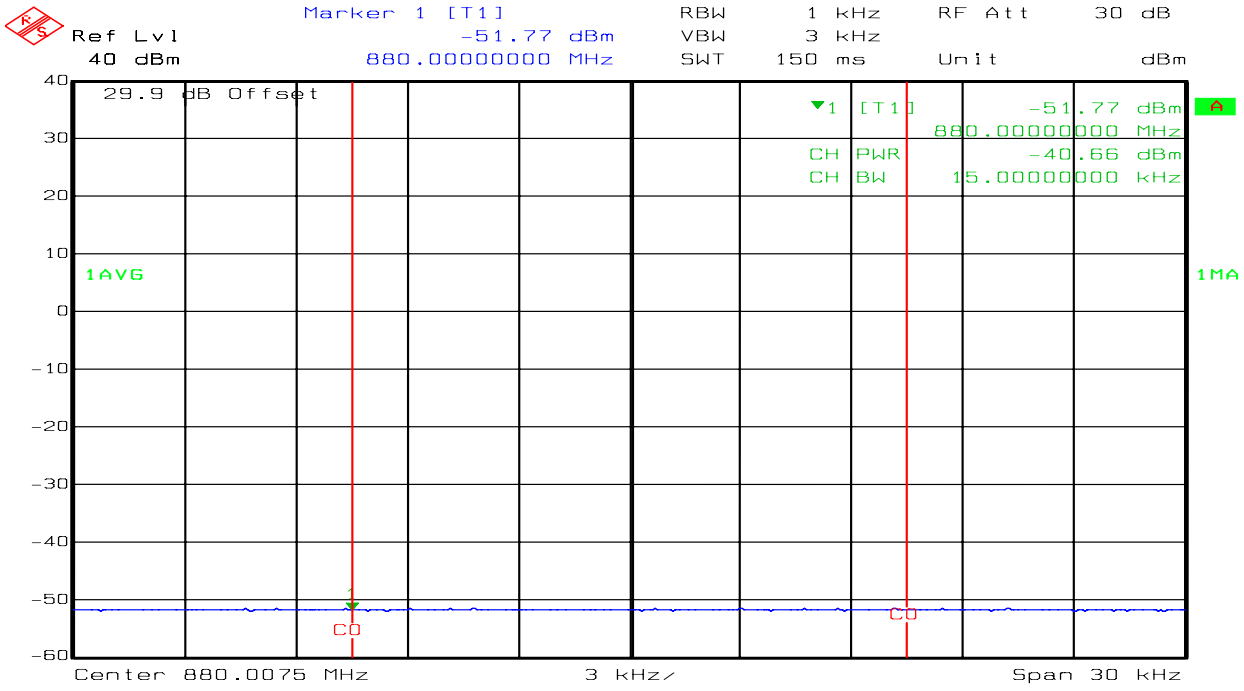
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A"A1 ACS 16QAM 2457.6kbps CH1018
Date: 10.DEC.2009 9:54:37

Figure 56: 16QAM, 1536kbps, A" Lower Band Edge, A"A1 ACS, CH1018, Adjacent 1MHz



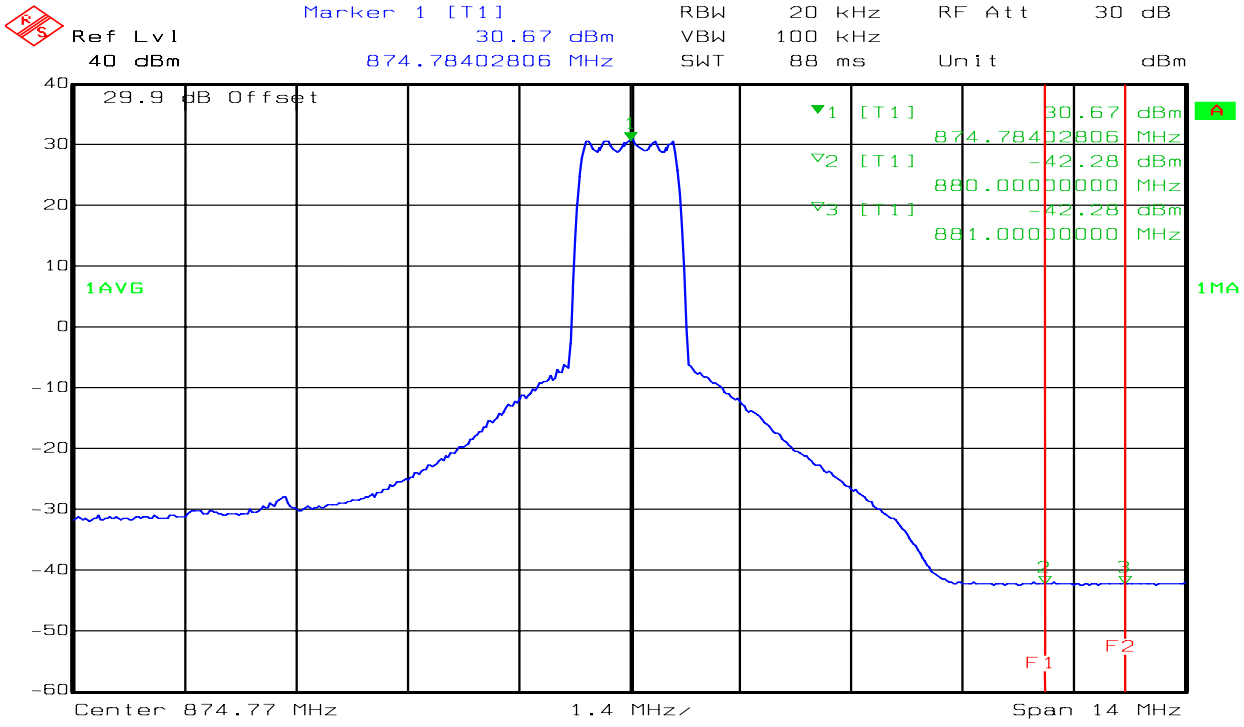
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A"A1 ACS 16QAM 1536kbps CH1018
Date: 10.DEC.2009 11:11:12

Figure 57: 16QAM, 1536kbps, A Upper Block Edge, A"A1 ACS, CH159, Adjacent 15kHz



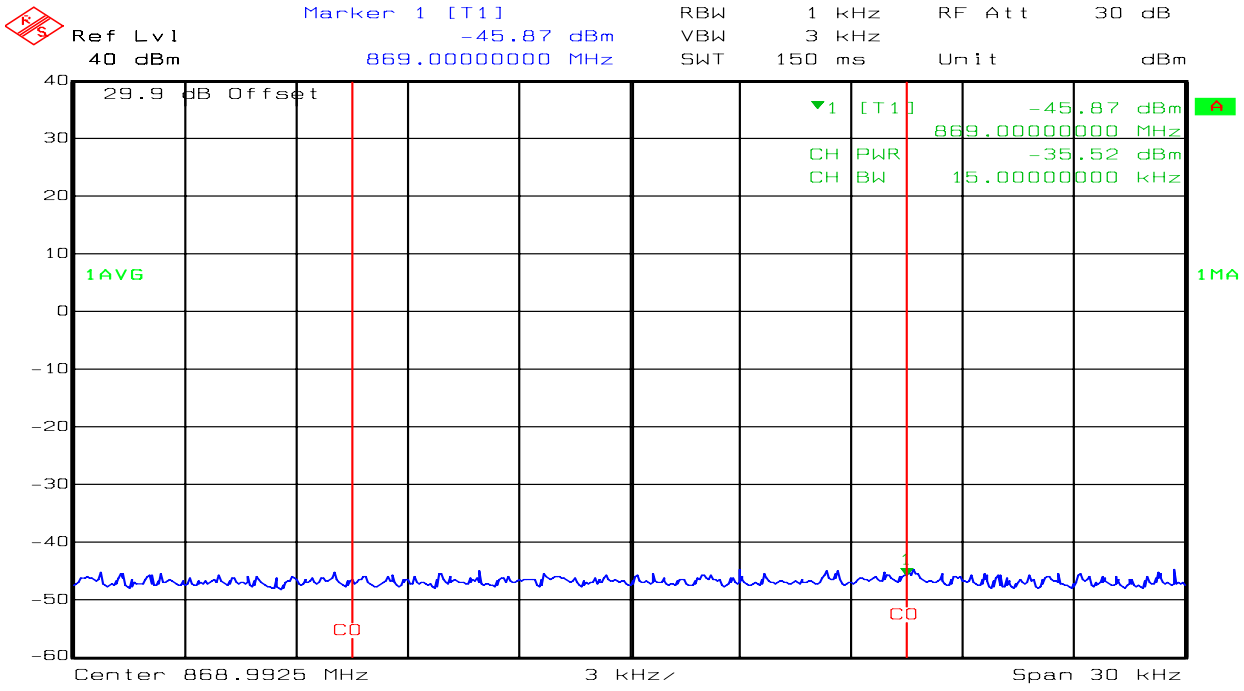
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A"A1 ACS 16QAM 1536kbps CH159
Date: 10.DEC.2009 11:49:00

Figure 58: 16QAM, 1536kbps, A Upper Block Edge, A"A1 ACS, CH159, Adjacent 1MHz



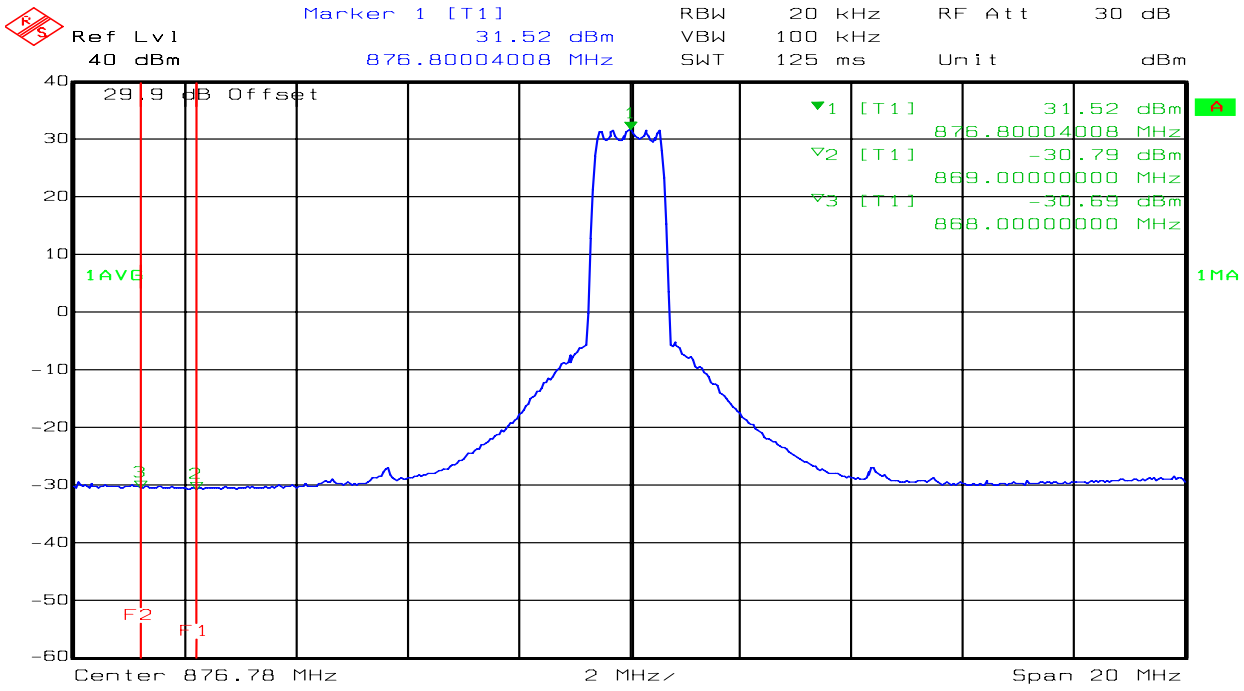
Date: 10.DEC.2009 12:01:26

Figure 59: 16QAM, 1536kbps, A" Lower Band Edge, A2B1 ACS, CH226, Adjacent 15kHz



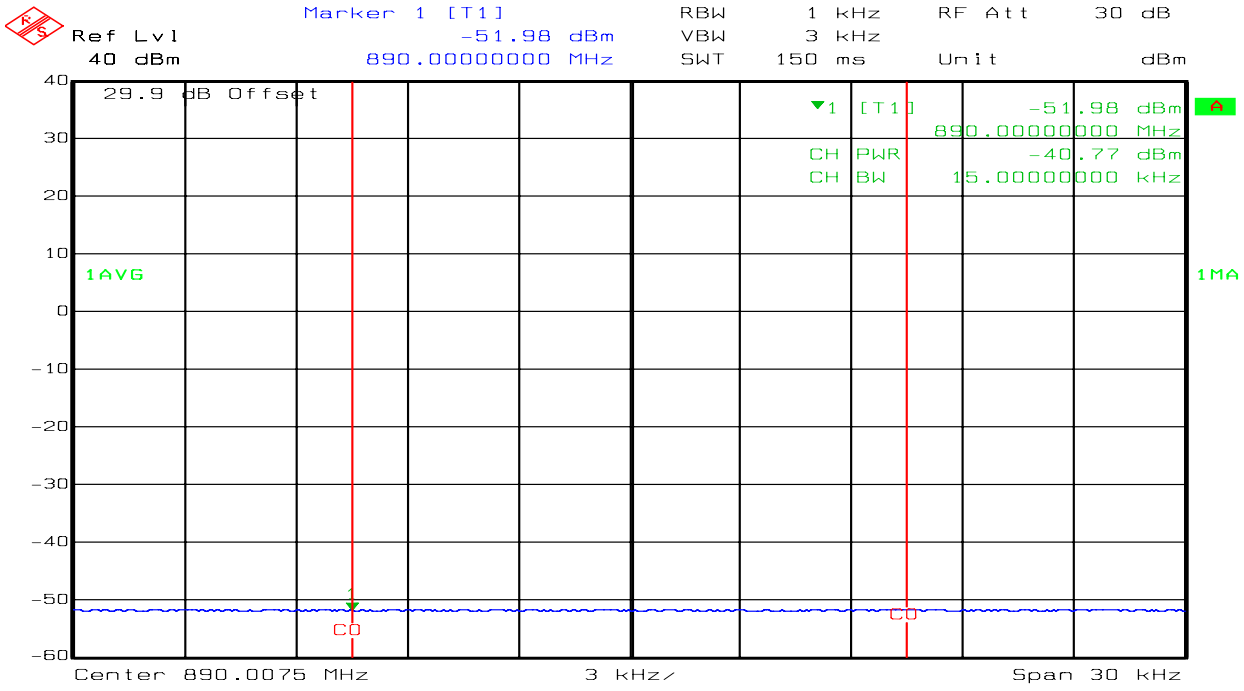
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A2B1 ACS 16QAM 1536kbps CH226
Date: 14.DEC.2009 13:27:01

Figure 60: 16QAM, 1536kbps, A" Lower Band Edge, A2B1 ACS, CH226, Adjacent 1MHz



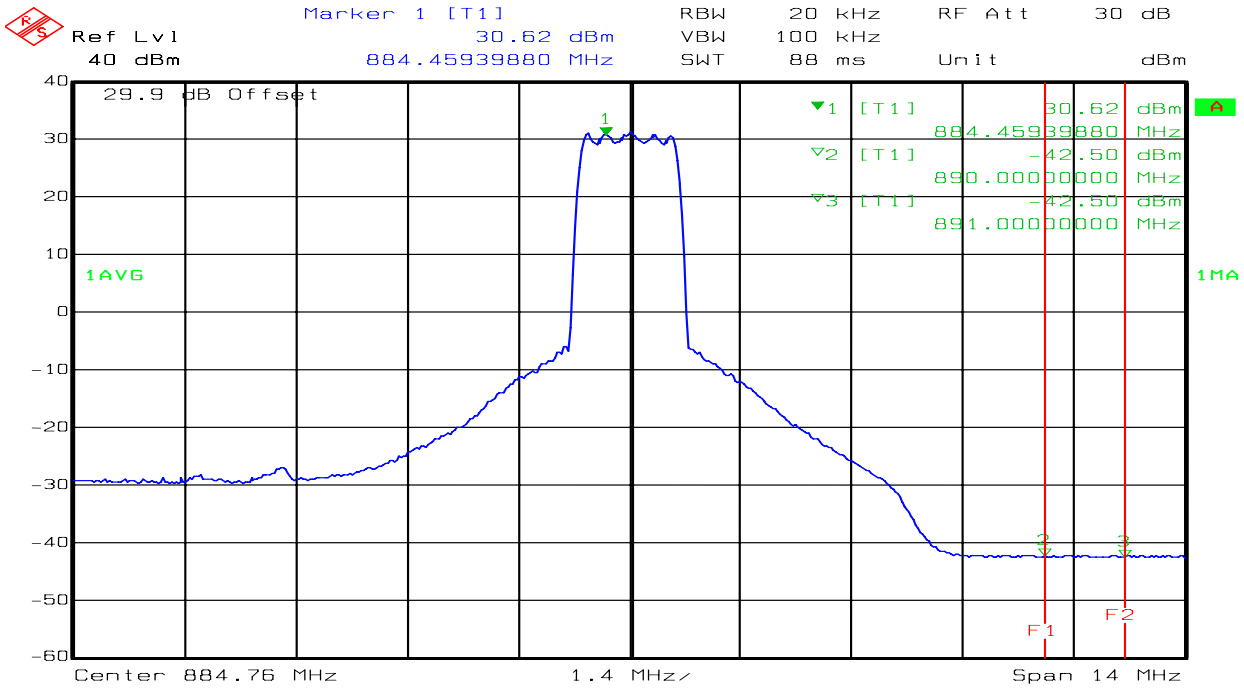
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A2B1 ACS 16QAM 1536kbps CH226
Date: 14.DEC.2009 13:37:57

Figure 61: 16QAM, 1536kbps, B Upper Block Edge, A2B1 ACS, CH492, Adjacent 15kHz



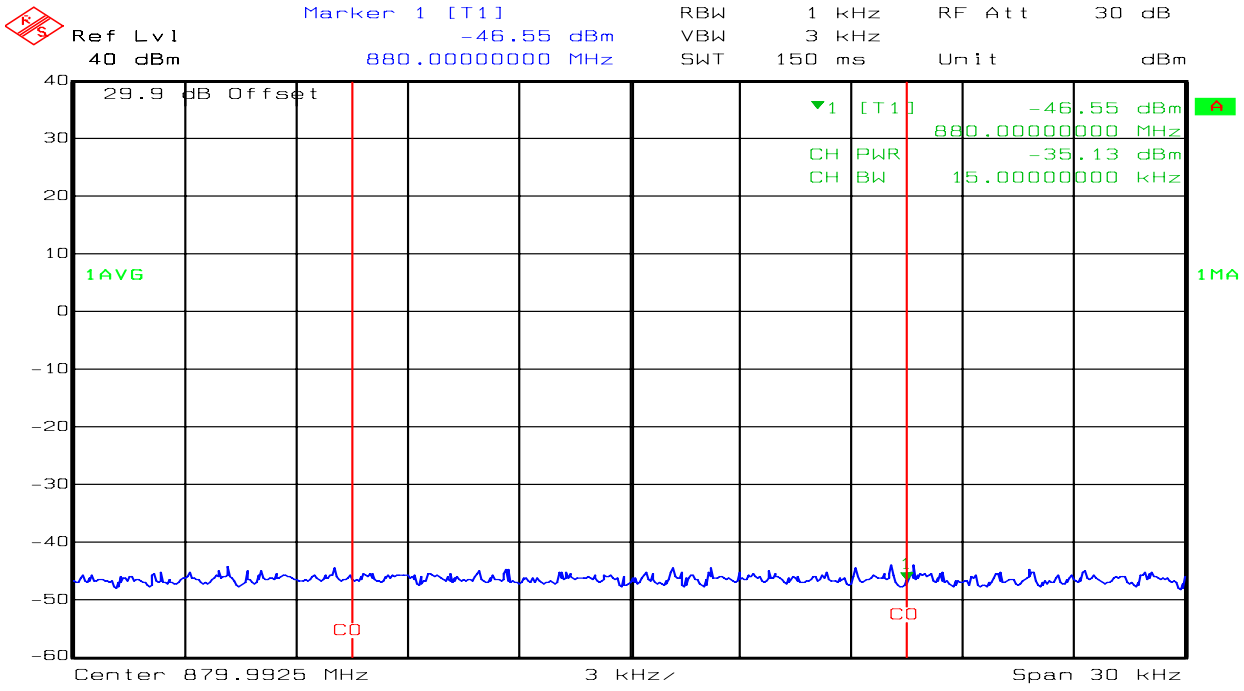
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A2B1 ACS 16QAM 1536kbps CH492
Date: 14.DEC.2009 14:44:44

Figure 62: 16QAM, 1536kbps, B Upper Block Edge, A2B1 ACS, CH492, Adjacent 1MHz



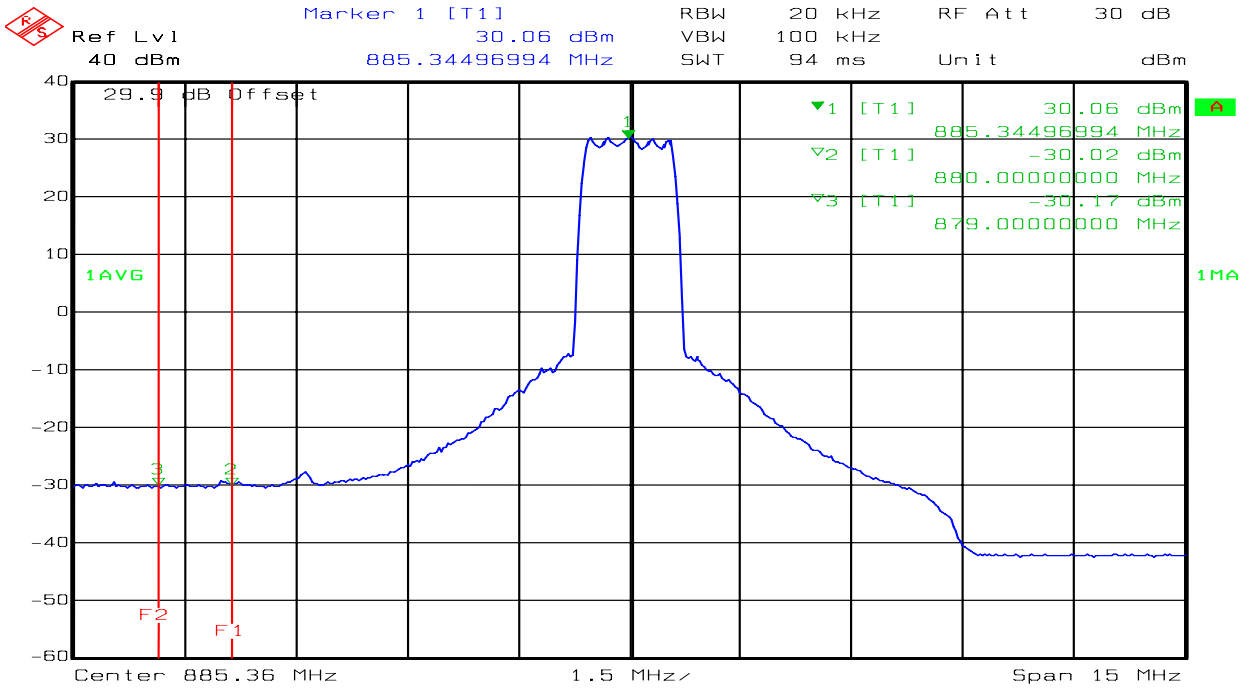
Title: CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A: EVDO A2B1 ACS 16QAM 1536kbps CH492
Date: 14.DEC.2009 14:52:30

Figure 63: 16QAM, 1536kbps, B Lower Block Edge, B2 ACS, CH512, Adjacent 15kHz



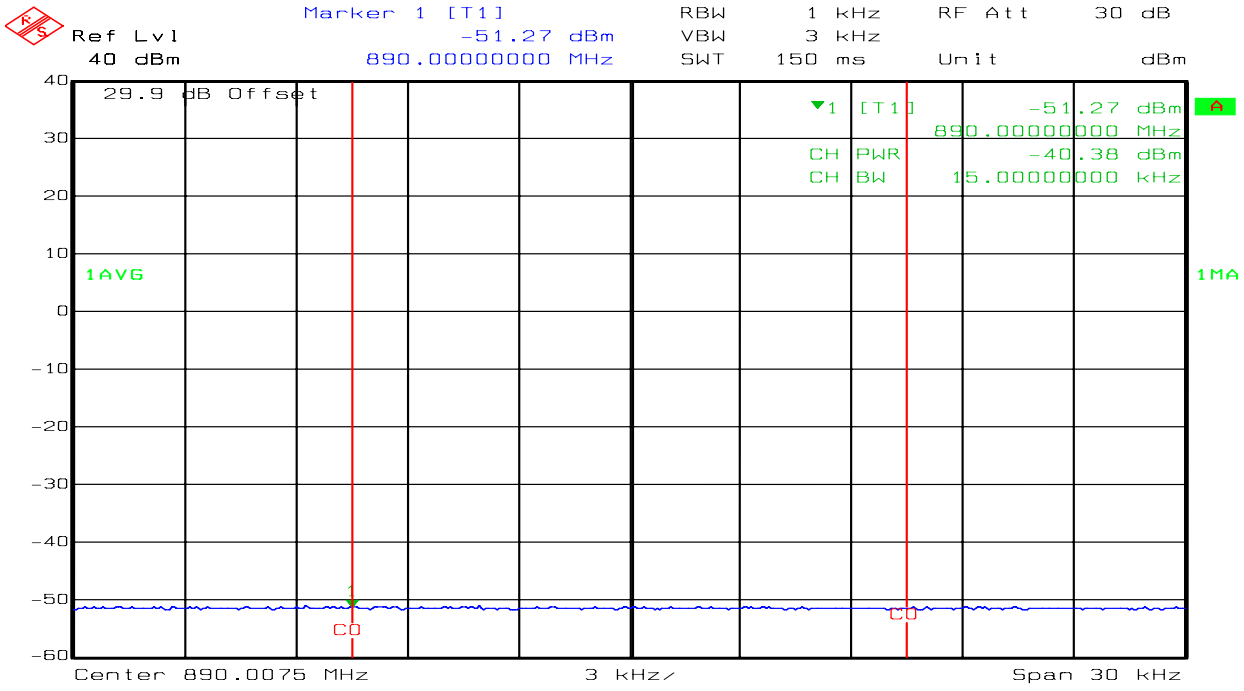

```
Title:       CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:   EVDO B2 ACS 16QAM 1536kbps CH512
Date:        16.DEC.2009  12:41:34
```

Figure 64: 16QAM, 1536kbps, B Lower Block Edge, B2 ACS, CH512, Adjacent 1MHz



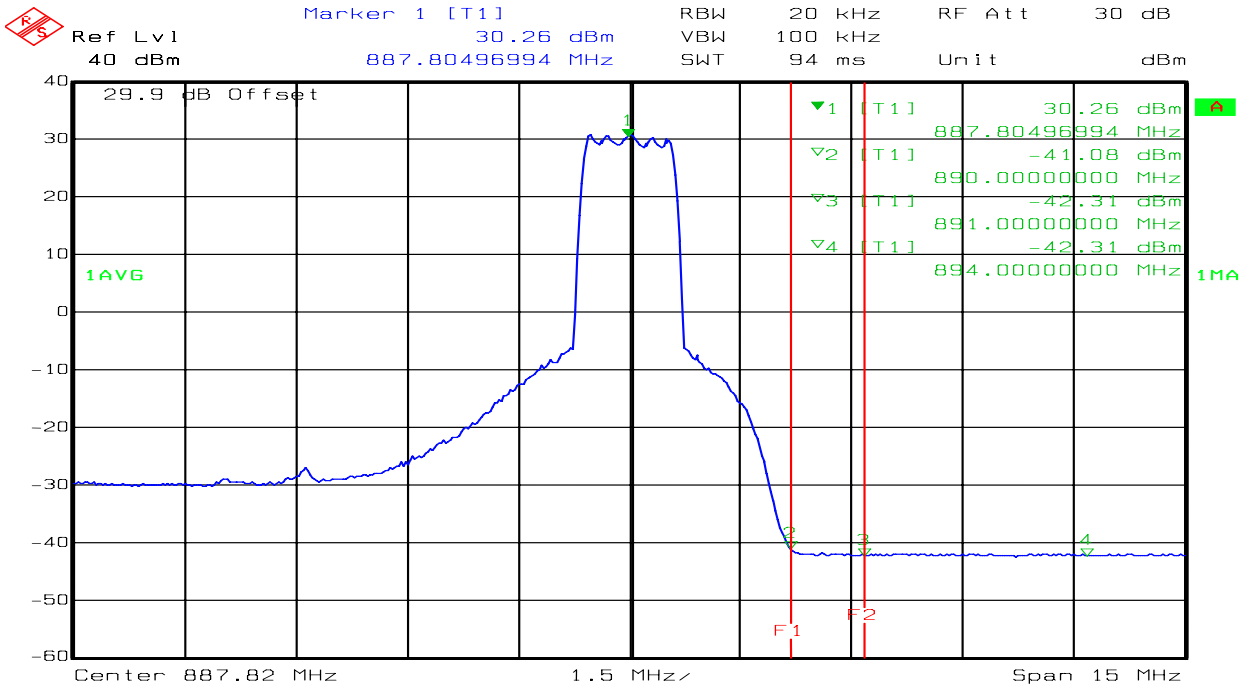

```
Title:       CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:   EVDO B2 ACS 16QAM 1536kbps CH512
Date:        16.DEC.2009  12:36:12
```

Figure 65: 16QAM, 1536kbps, B Upper Block Edge, B2 ACS, CH594, Adjacent 15kHz



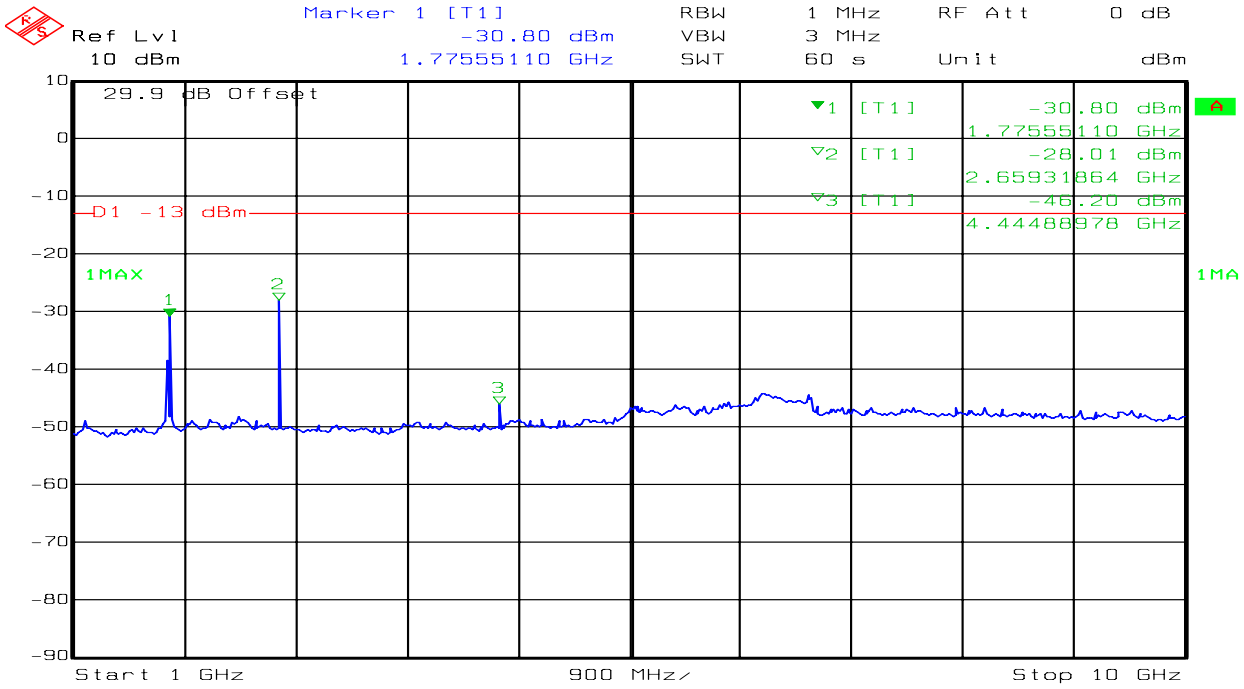

```
Title:       CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:   EVDO B2 ACS 16QAM 1536kbps CH594
Date:        16.DEC.2009  12:49:19
```

Figure 66: 16QAM, 1536kbps, B Upper Block Edge, B2 ACS, CH594, Adjacent 1MHz



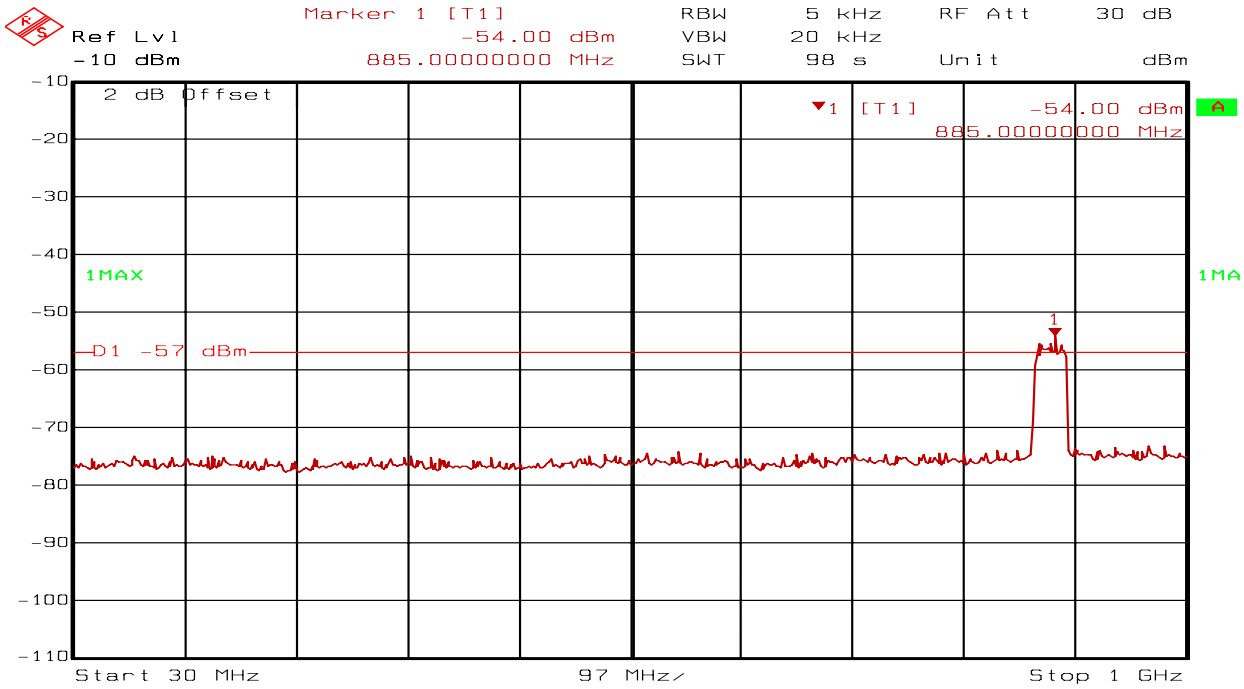

```
Title:       CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:   EVDO B2 ACS 16QAM 1536kbps CH594
Date:        16.DEC.2009  12:54:33
```

Figure 67: 16QAM, 2457.6kbps, 1GHz – 10GHz, B2 ACS, CH594, 2nd and 3rd Harmonic



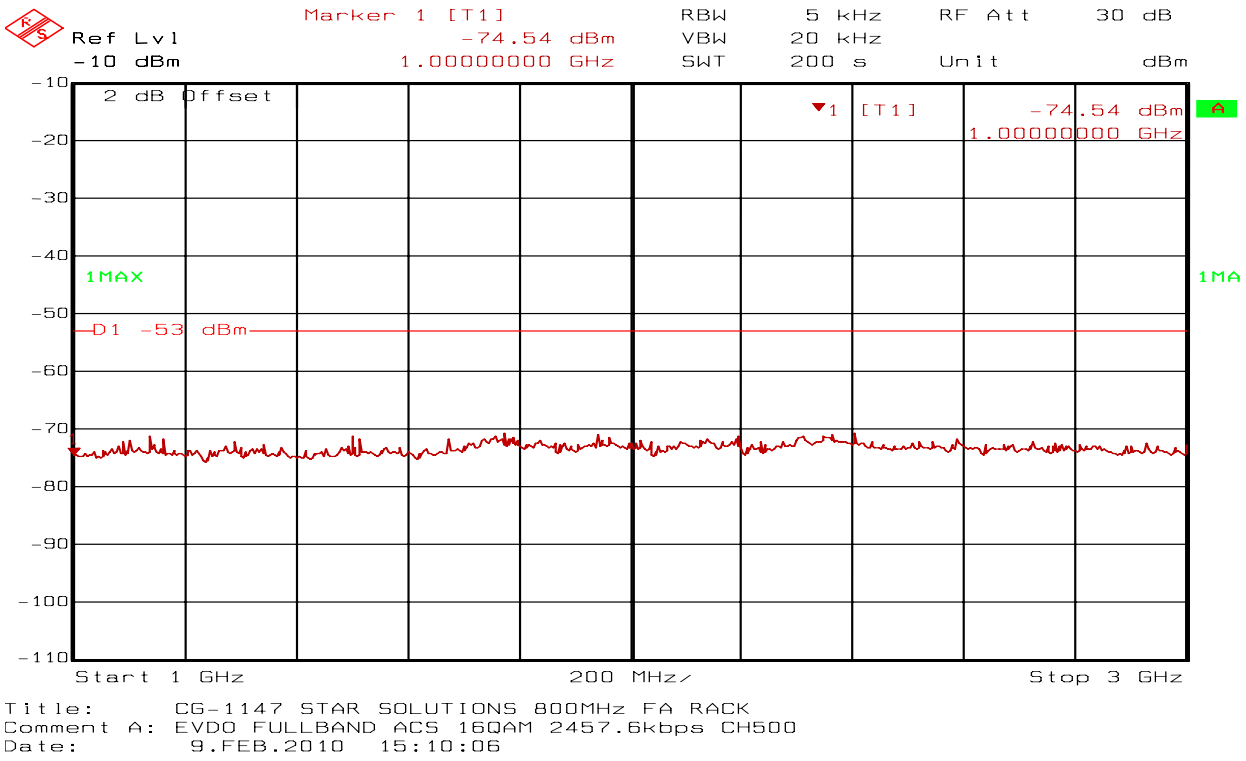

```
Title:      CG-1147 STAR SOLUTIONS 800MHz FA Rack
Comment A:  1X B2 ACS 16QAM 2457.6kbps CH594
Date:       16.DEC.2009   14:49:25
```

Figure 68: EVDO, Receiver Spurious Emissions, 30-1000MHz, Fullband ACS, CH500 (Transmit band leakage)




```
Title:      CG-1147 STAR SOLUTIONS 800MHz FA RACK
Comment A:  EVDO FULLBAND ACS 16QAM 2457.6kbps CH500
Date:       9.FEB.2010   15:04:00
```

Figure 69: EVDO, Receiver Spurious Emissions, 1-3GHz, Fullband ACS, CH500



C.7. Tested By

This testing was conducted in accordance with the ISO 17025:2005 scope of accreditation, table 1; Quality Manual.

Name: Daryl Therens
Senior Test Specialist

C.8. Test Dates

Test Start: December 1, 2009
Test Complete: December 16, 2009

APPENDIX D: FREQUENCY STABILITY

D.1. Base Standard & Test Basis

Base Standard	FCC 22.355; IC RSS-129, 9.2.1
Test Basis	FCC Part 2.1055
Test Method	FCC Part 2.1055 / EIA/TIA 603

D.2. Specifications

FCC Part 2.1055

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

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

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

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

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

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

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

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

FCC Part 22.355 Limit

Frequency Range (MHz)	Base, fixed (ppm)
25 to 50	20.0
50 to 450	5.0
450 to 512	2.5

Frequency Range (MHz)	Base, fixed (ppm)
821 to 896	1.5
928 to 929	5.0
929 to 960	1.5
2110 to 2220	10.0

D.3. Deviations

Deviation Number	Time & Date	Description and Justification of Deviation	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
none						

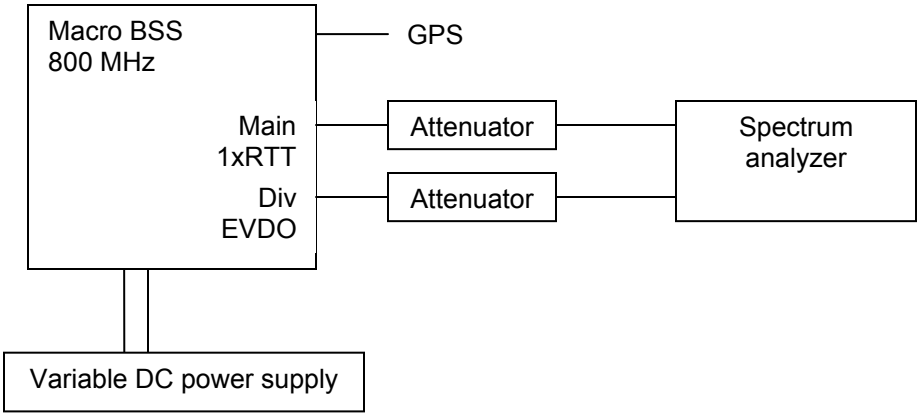
D.4. Test Method

The EUT was setup via a PC and Star Solutions software to transmit at maximum power in both 1xRTT and EVDO modes. Frequency stability measurements were performed on Sector 1 main antenna port for 1xRTT measurements, and on Sector 1 diversity antenna port for EVDO measurements. Sector 2 and 3 main / diversity antenna ports were terminated into 50Ω loads.

To verify the stability of the frequency determining components the 1xRTT and EVDO carriers were set to transmit in CW mode. An external GPS reference was connected to the Macro BSS during test. Measurements were taken at startup and at 1 minute intervals for 10 minutes. Note that only the maximum frequency error reading is listed.

D.5. Test Set Up

Figure 70: Frequency Stability Setup



D.6. Test Results

Complies. In 1xRTT Mode, the maximum frequency drift is +85 Hz. In EVDO Mode, the maximum frequency drift is +100 Hz. This is sufficient to ensure the fundamental stays within the assigned frequency block. The RF carrier frequency also stayed within the specified reference frequency limit over the temperature and supply voltage ranges. The reference frequency is the frequency at 20°C and -48Vdc.

Table 12: 1xRTT Mode Frequency Stability Data

Channel / Frequency	Operating conditions	Maximum Frequency Drift (Hz)
CH 1019, 869.88 MHz	50°C and -48Vdc	+84
	40°C and -48Vdc	+80
	30°C and -48Vdc	+79
	20°C and -48Vdc	+80
	20°C and -55.2Vdc	+78
	20°C and -40.8Vdc	+81
	10°C and -48Vdc	+79
	0°C and -48Vdc	+79
	-10°C and -48Vdc	+85
	-15°C and -48Vdc	+80
	-20°C and -48Vdc	+80
	-22°C and -48Vdc	+79
	-24°C and -48Vdc	Transmitter would not key on
	-30°C and -48Vdc	Transmitter would not key on

Table 13: EVDO Mode Frequency Stability Data

Channel / Frequency	Operating conditions	Maximum Frequency Drift (Hz)
CH 771, 893.13 MHz	50°C and -48Vdc	+84
	46°C and -48Vdc	+85
	40°C and -48Vdc	+82
	30°C and -48Vdc	+100
	20°C and -48Vdc	+99
	20°C and -55.2Vdc	+98
	20°C and -40.8Vdc	+87
	10°C and -48Vdc	+83
	0°C and -48Vdc	+85
	-10°C and -48Vdc	+82
	-15°C and -48Vdc	+84
	-20°C and -48Vdc	+83
	-22°C and -48Vdc	+97
	-24°C and -48Vdc	Transmitter would not key on
	-30°C and -48Vdc	Transmitter would not key on

D.7. Tested By

This testing was conducted in accordance with the ISO 17025:2005 scope of accreditation, table 1; Quality Manual.

Name: Daryl Therens
Senior Test Specialist

D.8. Test Dates

Test Start: December 17, 2009
Test Complete: December 22, 2009

APPENDIX E: FIELD STRENGTH OF SPURIOUS EMISSIONS; 30 TO 10,000 MHZ

E.1. Base Standard & Test Basis

Base Standard	CFR 47 - FCC Part 22 Subpart H, CFR 47 - FCC Part 2 Subpart J IC RSS-Gen, RSS-129, 10
Test Basis	EIA/TIA 603 C
Test Method	• NTS Emission Test Methods CAG EMC 02 • NTS Emission Verification Test Methods CAG EMC 01

E.2. Specifications

Frequency (MHz)	CFR 47 FCC Part 22	
	Theoretical Peak @ 3m[1] dBµV/m	ERP[2] dBm
1000 - 10000	84.3	-13

Note 1: Calculated using: Pd-(43 + 10 log(Pw)

where Pd is the EUT power in dBm and Pw is the EUT power in watts

Note 2: Calculated using: 120+20log(SQRT(49.2*Pw)/3)

where Pw is the EUT power in watts

E.3. Measurement Uncertainty

Radiated Emissions	Measurement Uncertainty (dB)	Expanded Uncertainty (K=2)
30 MHz – 1 GHz	+2.32/-2.36	+4.65/-4.72
1 GHz – 10 GHz	+3.48/-3.51	+6.96/-7.02

E.4. Deviations

Deviation Number	Time & Date	Descriptions	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
None						

E.5. Special Considerations

None

E.6. Operating Mode During Test

The EUT was tested to determine worst case operating modes (including worst case ACS types) to produce maximum peak spurious emissions. Using three A"A1 ACS's and three A2B1 ACS's were worst case. When using the A"A1 ACS the 1xRTT channel was 1019, and the EVDO channel was 159. When using the A2B1 ACS the 1xRTT channel was 226, and the EVDO channel was 492. The system cannot be simultaneously set to the same RF channels in 1xRTT and EVDO modes.

E.7. Tx Test Results

Table 14: Compliance Scan Summary: 30 MHz to 1 GHz

There were no FCC Part 22 related emissions detected in this frequency range.

Table 15: Compliance Scan Summary: 1 GHz to 10 GHz

Frequency (MHz)	Polarization	Measured Level (dBµV/m)	Substitution Signal Generator Level (dBm)	Substitution Antenna Gain (dBd)	Tx Cable Loss (dB)	ERP (dBm)	Limit (dBm)	Margin (dB)
1740.00	H-pol	60.71	-42.80	6.39	1.26	-37.67	-13.00	24.67
1740.67	V-pol	49.98	-53.10	6.39	1.26	-47.97	-13.00	34.97
1746.66	H-pol	59.88	-43.60	6.40	1.27	-38.47	-13.00	25.47
1746.67	V-pol	52.55	-50.50	6.40	1.27	-45.37	-13.00	32.37
2609.48	H-pol	51.13	-53.60	7.37	1.61	-47.84	-13.00	34.84
2613.33	V-pol	55.69	-47.90	7.38	1.61	-42.13	-13.00	29.13
2616.66	H-pol	59.52	-45.20	7.38	1.61	-39.43	-13.00	26.43
2616.67	V-pol	54.19	-49.20	7.38	1.61	-43.43	-13.00	30.43
3507.15	H-pol	54.11	-49.60	7.75	1.93	-43.78	-13.00	30.78
3485.00	V-pol	54.47	-48.70	7.75	1.93	-42.88	-13.00	29.88
4380.00	H-pol	57.69	-46.10	8.22	2.20	-40.08	-13.00	27.08
4380.00	V-pol	54.69	-48.60	8.22	2.20	-42.58	-13.00	29.58
5255.00	H-pol	50.35	-53.70	8.99	2.43	-47.14	-13.00	34.14

Note: All final reported values are corrected values.

E.8. Rx Spurious Emissions

No Rx spurious emissions were detected.

E.9. Observations

None.

E.10. Sample Calculation

3m Limit = 10m Limit – 20 * log (3/10)

Emission Level = Measured Level + Correction Factors

Margin = Limit – Emission Level

ERP Limit (dBm) = Pd-(43 + 10 log(Pw)

where Pd is the EUT power in dBm and Pw is the EUT power in watts

Theoretical ERP Limit (dBuV/m) 120+20log(SQRT(49.2*Pw)/3)

where Pw is the EUT power in watts

E.11. Tested By

This testing was conducted in accordance with the ISO 17025:2005 scope of accreditation table 1; Quality Manual.

Name: Lixin Wang
EMC Specialist

E.12. Test Dates

Test Start: November 25, 2009
Test Complete: November 26, 2009

APPENDIX F: TEST EQUIPMENT LIST

F.1. Test Equipment

Descriptions	Manufacturer	Type/Model	Serial #	Cal Due	Cal Date
Test Receiver	Rohde & Schwarz	ESAI	CG0123/0124	26-Feb-10	26-Feb-09
Bilog Antenna	Teseq	CBL 6112D	CG0314	23-Sept-10	28-Oct-08
RF Cable	Sucoflex	Loaded cable	CG0398	NCR	NCR
Digital Barometer / Thermometer	Cole-Parmer	1870	CG0728	2-Sept-10	2-Sept-09
Mast Controller	EMCO	2090	CG0179	NCR	NCR
Multi-Device Controller TT1	EMCO	2090	CG0178	NCR	NCR
Horn Antenna (Rx) 1 GHz – 18GHz	EMCO	3115	CG0368	NCR	NCR
High pass filter f>1000MHz	MicroTronics	HPM14576	CG0963	NCR	NCR
LNA 1 to18GHz	Miteq	JSD00121	CG0317	1-Dec-10	1-Dec-08
Spectrum Analyzer 9 kHz – 40GHz	Rohde & Schwarz	FSEK-20	CG0118	6-Aug-11	6-Aug-09
Spectrum Analyzer 30Hz – 40GHz	HP	8564E	CG0352	14-Oct-10	14-Oct-09
Attenuator	Weinschel	30dB 150W	#4	NCR	NCR
Attenuator	Weinschel	30dB 150W	CG0751	NCR	NCR
RF cable	Sucoflex	104	9338/6	NCR	NCR
RF cable	Sucoflex	104	115762/4	NCR	NCR
RF cable	Sucoflex	104	115760/4	NCR	NCR
RF cable	Sucoflex	104	9341/6	NCR	NCR
Multi-meter	Fluke	87	CG0384	6-Nov-10	6-Nov-09

END OF DOCUMENT