

Advanced
Compliance

6 Randolph Way
Hillsborough, NJ 08844
Tel: (908) 927 9288
Fax: (908) 927 0728

**Electromagnetic
Emission
Compliance
Test Report**



**Equipment Under Test
(EUT)
Applicant**

Dual Band Repeater IRD55FB-30-70
Shyam Telecom Inc.

In Accordance With

FCC Part 22, Subpart H
FCC Part 24, Subpart E

Test by

Advanced Compliance Laboratory, Inc.
6 Randolph Way
Hillsborough, New Jersey 08844

Authorized by

Wei Li
Lab Manager

Signature

Date

April 6, 2005

**AC Lab Report
Number**

0048-050318-01



Lab Code:200101-0

**The test result in this report is supported and
covered by the NVLAP accreditation.**

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Section 1. Summary of Test Results

Manufacturer: Shyam Telecom Inc.
Model No.: Dual Band Repeater IRD55FB-30-70
Sample No.: D4RGCDE001

General: **All measurements are traceable to national standards**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 22, Subpart H& Part 24, Subpart E.

☒ New Submission ☒ Production Unit
☐ Class II Permissive Change ☐ Pre-Production Unit

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST SPECIFICATIONS HAVE BEEN MADE.

“See Summary of Test Data”



NVLAP LAB CODE: 200101-0

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Summary of Test Data

RF Power Output	22.913(a) 24.232(a)	500W ERP 100W EIRP	Complies
Occupied Bandwidth (Voice & SAT)	2.1049(i)	Mask	N/A*
Occupies Bandwidth (Wideband Data)	2.1049(i)	Mask	N/A*
Occupied Bandwidth (Digital)	2.1049(i)	Mask	Complies
Spurious Emissions at Antenna Terminals	22.917 24.238	-13 dBm	Complies
Field Strength of Spurious Emissions	22.917 24.238	-13 dBm E.I.R.P.	Complies
Frequency Stability	22.355 24.235	1.5 ppm	Complies

* These items are NOT applied to the EUT.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Advanced Compliance Lab. Doc. No. 0048-01-01.

	Prob. Dist.	Uncertainty(dB)	Uncertainty(dB)	Uncertainty(dB)
		30-1000MHz	1-6.5GHz	Conducted
Combined Std. Uncertainty u_c	norm.	± 2.36	± 2.99	± 1.83



Wei Li
Lab Manager
Advanced Compliance Lab

Date: April 6, 2005

Section 2. General Equipment Specification

Supply Voltage		90-240VAC 50/60Hz				
Frequency Range	Cellular	UL/824-846.5MHz; DL/869-891.5MHz				
	PCS	UL/1850-1910MHz; DL/1930-1990MHz				
	Modulation	CDMA (F9W) ☒	GSM (GXW) ☒	NADC (DXW) ☐	CDPD (F9W) ☐	AMPS (F8W, F1D) ☐
Output Impedance		50ohm				
Frequency Translation		F1-F1 ☒	F1-F2 ☐	N/A ☐		
		Software ☐	Duplexer Change ☐	Full Band Coverage ☐		

DC voltages and DC currents per 2.1033(c)(8)

The input supply to the transmitter was set at 5 Volts DC. The RF power output was measured with the indicated voltage and current applied into the final RF amplifying device(s).

800 MHz Cellular / 1900MHz PCS

RF Output, DC Current and RF Input Power are all average values.

Measured Maximum RF output: 27.72dBm (0.59W)

Measured DC voltage: 5.37V

Measured DC current: 3.38A.

Measured Minimum RF output: -61dBm

Measured DC voltage: 5.37V

Measured DC current: 3.29A

Tune-up procedure per 2.1033(c) (9)

There are no user accessible adjustments or tuning in this portable cellular transceiver. All necessary adjustments and tuning are performed during manufacture of the product. Any adjustments or tuning after service or repair are done as part of that process as special equipment is required to perform such adjustments.

Description of Operation

This device is a dual band repeater operating in both downlink and uplink spectrums of Cellular and PCS bands.

System Diagram

See Attachment.

Section 3. RF Output Power

Name of Test:	<i>RF Output Power</i>	Test Standard:	<i>22.913(a)</i> <i>24.232(a)</i>
Tested By:	WEI LI	Test Date:	03/19/2005-03/24/2005

Minimum Standard: Para. No. 22.913(a). The maximum effective radiated power (ERP) of base station transmitters and cellular repeaters must not exceed 500 Watts (57dBm).

Para. No. 24.232(a). The maximum peak output power of base transmitters should not exceed 100 Watts EIRP (50dBm).

Method of Measurement: Detachable Antenna:
The peak power at antenna terminals is measured using spectrum analyzer.

Integral Antenna:

If the antenna is not detachable from the circuit then the Peak Power Output is derived from the peak radiated field strength of the fundamental emission by using the plane wave relation

$$\frac{GP}{4\pi R^2} = \frac{E^2}{120\pi}$$

and proceeding as follows:

$$P = \frac{E^2 R^2}{30G} = \frac{E^2 3^2}{30G}$$

where,

P = the equivalent isotropic radiated power in watts

E = the maximum measured field strength in V/m

R = the measurement range (3 meters)

G = the numeric gain of the transmit antenna in relation to an isotropic radiator

Test Result:**Complies****Test Data:**

Cellular Bands	Channel	Modulation	Power Output (dBm)	Limit (dBm)	Margin
Uplink	Hi	CDMA	23.99	57	33.01
	Mid	CDMA	24.41	57	32.59
	Low	CDMA	25.04	57	31.96
	Hi	GSM	17.37	57	39.63
	Mid	GSM	17.04	57	39.96
	Low	GSM	17.40	57	39.60
Downlink	Hi	CDMA	27.72	57	29.28
	Mid	CDMA	27.39	57	29.61
	Low	CDMA	26.27	57	30.73
	Hi	GSM	15.72	57	41.28
	Mid	GSM	16.73	57	40.27
	Low	GSM	15.69	57	41.31
Input Power (dBm)	-50 (Maximum gain)				
Ref Offset	Ref offset=Cable Factor +Attenuation=10/10.4dB				

PCS Bands	Channel	Modulation	Power Output (dBm)	Limit (dBm)	Margin
Uplink	Hi	CDMA	24.90	50	25.1
	Mid	CDMA	26.07	50	23.93
	Low	CDMA	24.04	50	25.96
	Hi	GSM	17.57	50	32.43
	Mid	GSM	17.52	50	32.48
	Low	GSM	16.03	50	33.97
Downlink	Hi	CDMA	22.72	50	27.28
	Mid	CDMA	22.72	50	27.28
	Low	CDMA	21.98	50	28.02
	Hi	GSM	14.18	50	35.82
	Mid	GSM	14.15	50	35.85
	Low	GSM	16.03	50	33.97
Input Power (dBm)	-50 (Maximum gain)				
Ref Offset	Ref offset=Cable Factor +Attenuation=10/10.4dB				

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Uplink, Hi-Channel CDMA Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

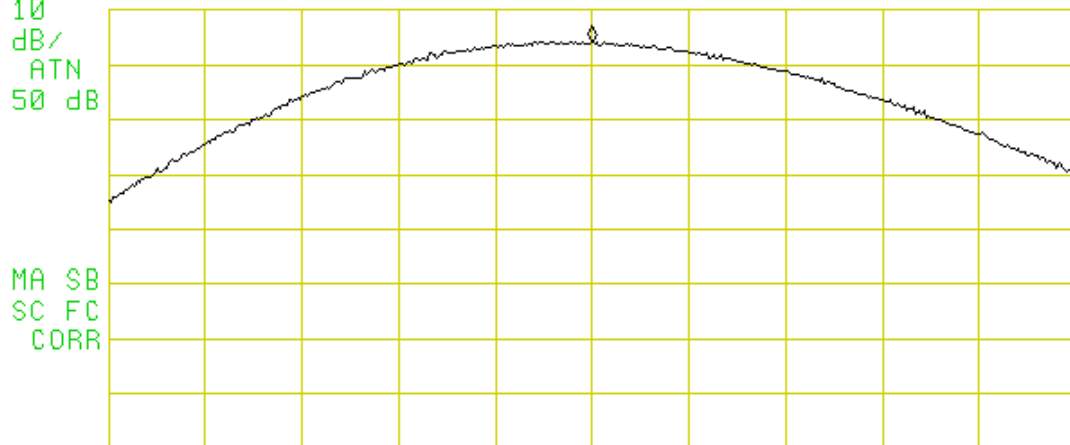
10:57:58 MAR 22, 2005

CENTER
845.80 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 845.80 MHz
23.99 dBm

LOG
10
dB/
ATN
50 dB

REF OFFST 10.0 dB
REF 30.0 dBm



CENTER 845.80 MHz SPAN 10.00 MHz
#IF BW 3.0 MHz #AVG BW 3 MHz SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Uplink, Mid-Channel CDMA Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

10:56:21 MAR 22, 2005

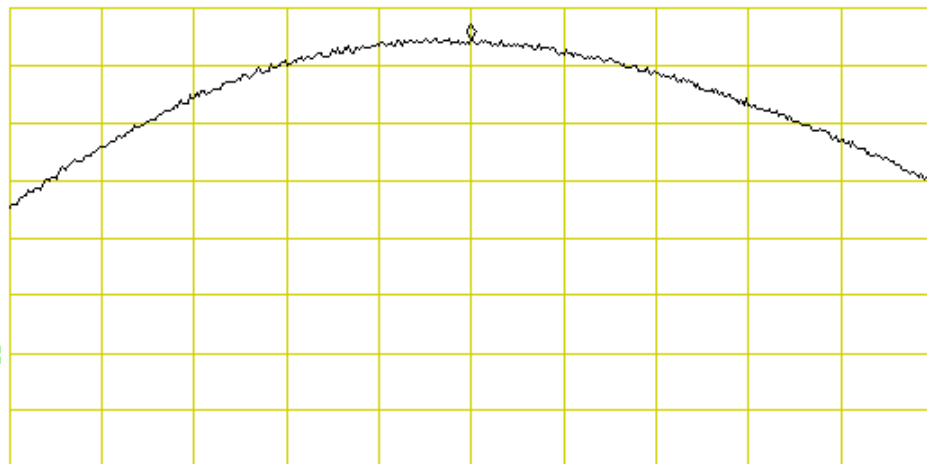
CENTER
834.40 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 834.40 MHz
24.41 dBm

REF OFFST 10.0 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

MA SB
SC FC
CORR



CENTER 834.40 MHz

#IF BW 3.0 MHz

#AVG BW 3 MHz

SPAN 10.00 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Uplink, Low-Channel CDMA Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

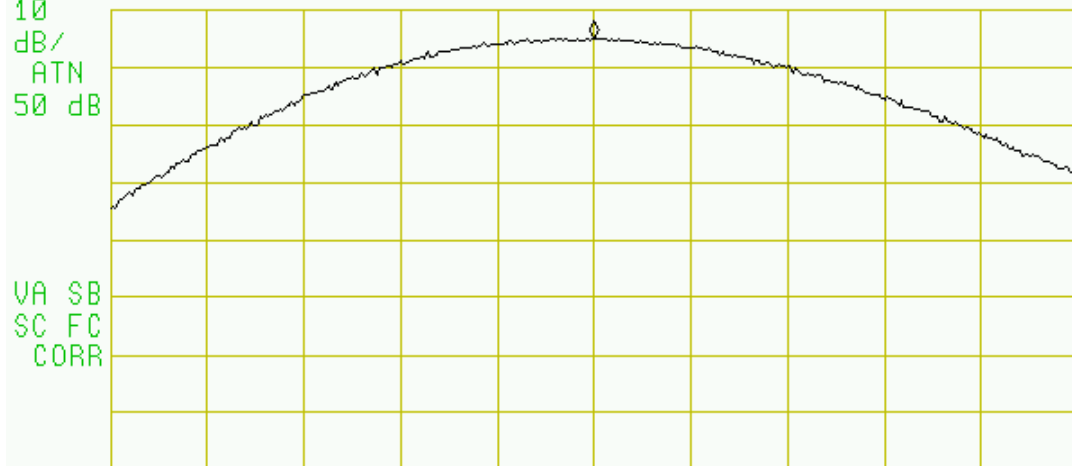
10:54:33 MAR 22, 2005

SPAN
10.00 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 824.70 MHz
25.04 dBm

LOG
10
dB/
ATN
50 dB

REF OFFST 10.0 dB
REF 30.0 dBm



CENTER 824.70 MHz
#IF BW 3.0 MHz

#AVG BW 3 MHz

SPAN 10.00 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Uplink, Hi-Channel GSM Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

12:22:17 MAR 24, 2005

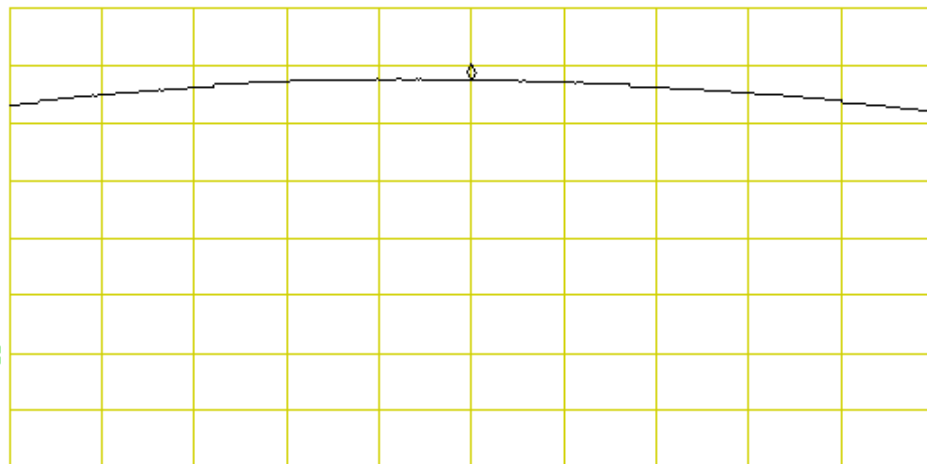
CENTER
846.300 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 846.300 MHz
17.37 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

MA SB
SC FC
CORR



CENTER 846.300 MHz

#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Uplink, Mid-Channel GSM Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

12:20:26 MAR 24, 2005

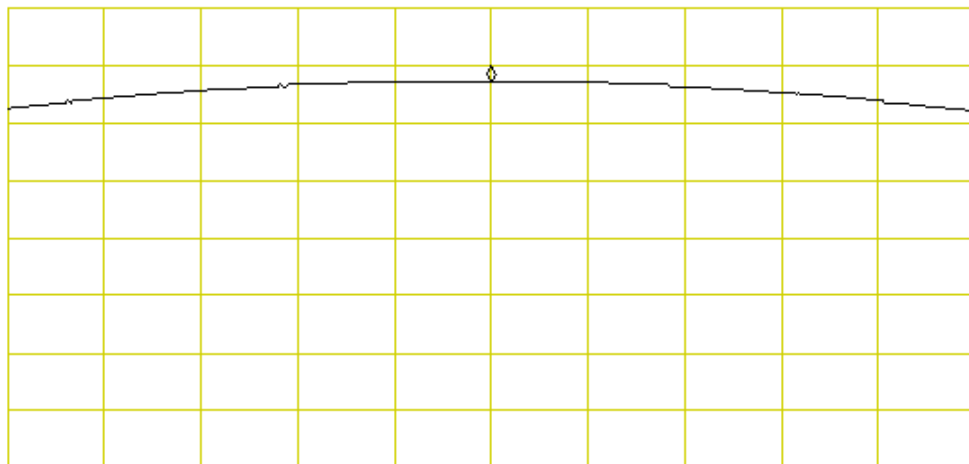
CENTER
834.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 834.200 MHz
17.04 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/

ATN
50 dB

MA SB
SC FC
CORR



CENTER 834.200 MHz
#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

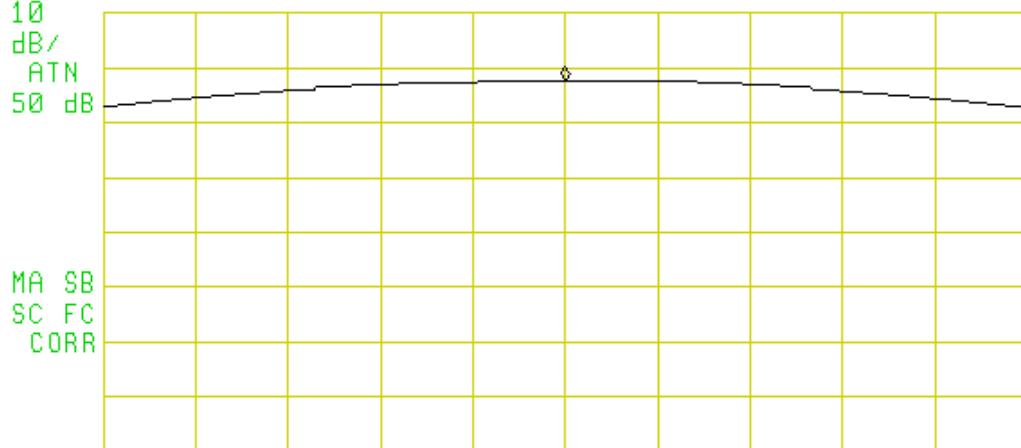
Section:	RF Output Power: Cellular Bands
Plot Name:	Uplink, Low-Channel GSM Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

12:17:51 MAR 24, 2005

CENTER
824.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 824.200 MHz
17.40 dBm

LOG
10
dB/
ATN
50 dB
REF OFFST 10.4 dB
REF 30.0 dBm



CENTER 824.200 MHz

#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Downlink, Hi-Channel CDMA Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

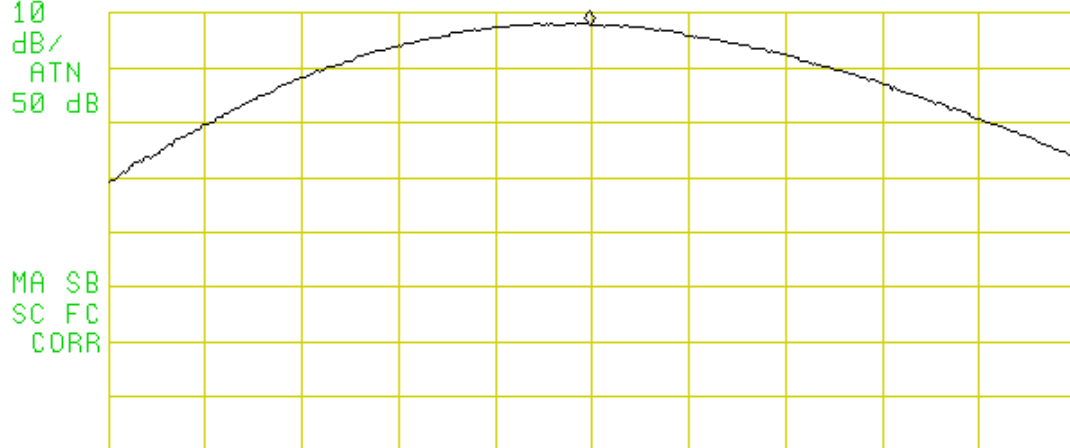
18:08:39 MAR 19, 2005

REF LEVEL
30.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 890.78 MHz
27.72 dBm

LOG 10
dB/ATN
50 dB

REF OFFST 10.0 dB
REF 30.0 dBm



CENTER 890.80 MHz SPAN 10.00 MHz
#IF BW 3.0 MHz #AVG BW 3 MHz SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Downlink, Mid-Channel CDMA Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

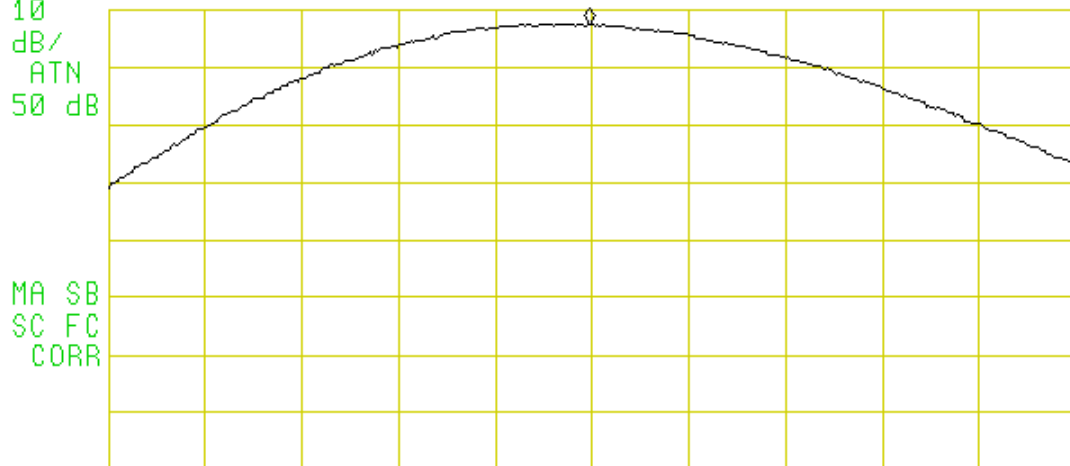
18:29:39 MAR 19, 2005

CENTER
879.40 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 879.38 MHz
27.39 dBm

LOG
10
dB/
ATN
50 dB

REF OFFST 10.0 dB
REF 30.0 dBm



CENTER 879.40 MHz
#IF BW 3.0 MHz

#AVG BW 3 MHz

SPAN 10.00 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Downlink, Low-Channel CDMA Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

18:36:36 MAR 19, 2005

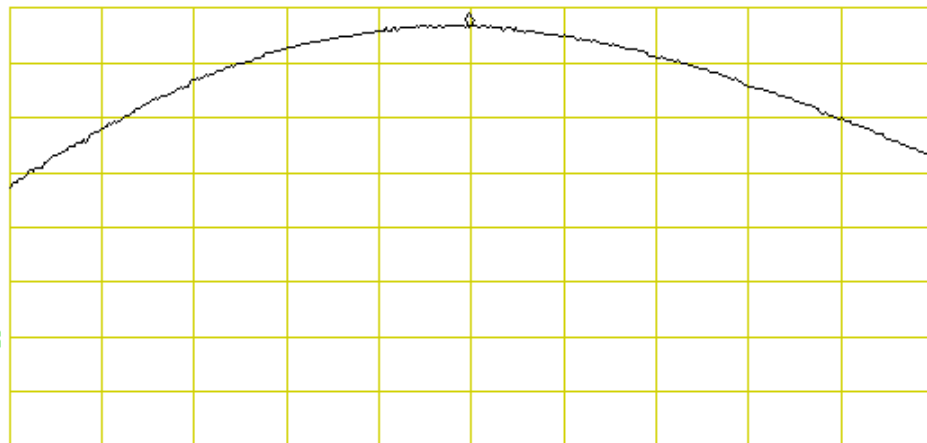
SPAN
10.00 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 869.68 MHz
26.27 dBm

REF OFFST 10.0 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

MA SB
SC FC
CORR



CENTER 869.70 MHz

#IF BW 3.0 MHz

#AVG BW 3 MHz

SPAN 10.00 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Downlink, Hi-Channel GSM Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

13:17:01 MAR 24, 2005

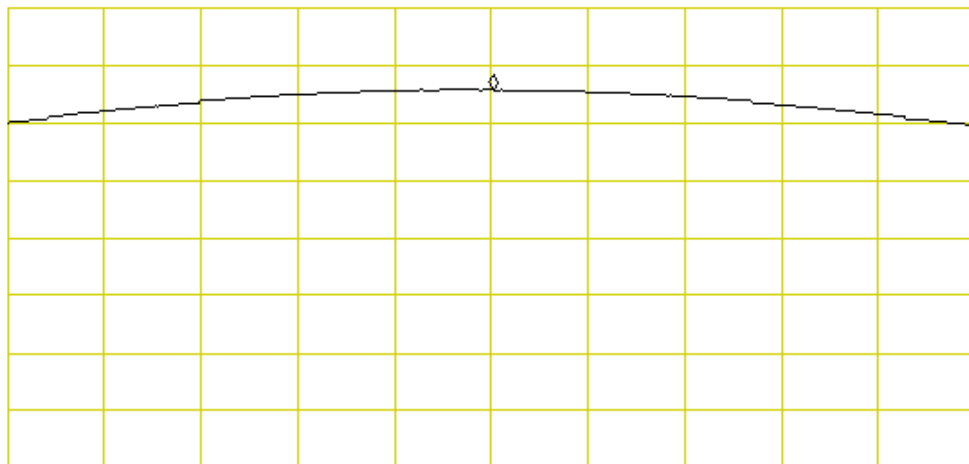
CENTER
891.300 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 891.303 MHz
15.72 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/

ATN
50 dB

MA SB
SC FC
CORR



CENTER 891.300 MHz
#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Downlink, Mid-Channel GSM Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

13:15:34 MAR 24, 2005

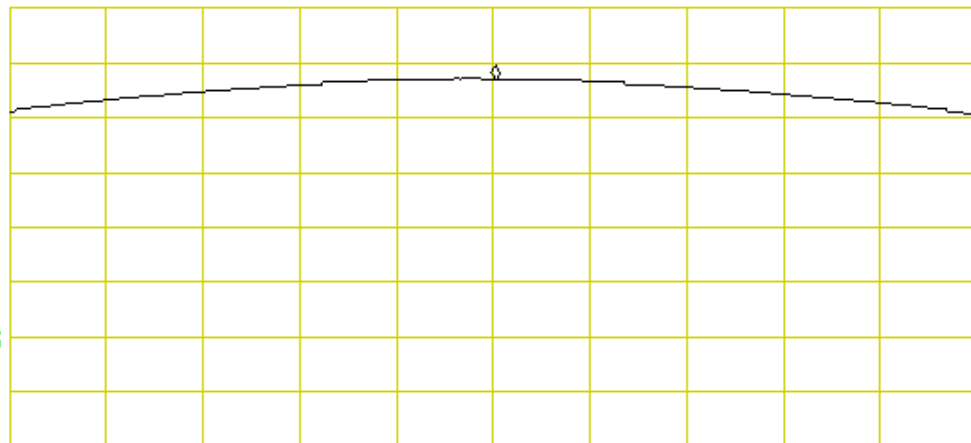
CENTER
879.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 879.203 MHz
16.73 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

MA SB
SC FC
CORR



CENTER 879.200 MHz

#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: Cellular Bands
Plot Name:	Downlink, Low-Channel GSM Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

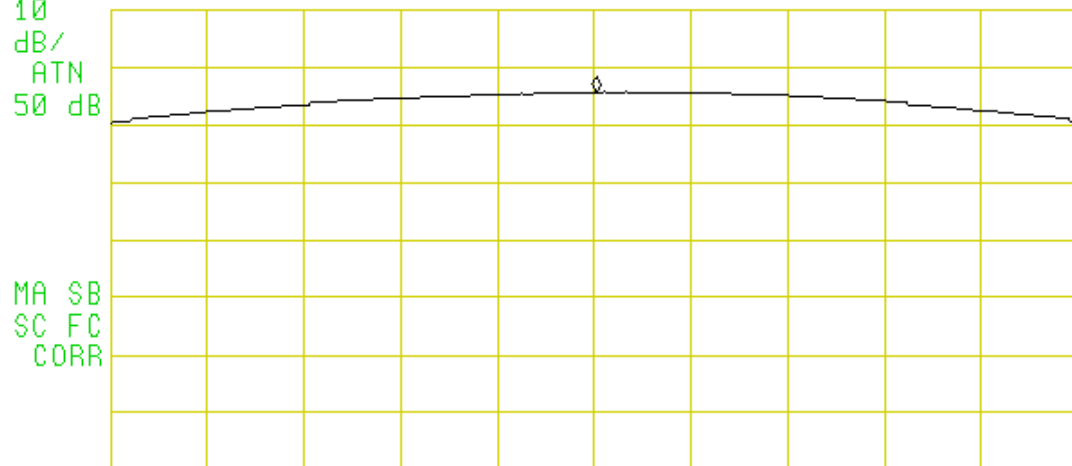
13:13:52 MAR 24, 2005

CENTER
869.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 869.203 MHz
15.69 dBm

LOG
10
dB/
ATN
50 dB

REF OFFST 10.4 dB
REF 30.0 dBm



CENTER 869.200 MHz
#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Uplink, Hi-Channel CDMA Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

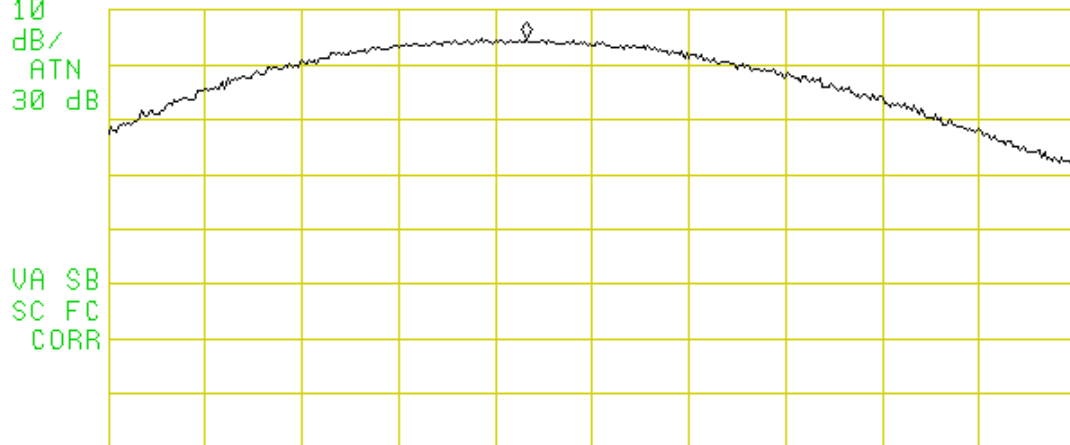
10:15:09 MAR 23, 2005

CENTER
1.90930 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.90863 GHz
24.90 dBm

LOG
10
dB/
ATN
30 dB

REF OFFST 10.4 dB
REF 30.0 dBm



CENTER 1.90930 GHz

#IF BW 3.0 MHz

#AVG BW 3 MHz

SPAN 10.00 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

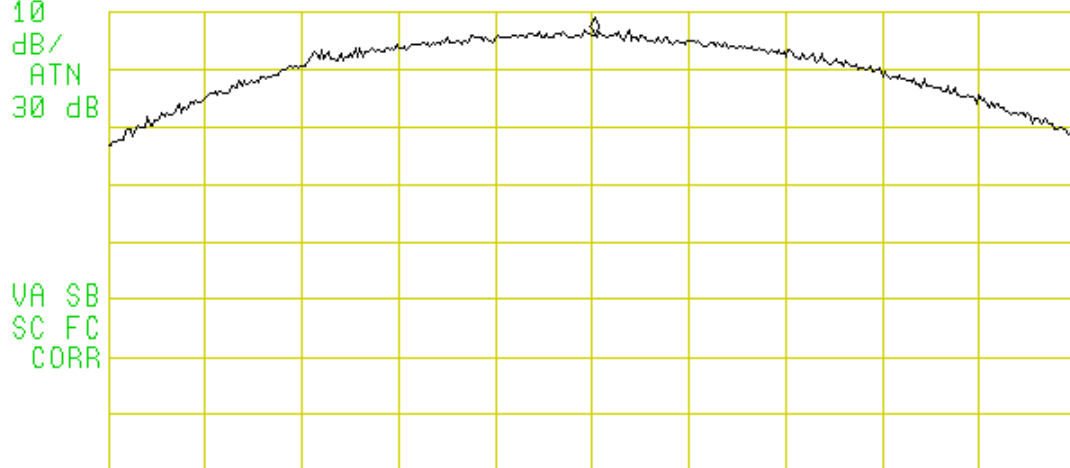
Section:	RF Output Power: PCS Bands
Plot Name:	Uplink, Mid-Channel CDMA Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

10:06:58 MAR 23, 2005

REF LEVEL
30.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.88003 GHz
26.07 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/
ATN
30 dB



CENTER 1.88000 GHz SPAN 10.00 MHz
#IF BW 3.0 MHz #AVG BW 3 MHz SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Uplink, Low-Channel CDMA Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

17:13:01 MAR 22, 2005

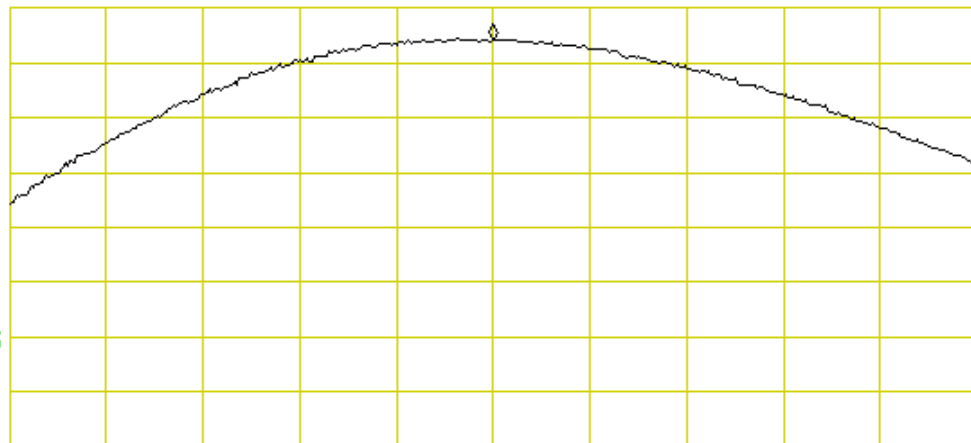
CENTER
1.85070 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.85070 GHz
24.04 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

MA SB
SC FC
CORR



CENTER 1.85070 GHz

#IF BW 3.0 MHz

#AVG BW 3 MHz

SPAN 10.00 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Uplink, Hi-Channel GSM Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

16:04:22 MAR 24, 2005

CENTER
1.909800 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.909800 GHz
17.57 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

MA SB
SC FC
CORR



CENTER 1.909800 GHz

#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Uplink, Mid-Channel GSM Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

16:03:02 MAR 24, 2005

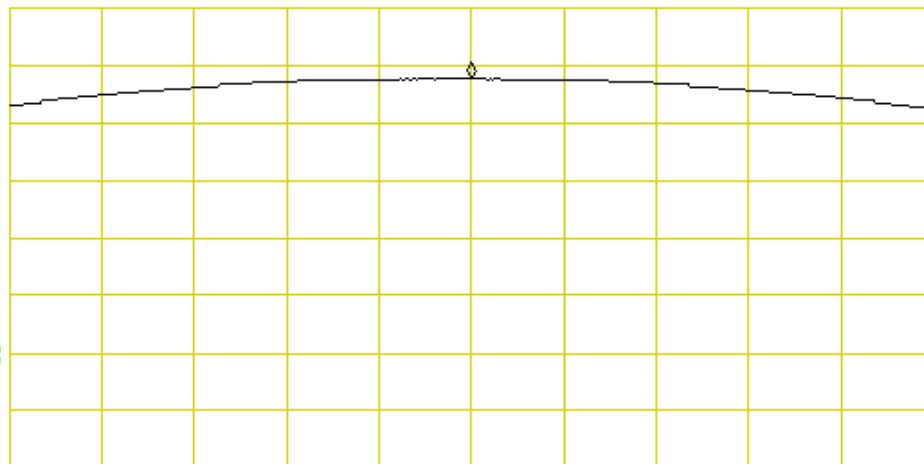
CENTER
1.880000 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.880000 GHz
17.52 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

MA SB
SC FC
CORR



CENTER 1.880000 GHz

#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Uplink, Low-Channel GSM Modulation
Configuration:	Server Antenna Connector was connected to SG. Input: -50dBm

12:27:05 MAR 24, 2005

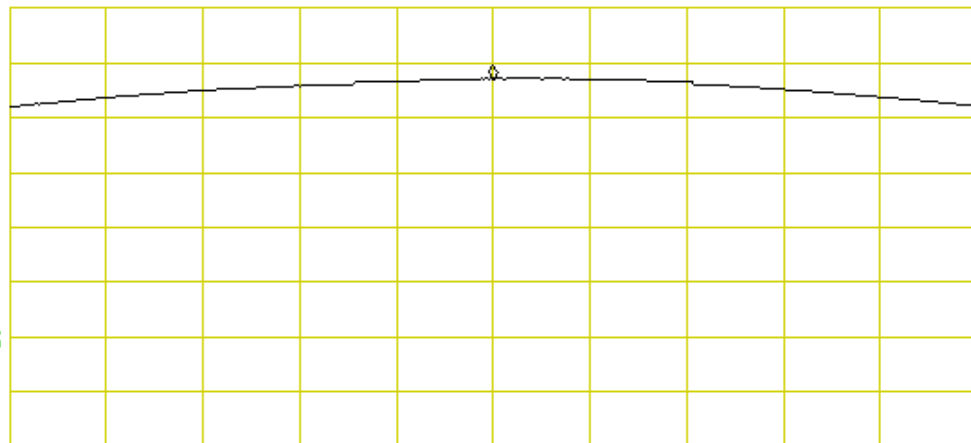
CENTER
1.850200 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.850200 GHz
16.77 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

MA SB
SC FC
CORR



CENTER 1.850200 GHz

#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

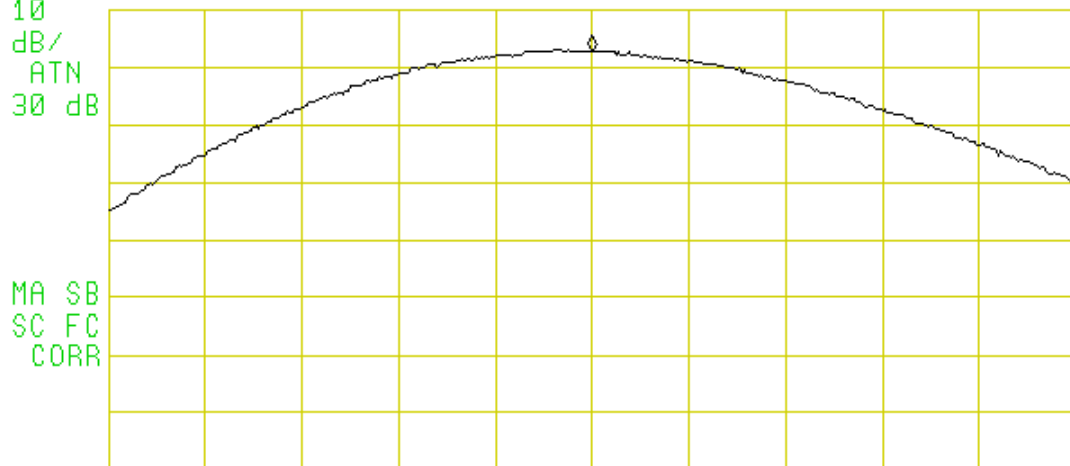
Section:	RF Output Power: PCS Bands
Plot Name:	Downlink, Hi-Channel CDMA Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

15:29:59 MAR 23, 2005

CENTER
1.98925 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.98925 GHz
22.72 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/
ATN
30 dB



CENTER 1.98925 GHz
#IF BW 3.0 MHz

#AVG BW 3 MHz

SPAN 10.00 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Downlink, Mid-Channel CDMA Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

16:14:38 MAR 23, 2005

Advanced Compliance Laboratory, Inc.

ACTV DET: PEAK

MEAS DET: PEAK QP AVG

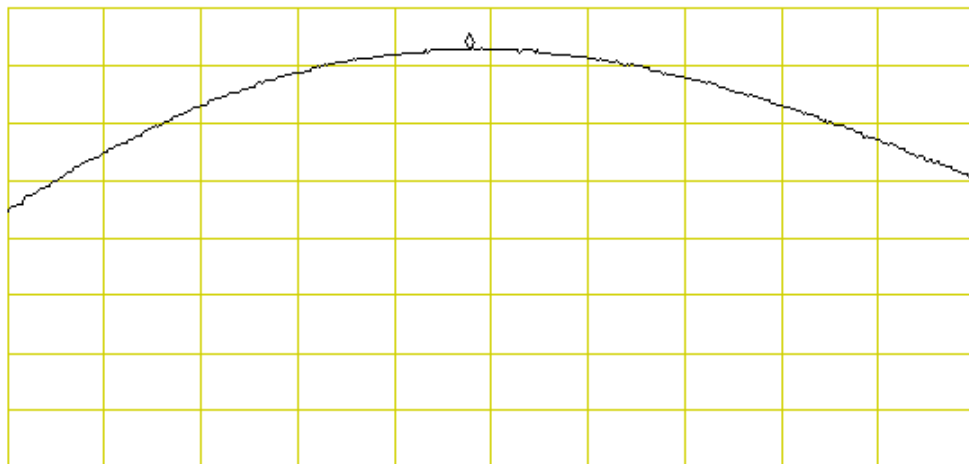
MRK 1.95978 GHz

22.72 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm

dB/
ATN
30 dB

MA SB
SC FC
CORR



CENTER 1.96000 GHz

#IF BW 3.0 MHz

#AVG BW 3 MHz

SPAN 10.00 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Downlink, Low-Channel CDMA Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

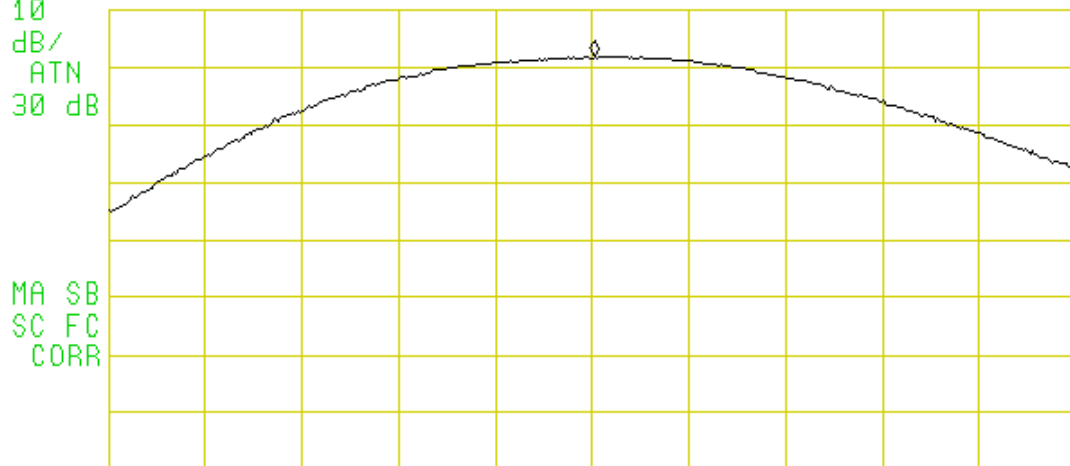
16:39:58 MAR 22, 2005

REF LEVEL
30.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.93073 GHz
21.98 dBm

LOG
10
dB/
ATN
30 dB

REF OFFST 10.4 dB
REF 30.0 dBm



CENTER 1.93070 GHz
#IF BW 3.0 MHz

#AVG BW 3 MHz

SPAN 10.00 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Downlink, Hi-Channel GSM Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

17:48:31 MAR 24, 2005

CENTER
1.989800 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.989800 GHz
14.18 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

MA SB
SC FC
CORR



CENTER 1.989800 GHz

#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Downlink, Mid-Channel GSM Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

17:03:21 MAR 24, 2005

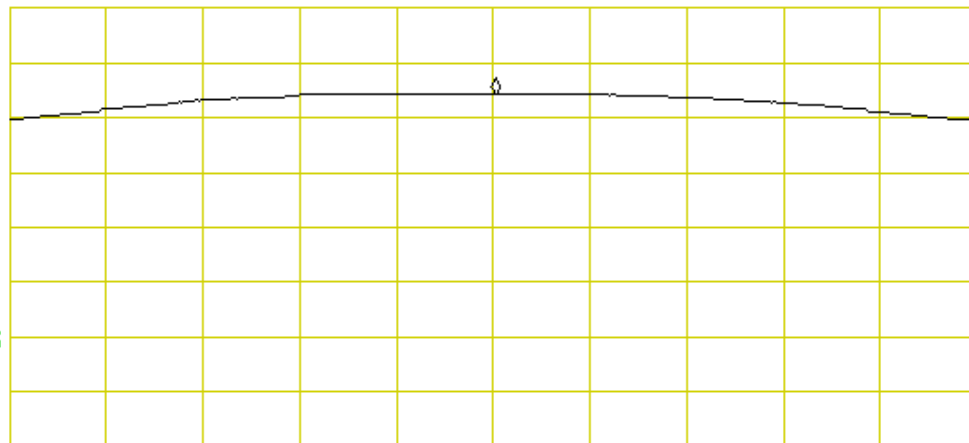
CENTER
1.960000 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.960003 GHz
14.15 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

MA SB
SC FC
CORR



CENTER 1.960000 GHz

#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	RF Output Power: PCS Bands
Plot Name:	Downlink, Low-Channel GSM Modulation
Configuration:	Donor Antenna Connector was connected to SG. Input: -50dBm

13:27:18 MAR 24, 2005

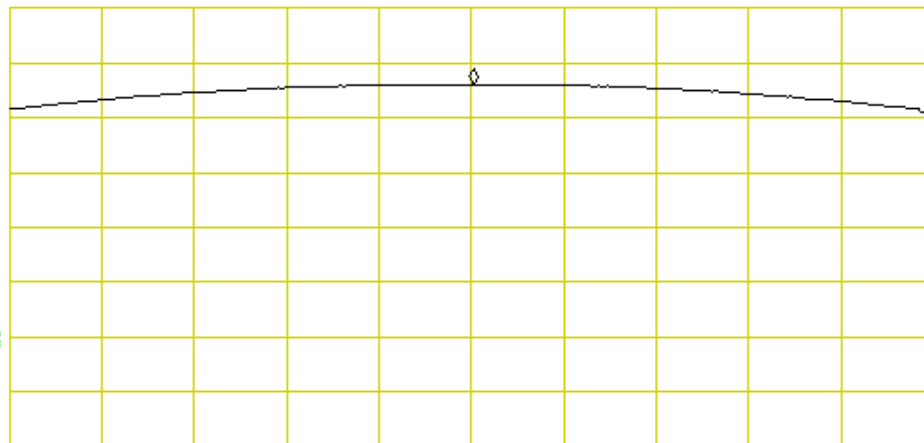
CENTER
1.930200 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.930203 GHz
16.03 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

MA SB
SC FC
CORR



CENTER 1.930200 GHz
#IF BW 1.0 MHz

#AVG BW 1 MHz

SPAN 1.000 MHz
SWP 20.0 msec

Section 4. Occupied Bandwidth

Name of Test:	<i>Occupied Bandwidth</i>	Test Standard:	<i>2.1049(i)</i>
Tested By:	WEI LI	Test Date:	03/19/2005-03/24/2005

Minimum Standard: Not defined by FCC. Input vs. Output.

Method of Measurement: Spectrum Analyzer Settings:
RBW: CDMA (30 kHz), GSM (30 kHz), NADC (1 kHz) and CDPD (1 kHz)
VBW: $\geq$ RBW
Span: As required
Sweep: Auto
Input Signal Characteristics:
RF level: Maximum recommended by manufacturer

Test Result:

Complies

Test Data:

Attached Plots

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Hi-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

11:37:36 MAR 22, 2005

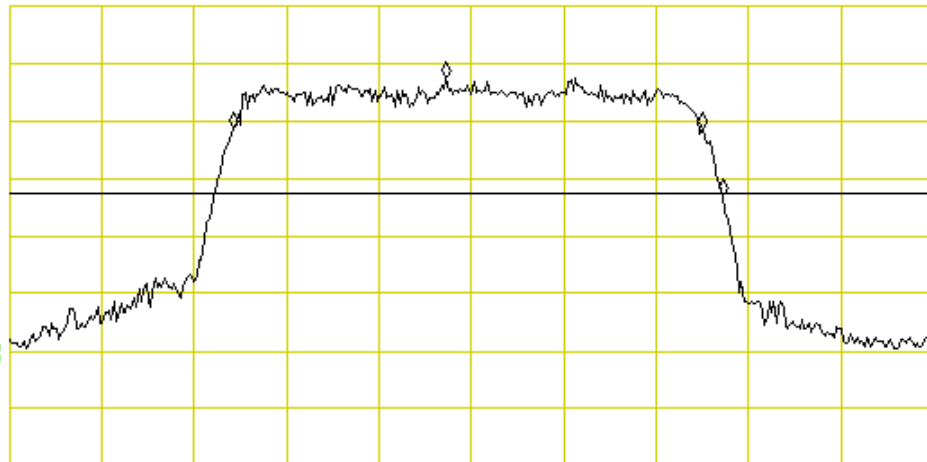
MARKER Δ
1.269 MHz
.20 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.269 MHz
.20 dB

REF OFFST 10.0 dB
REF 20.0 dBm

LOG
10
dB/
ATN
40 dB

DL
-12.6
dBm
MA SB
SC FC
CORR



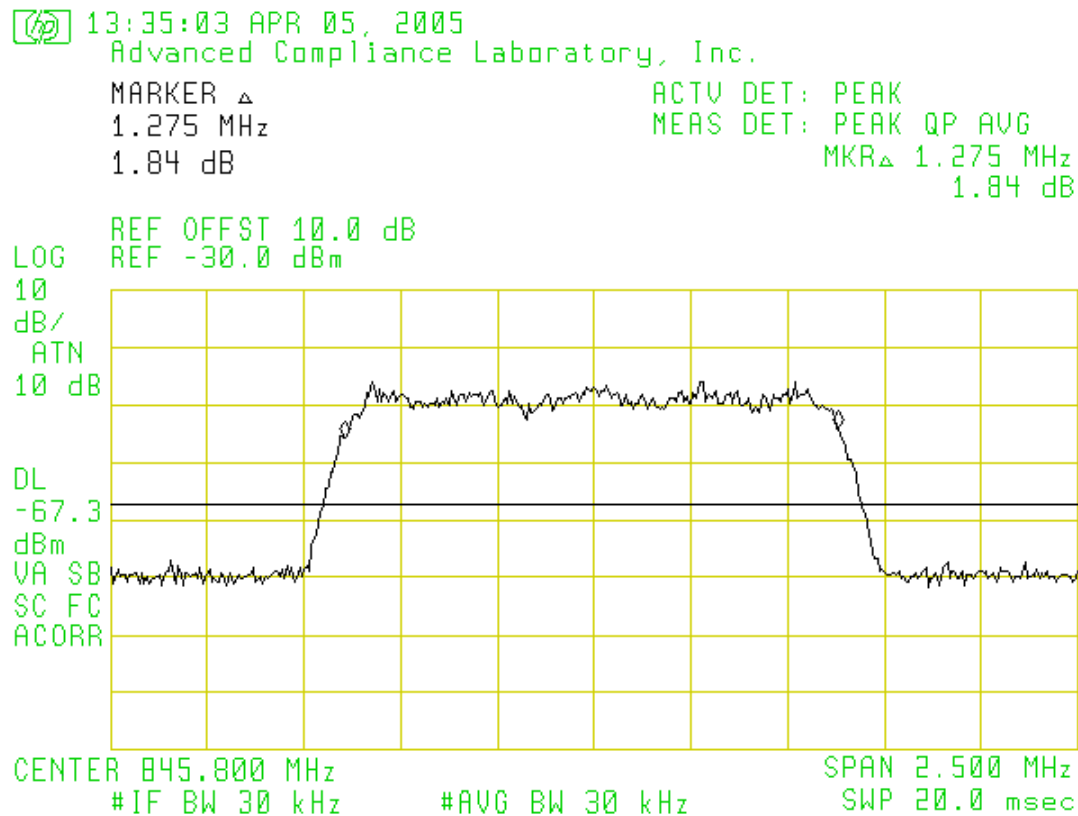
CENTER 845.800 MHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Hi-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Mid-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

11:34:14 MAR 22, 2005

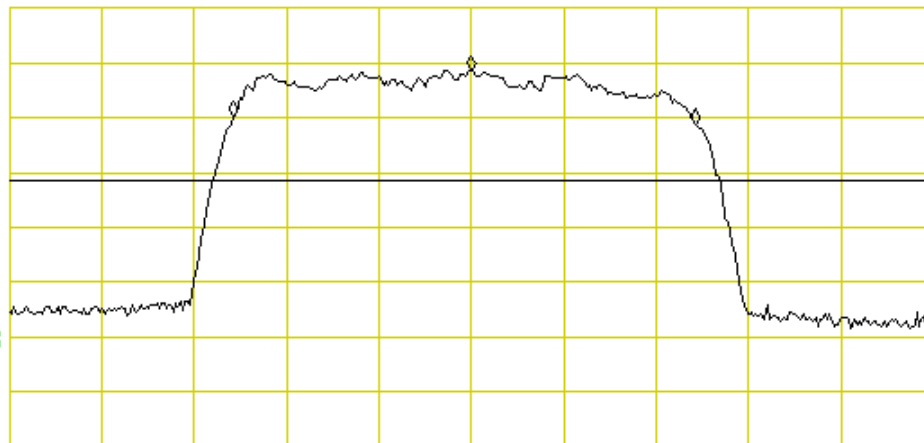
MARKER Δ
1.250 MHz
-1.37 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.250 MHz
-1.37 dB

REF OFFST 10.0 dB
REF 20.0 dBm

LOG
10
dB/
ATN
40 dB

DL
-11.6
dBm
MA SB
SC FC
CORR



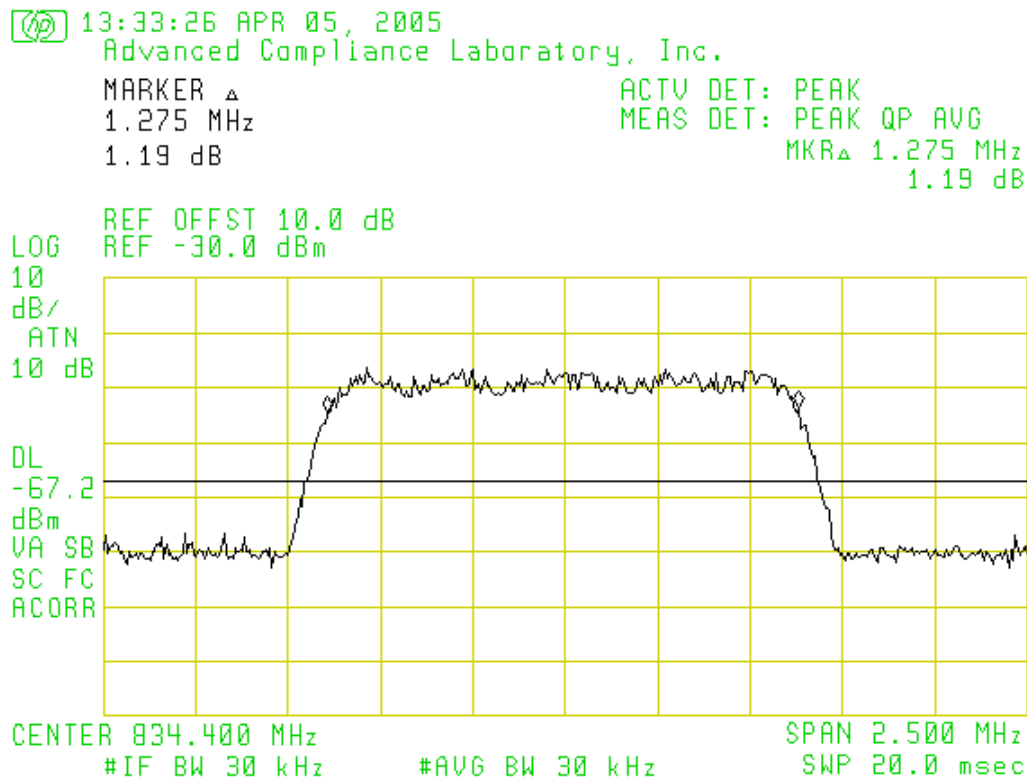
CENTER 834.400 MHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Mid-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Low-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

11:25:48 MAR 22, 2005

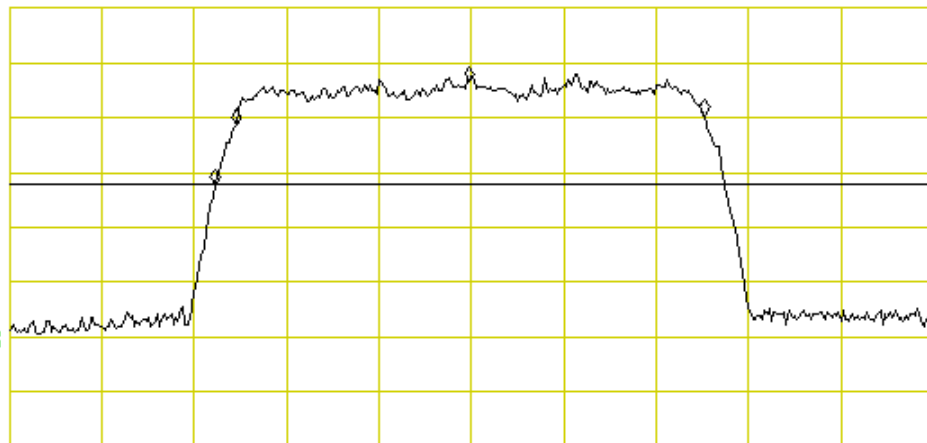
MARKER Δ
1.269 MHz
1.67 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.269 MHz
1.67 dB

REF OFFST 10.0 dB
REF 20.0 dBm

LOG
10
dB/
ATN
40 dB

DL
-12.5
dBm
VA SB
SC FC
CORR



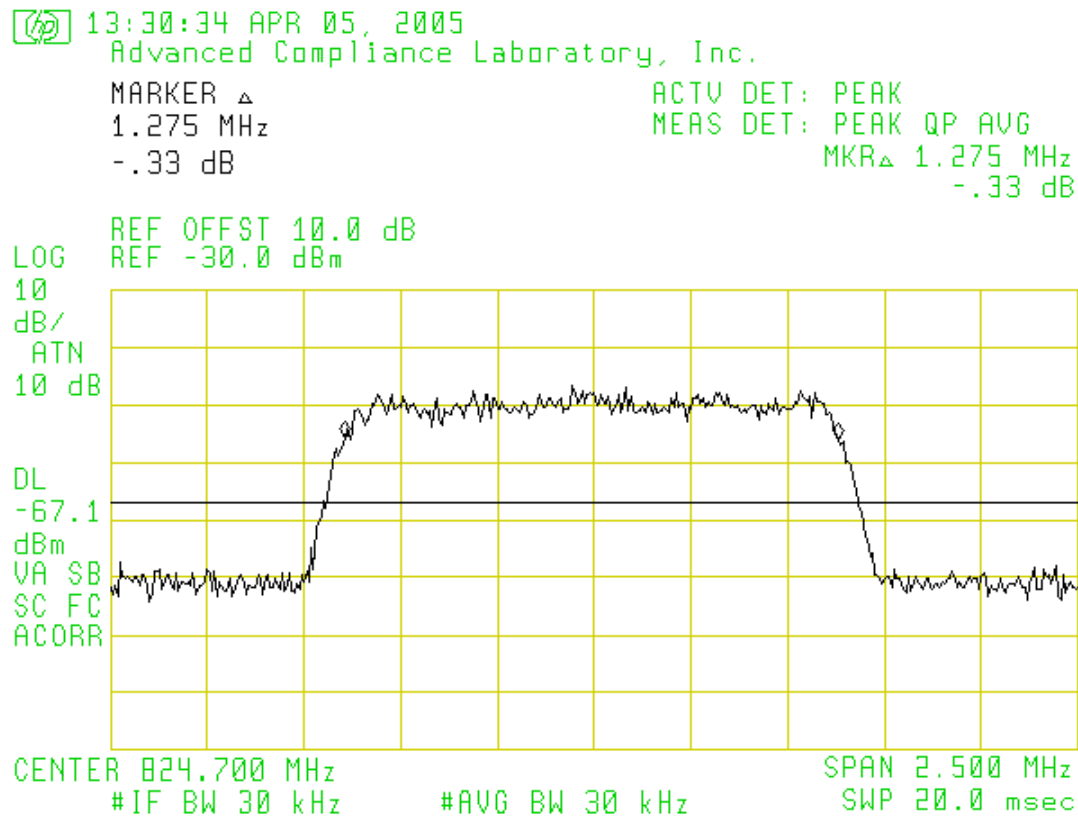
CENTER 824.700 MHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Low-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Hi-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

12:43:01 MAR 24, 2005

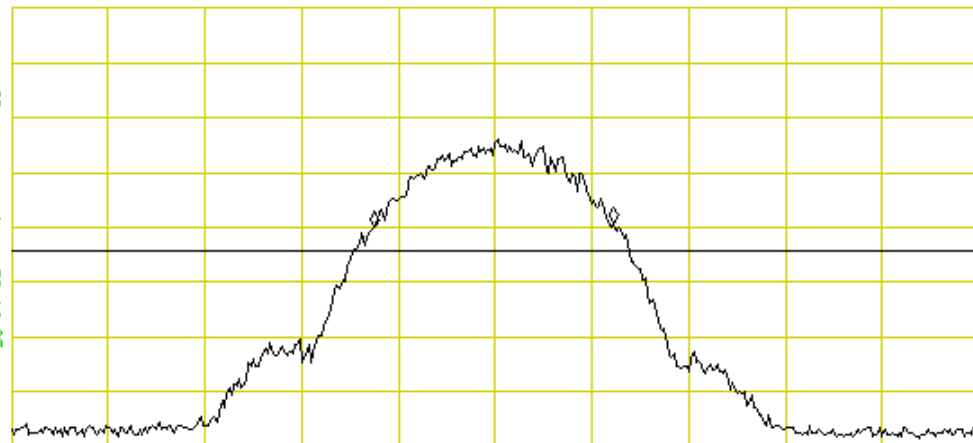
CENTER
846.300 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 248 kHz
.66 dB

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

DL
-14.4
dBm
VA SB
SC FC
CORR



CENTER 846.300 MHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Hi-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

16:55:33 MAR 24, 2005

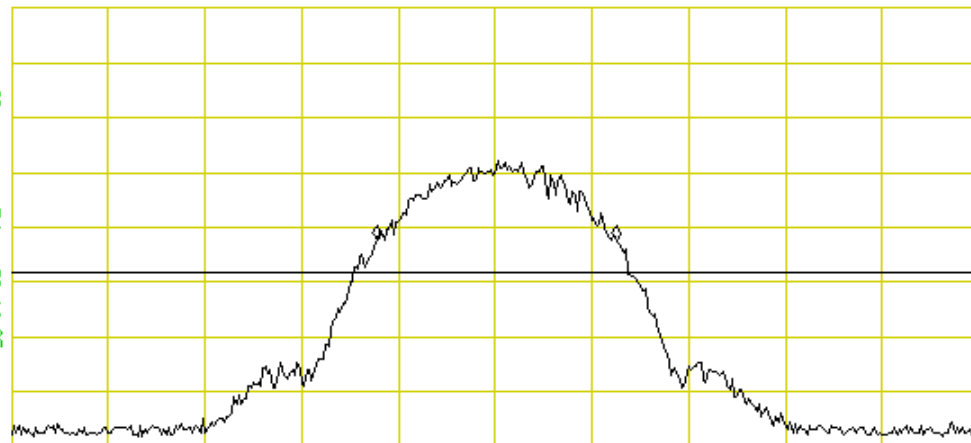
CENTER
846.300 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 248 kHz
-.09 dB

REF OFFST 10.4 dB
REF -20.0 dBm

LOG
10
dB/
ATN
10 dB

DL
-68.2
dBm
VA SB
SC FC
CORR



CENTER 846.300 MHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

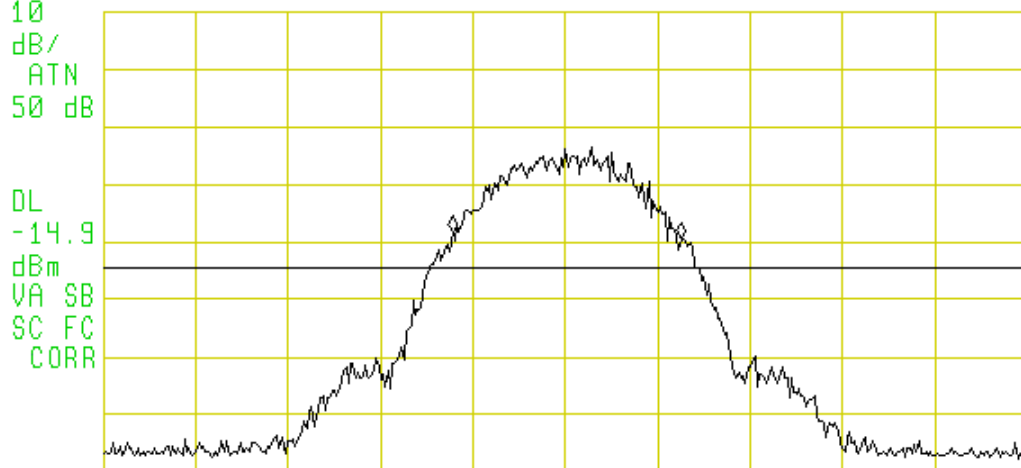
Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Mid-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

12:41:39 MAR 24, 2005

CENTER
834.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 248 kHz
-.93 dB

LOG
10
dB/
ATN
50 dB
REF OFFST 10.4 dB
REF 30.0 dBm



CENTER 834.200 MHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Mid-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

16:54:51 MAR 24, 2005

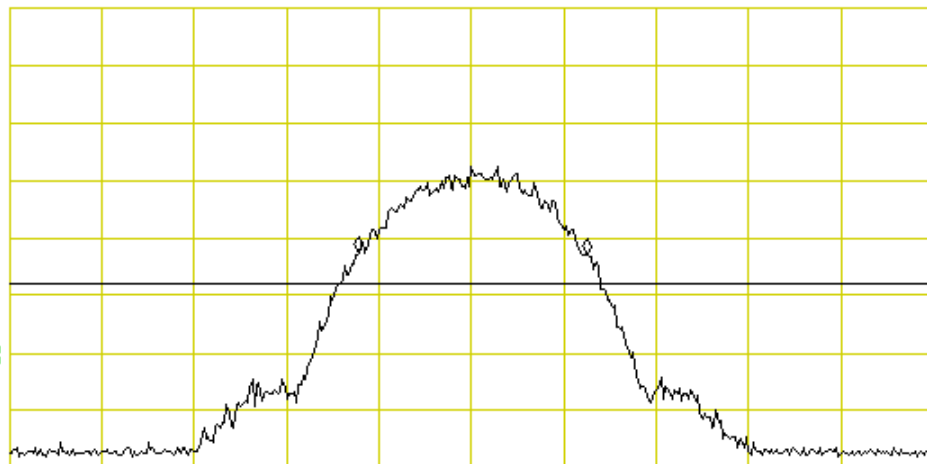
CENTER
834.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 248 kHz
-.21 dB

LOG REF OFFST 10.4 dB
10 REF -20.0 dBm

dB/
ATN
10 dB

DL
-68.0
dBm
VA SB
SC FC
CORR



CENTER 834.200 MHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Low-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

12:40:24 MAR 24, 2005

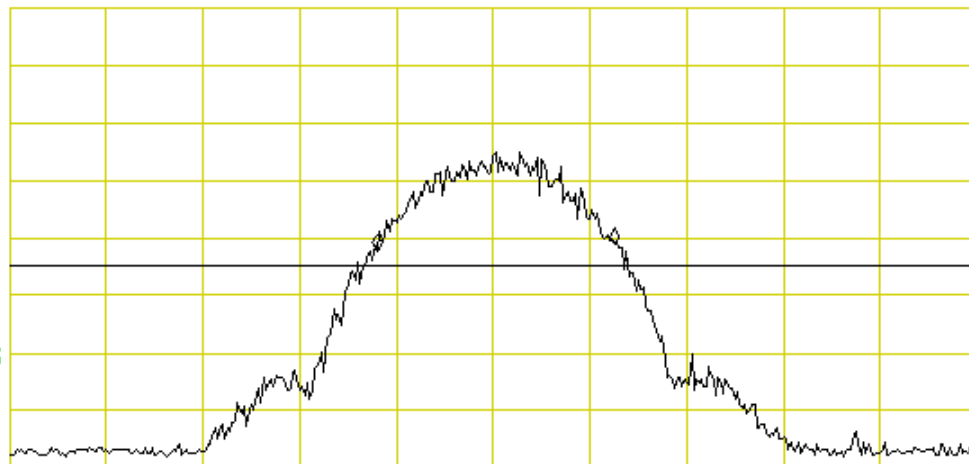
CENTER
824.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 245 kHz
1.14 dB

LOG
10
dB/
ATN
50 dB

REF OFFST 10.4 dB
REF 30.0 dBm

DL
-15.2
dBm
VA SB
SC FC
CORR



CENTER 824.200 MHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

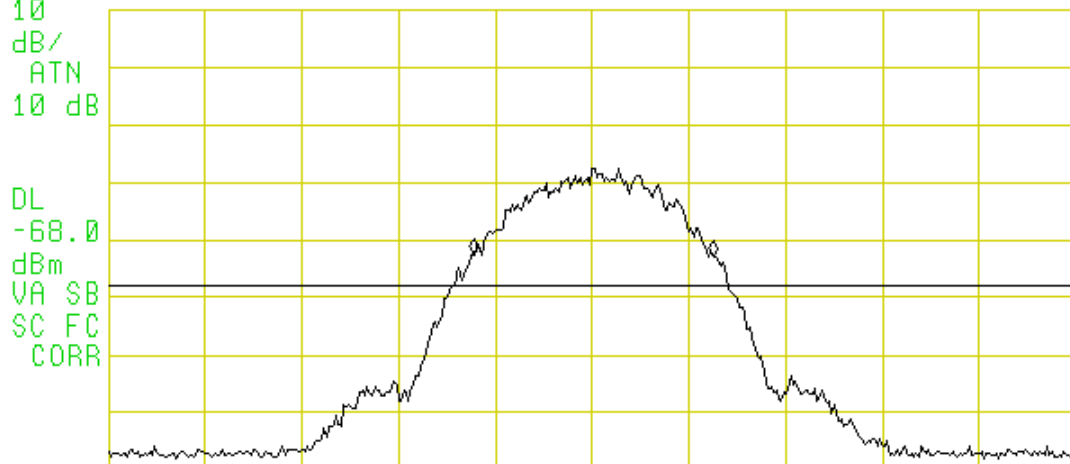
Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Low-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

16:54:06 MAR 24, 2005

CENTER
824.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 248 kHz
-.24 dB

LOG REF OFFST 10.4 dB
10 REF -20.0 dBm
dB/
ATN
10 dB



CENTER 824.200 MHz SPAN 1.000 MHz
#IF BW 3.0 kHz #AVG BW 10 kHz SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Hi-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MOBILE

19:28:28 MAR 19, 2005

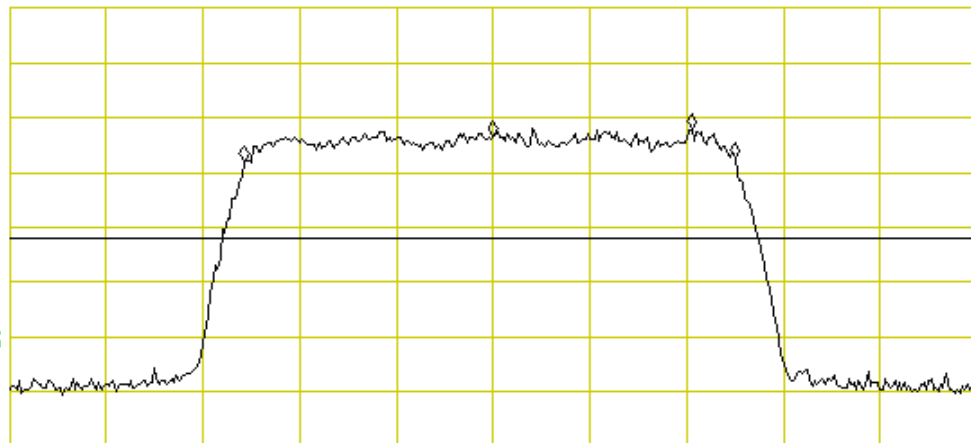
MARKER Δ
1.269 MHz
.69 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.269 MHz
.69 dB

REF OFFST 10.0 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

DL
-12.2
dBm
VA SB
SC FC
CORR



CENTER 890.800 MHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Hi-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

20:02:12 MAR 19, 2005

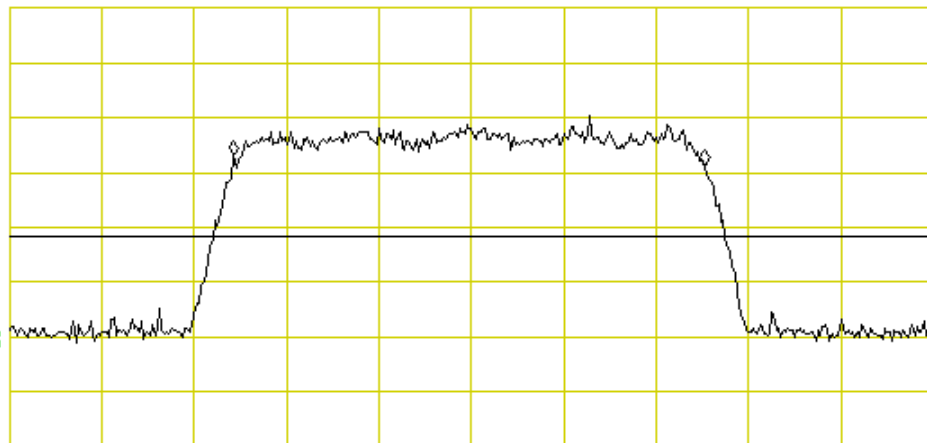
MARKER Δ
1.275 MHz
-1.63 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.275 MHz
-1.63 dB

LOG REF -40.0 dBm

10
dB/
ATN
10 dB

DL
-82.0
dBm
VA SB
SC FC
CORR



CENTER 890.800 MHz

#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Mid-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MOBILE

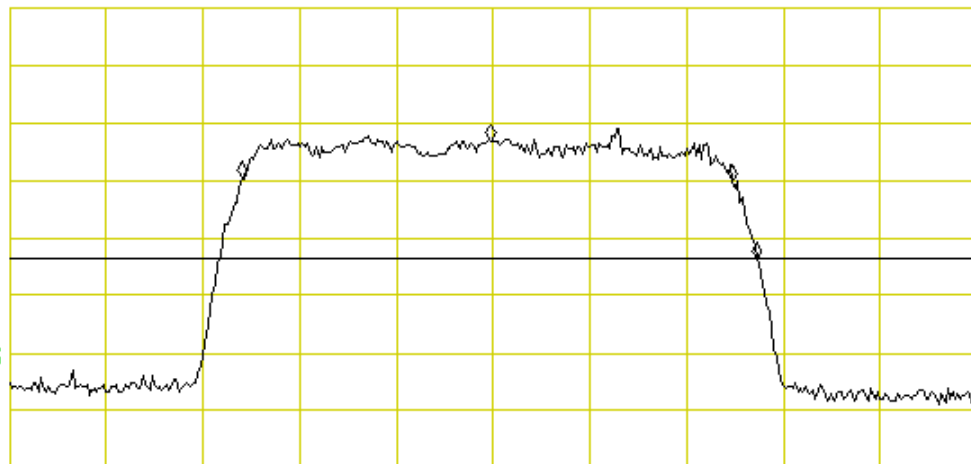
19:20:18 MAR 19, 2005

MARKER Δ
1.269 MHz
-.80 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.269 MHz
-.80 dB

LOG
10
dB/
ATN
50 dB
REF OFFST 10.0 dB
REF 30.0 dBm

DL
-13.6
dBm
VA SB
SC FC
CORR



CENTER 879.400 MHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Mid-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

20:00:48 MAR 19, 2005

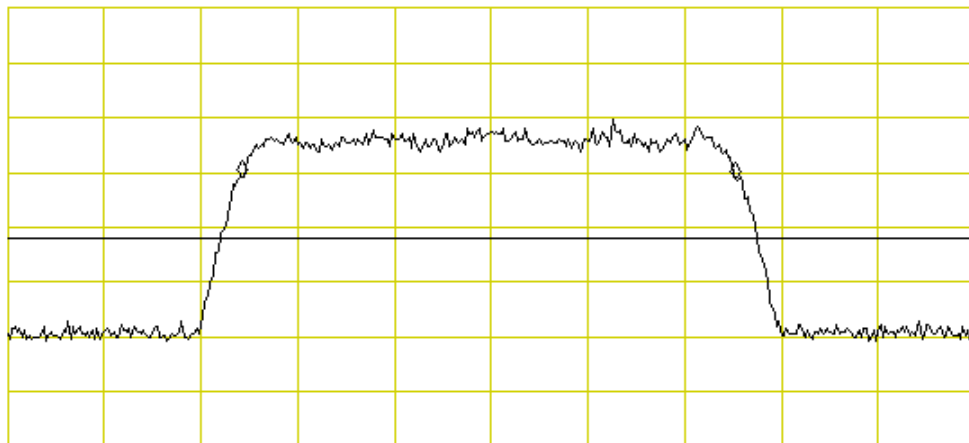
MARKER Δ
1.275 MHz
-.25 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.275 MHz
-.25 dB

LOG REF -40.0 dBm

10
dB/
ATN
10 dB

DL
-82.2
dBm
VA SB
SC FC
CORR



CENTER 879.400 MHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Low-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MIBILE

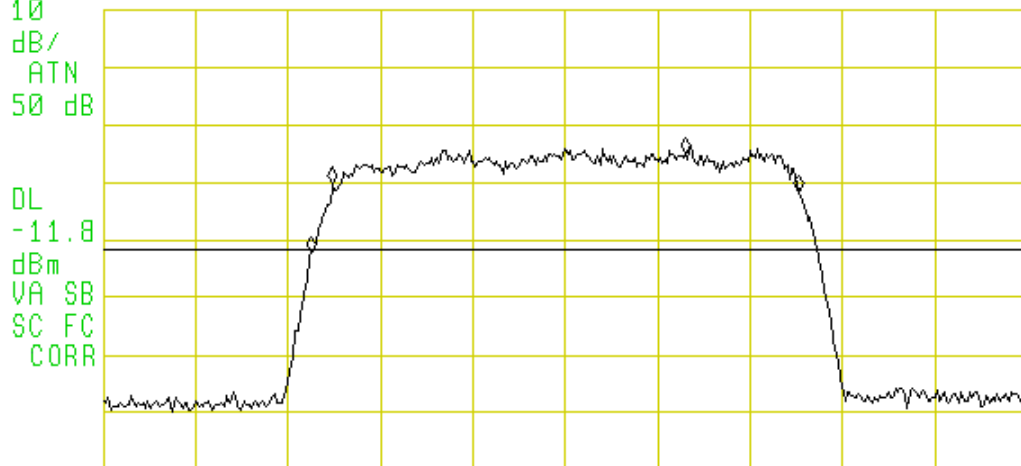
19:47:44 MAR 19, 2005

CENTER
869.700 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.263 MHz
-1.69 dB

LOG REF OFFST 10.0 dB
10 REF 30.0 dBm

DL
-11.8
dBm
VA SB
SC FC
CORR



CENTER 869.700 MHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Low-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

20:06:03 MAR 19, 2005

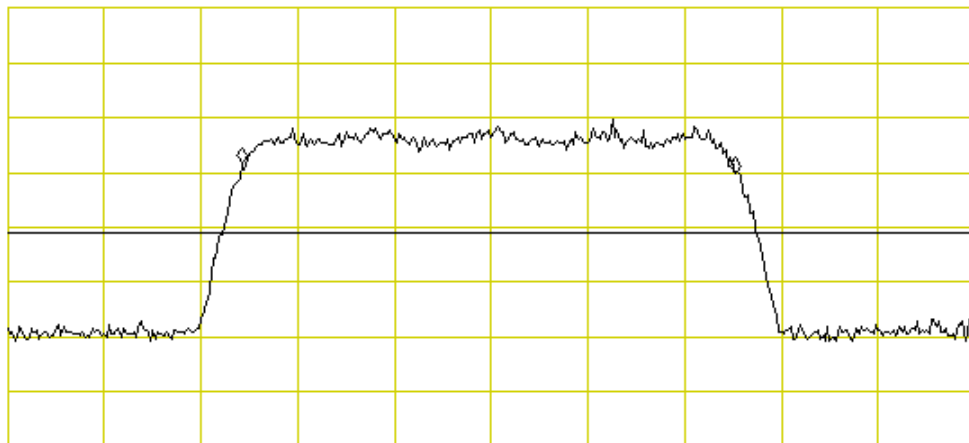
MARKER Δ
1.275 MHz
-1.50 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.275 MHz
-1.50 dB

LOG REF -40.0 dBm

10
dB/
ATN
10 dB

DL
-81.2
dBm
VA SB
SC FC
CORR



CENTER 869.700 MHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

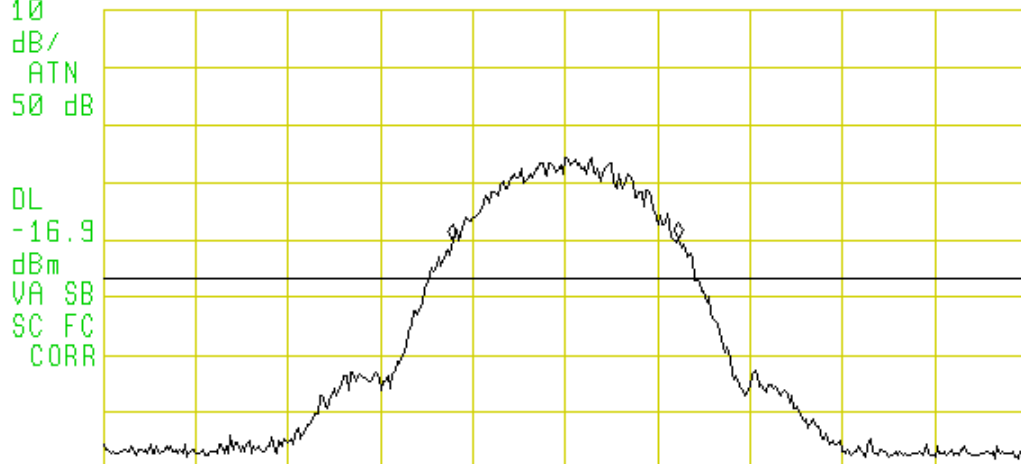
Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Hi-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MOBILE

12:58:38 MAR 24, 2005

CENTER
891.300 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 245 kHz
.28 dB

LOG
10
dB/
ATN
50 dB
REF OFFST 10.4 dB
REF 30.0 dBm



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Hi-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

16:57:21 MAR 24, 2005

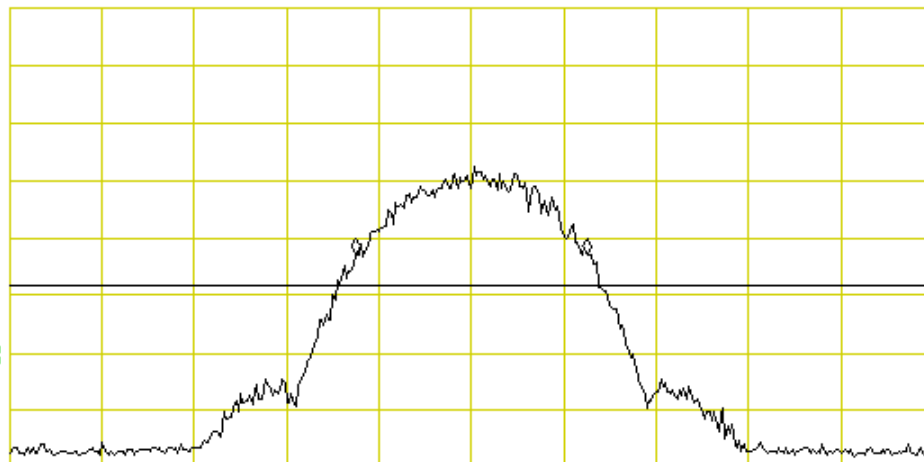
CENTER
891.300 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 250 kHz
.26 dB

LOG REF OFFST 10.4 dB
10 REF -20.0 dBm

dB/
ATN
10 dB

DL
-68.4
dBm
VA SB
SC FC
CORR



CENTER 891.300 MHz SPAN 1.000 MHz
#IF BW 3.0 kHz #AVG BW 10 kHz SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Mid-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MOBILE

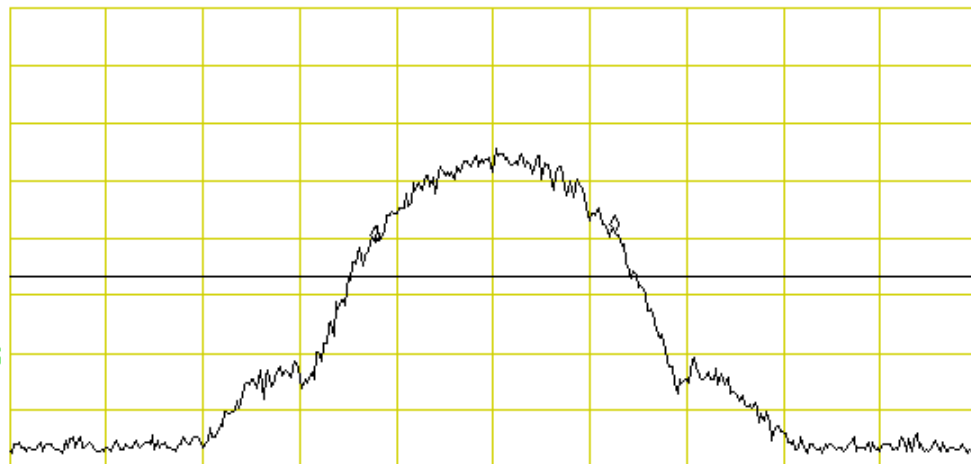
12:57:42 MAR 24, 2005

CENTER
879.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 248 kHz
1.67 dB

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/
ATN
50 dB

DL
-16.7
dBm
VA SB
SC FC
CORR



CENTER 879.200 MHz SPAN 1.000 MHz
#IF BW 3.0 kHz #AVG BW 10 kHz SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Mid-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

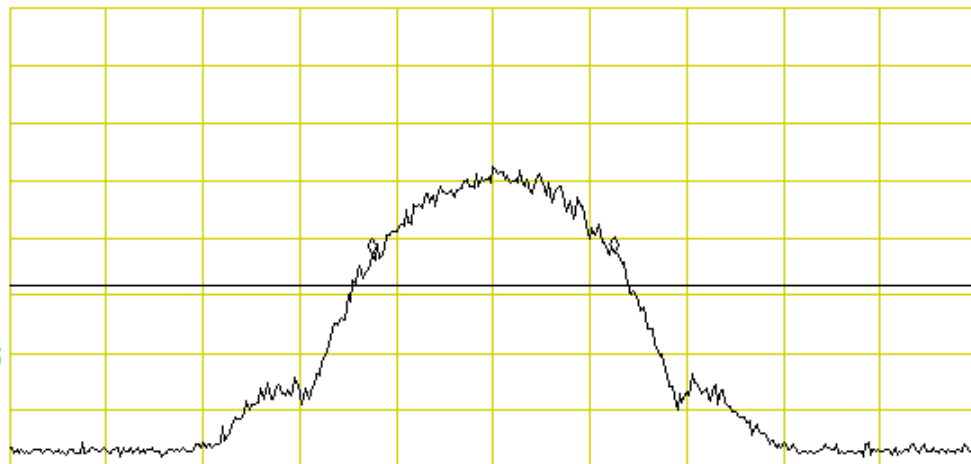
16:56:46 MAR 24, 2005

CENTER
879.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 250 kHz
.48 dB

LOG REF OFFST 10.4 dB
10 REF -20.0 dBm
dB/
ATN
10 dB

DL
-68.2
dBm
VA SB
SC FC
CORR



CENTER 879.200 MHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Low-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MOBILE

12:56:34 MAR 24, 2005

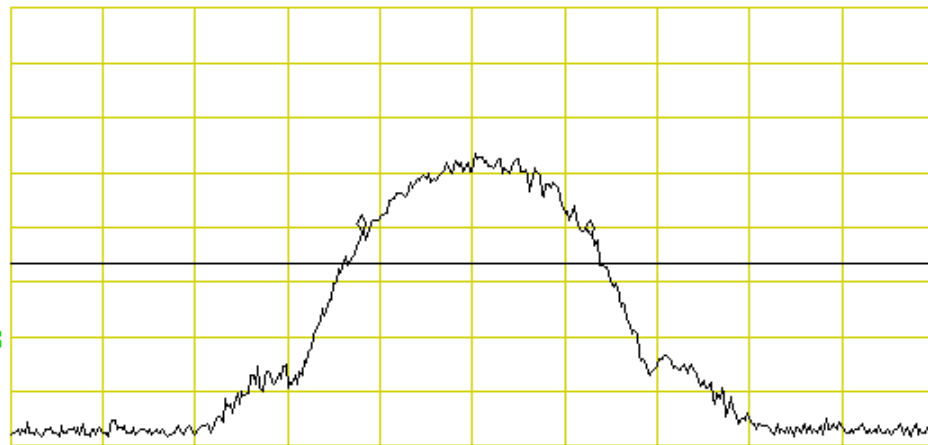
CENTER
869.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 248 kHz
-.44 dB

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

DL
-16.9
dBm
VA SB
SC FC
CORR



CENTER 869.200 MHz
#IF BW 3.0 kHz
#AVG BW 10 kHz
SPAN 1.000 MHz
SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

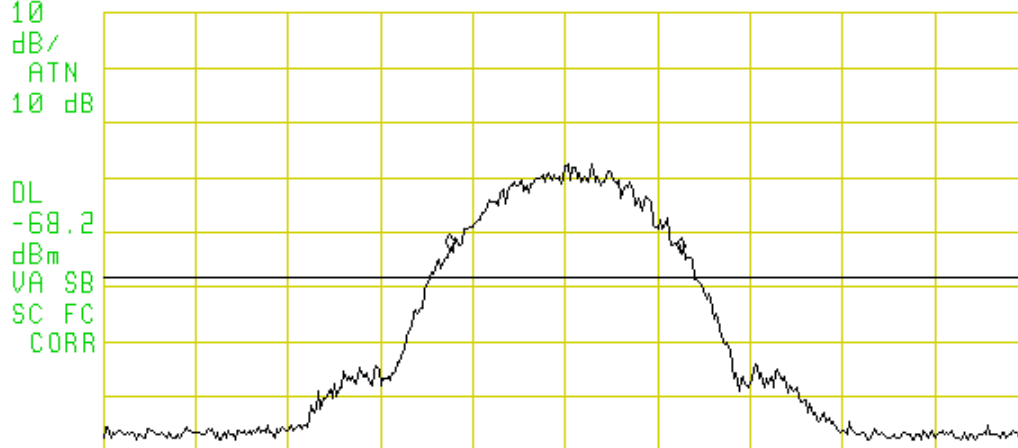
Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Downlink, Low-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

16:56:10 MAR 24, 2005

CENTER
869.200 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 250 kHz
-.87 dB

LOG
10
dB/
ATN
10 dB
REF OFFST 10.4 dB
REF -20.0 dBm



CENTER 869.200 MHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Hi-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

10:30:03 MAR 23, 2005

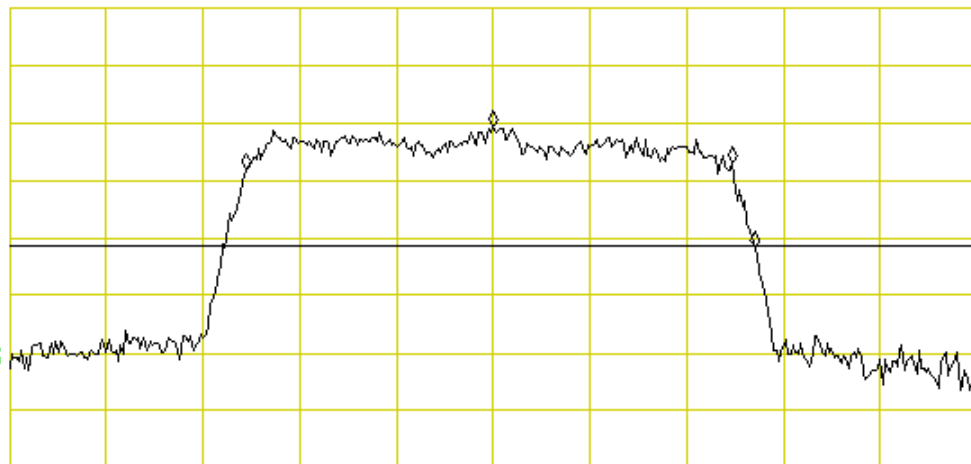
MARKER Δ
1.256 MHz
1.08 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.256 MHz
1.08 dB

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-11.5
dBm
VA SB
SC FC
CORR



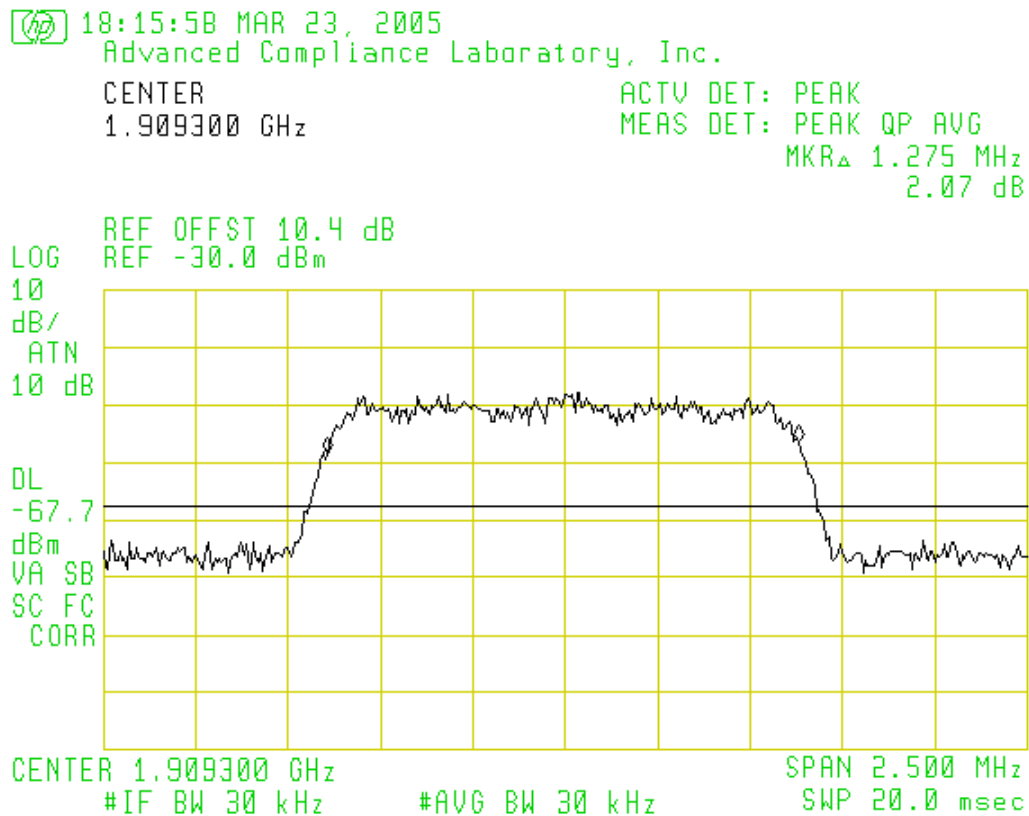
CENTER 1.909300 GHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Hi-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: Cellular Bands
Plot Name:	Uplink, Mid-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

10:35:23 MAR 23, 2005

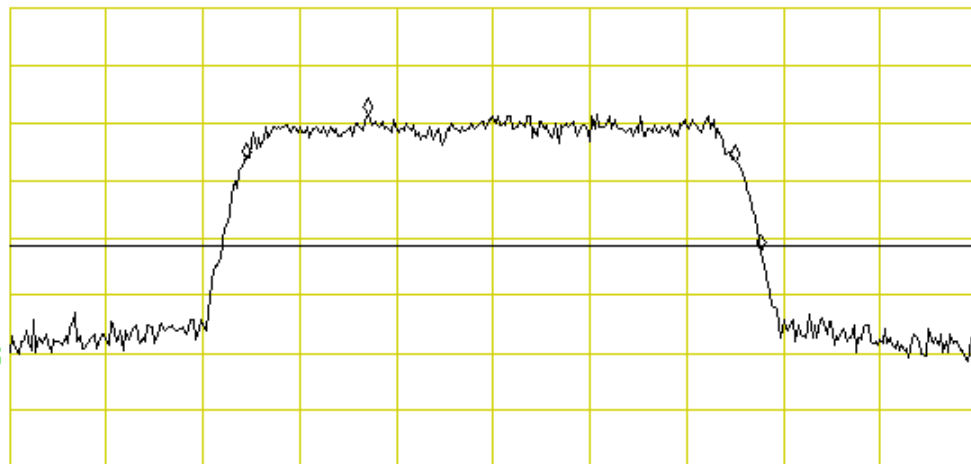
MARKER Δ
1.263 MHz
-.27 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.263 MHz
-.27 dB

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-11.7
dBm
VA SB
SC FC
CORR



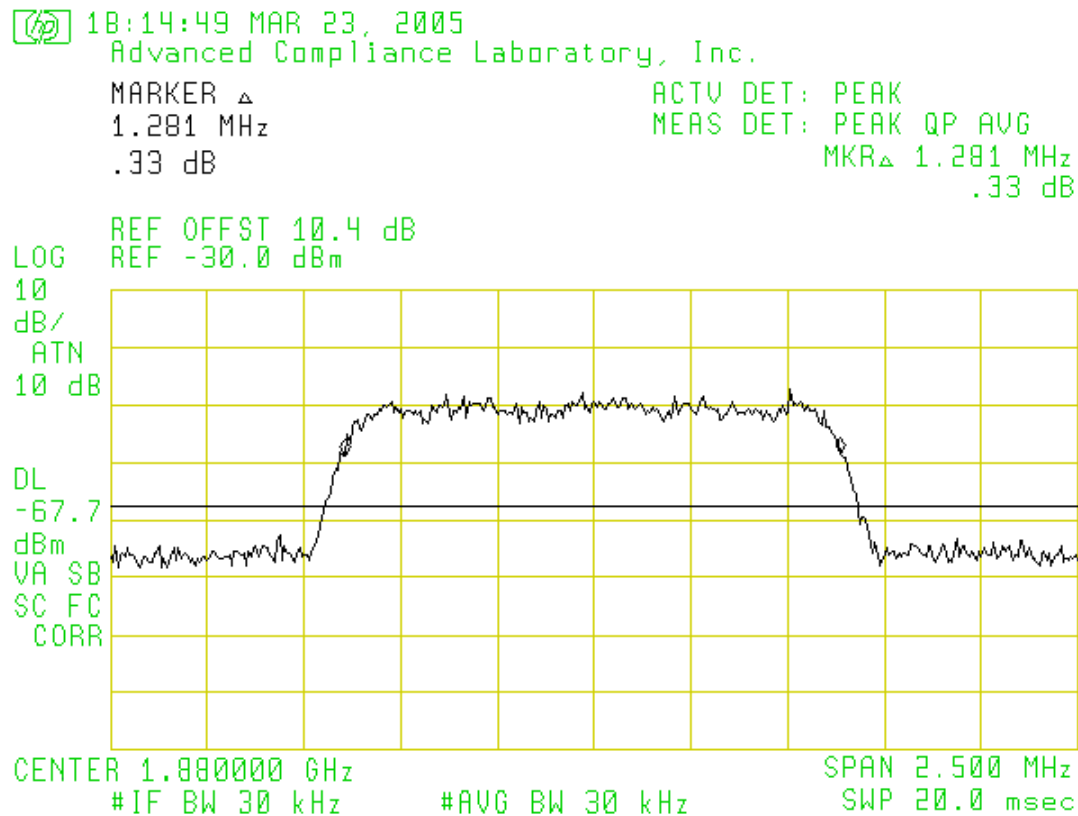
CENTER 1.880000 GHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Mid-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Low-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

17:06:44 MAR 22, 2005

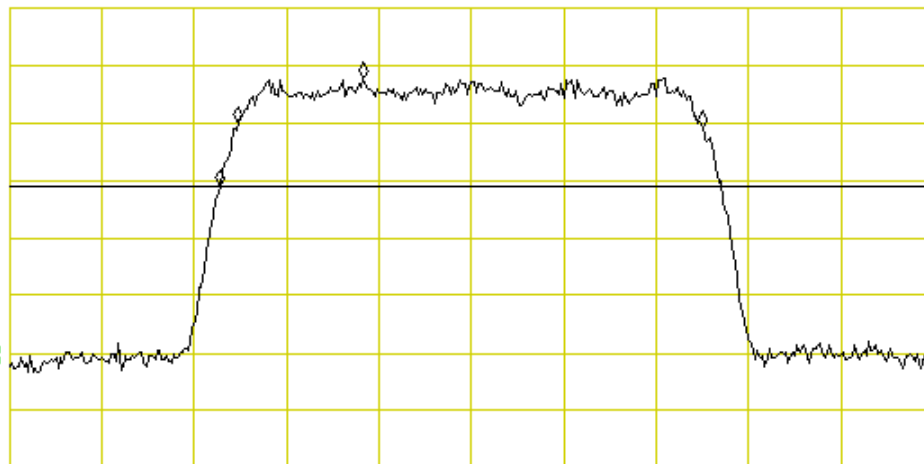
MARKER Δ
1.256 MHz
-1.70 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.256 MHz
-1.70 dB

REF OFFST 10.4 dB
REF 20.0 dBm

LOG
10
dB/
ATN
20 dB

DL
-11.1
dBm
VA SB
SC FC
CORR



CENTER 1.850700 GHz

#IF BW 30 kHz

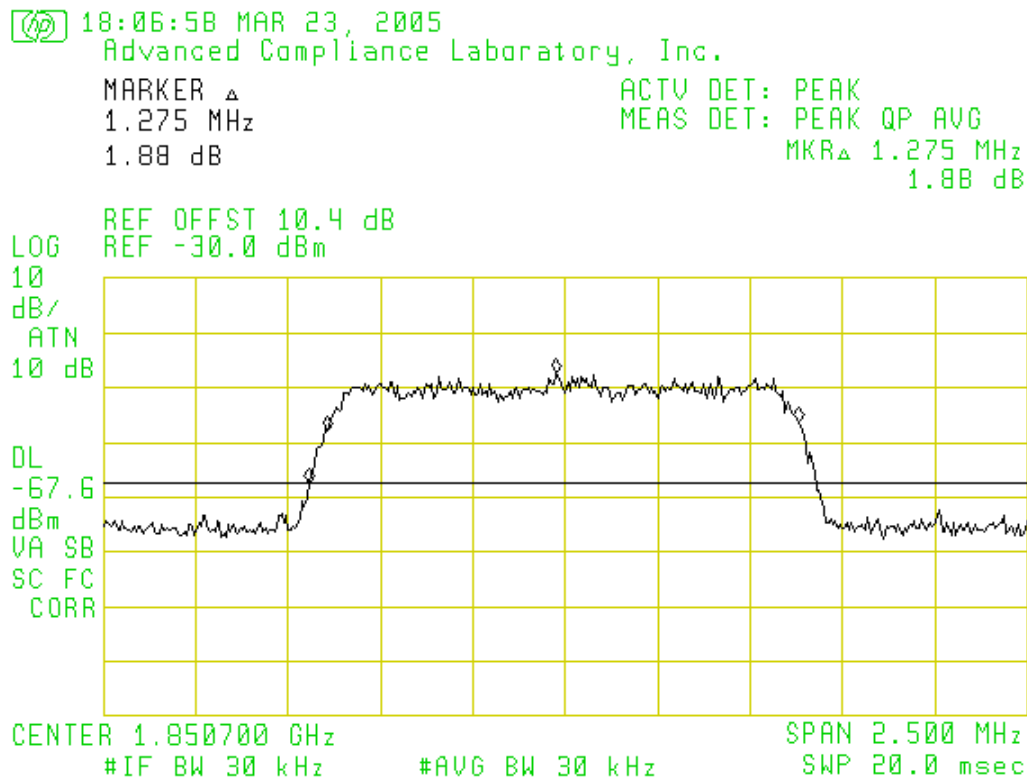
#AVG BW 30 kHz

SPAN 2.500 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Low-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Hi-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

16:06:41 MAR 24, 2005

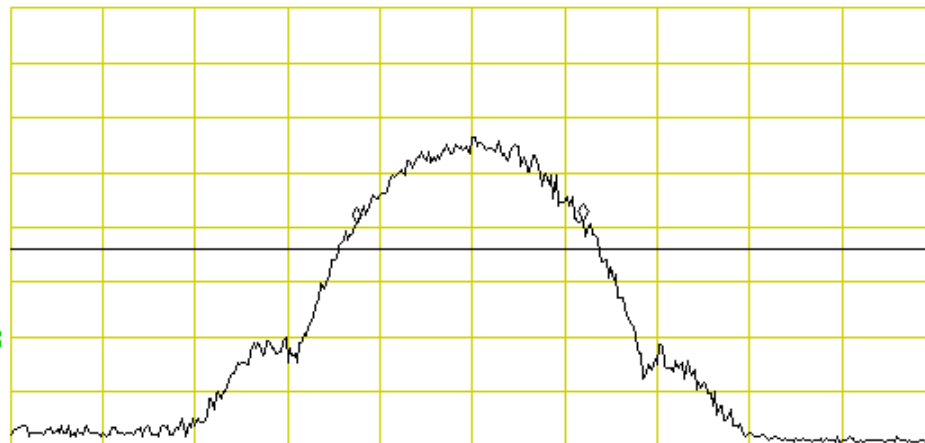
CENTER
1.909800 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 245 kHz
.89 dB

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-14.0
dBm
VA SB
SC FC
CORR



CENTER 1.909800 GHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Hi-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

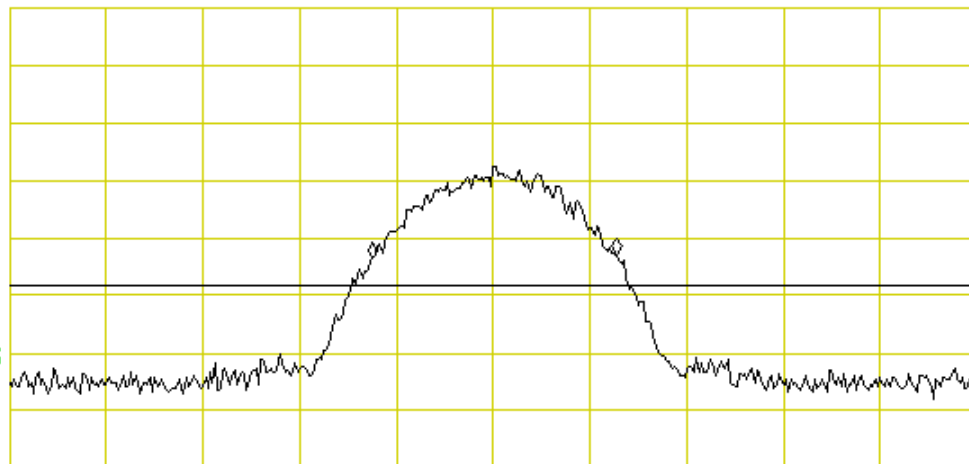
16:46:28 MAR 24, 2005

CENTER
1.909800 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 253 kHz
.70 dB

LOG REF OFFST 10.4 dB
10 REF -20.0 dBm
dB/
ATN
10 dB

DL
-68.1
dBm
VA SB
SC FC
CORR



CENTER 1.909800 GHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Mid-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

16:07:42 MAR 24, 2005

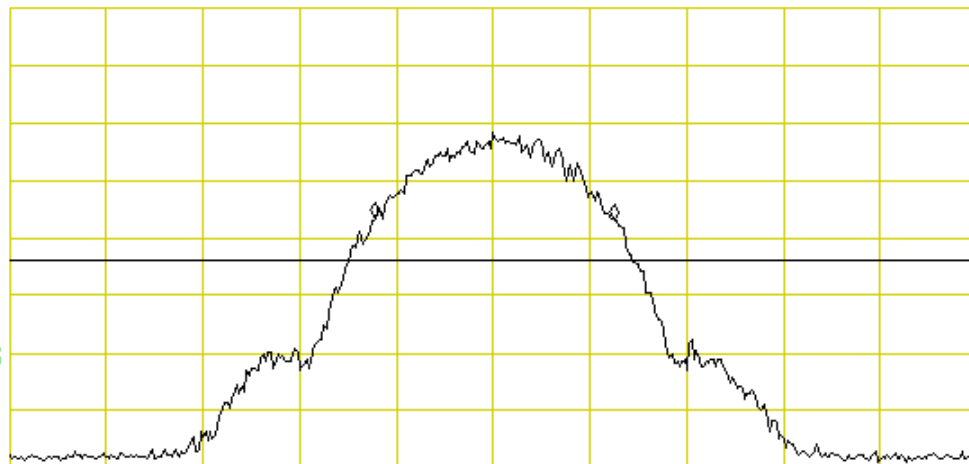
CENTER
1.880000 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 248 kHz
-.18 dB

LOG
10
dB/
ATN
30 dB

REF OFFST 10.4 dB
REF 30.0 dBm

DL
-13.9
dBm
VA SB
SC FC
CORR



CENTER 1.880000 GHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Mid-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

16:45:15 MAR 24, 2005

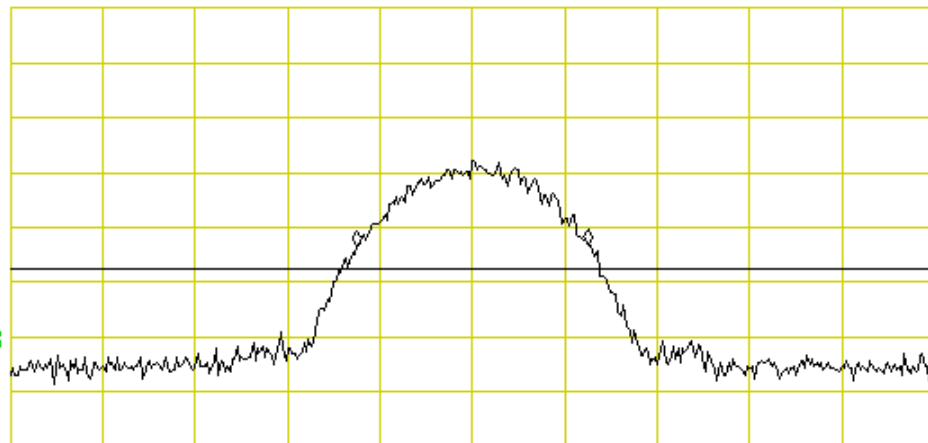
CENTER
1.880000 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 250 kHz
.35 dB

REF OFFST 10.4 dB
REF -20.0 dBm

LOG
10
dB/
ATN
10 dB

DL
-68.0
dBm
VA SB
SC FC
CORR



CENTER 1.880000 GHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Low-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT BTS

12:37:52 MAR 24, 2005

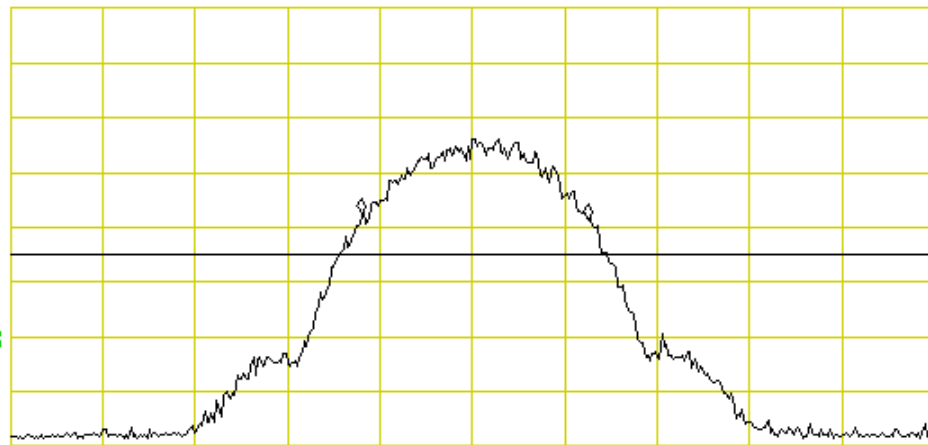
CENTER
1.850200 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 245 kHz
-1.14 dB

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-15.0
dBm
VA SB
SC FC
CORR



CENTER 1.850200 GHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Uplink, Low-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

16:44:19 MAR 24, 2005

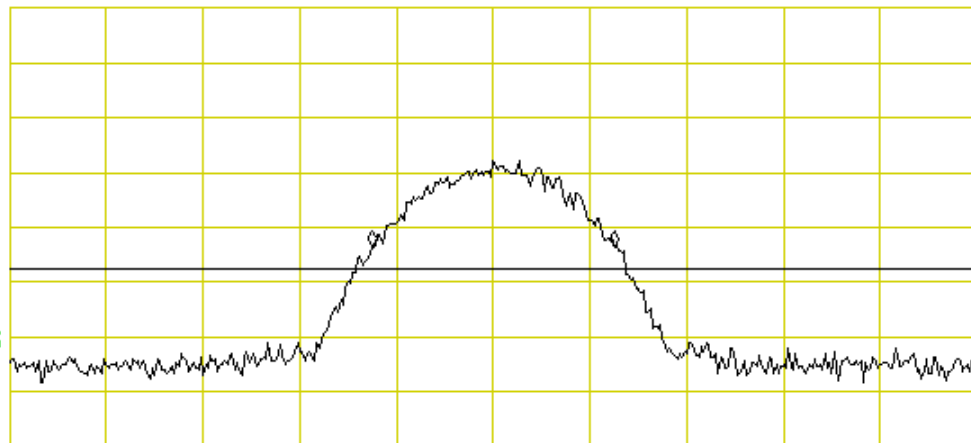
CENTER
1.850200 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 250 kHz
-.11 dB

REF OFFST 10.4 dB
REF -20.0 dBm

LOG
10
dB/
ATN
10 dB

DL
-68.0
dBm
VA SB
SC FC
CORR



CENTER 1.850200 GHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Hi-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MOBILE

15:37:04 MAR 23, 2005

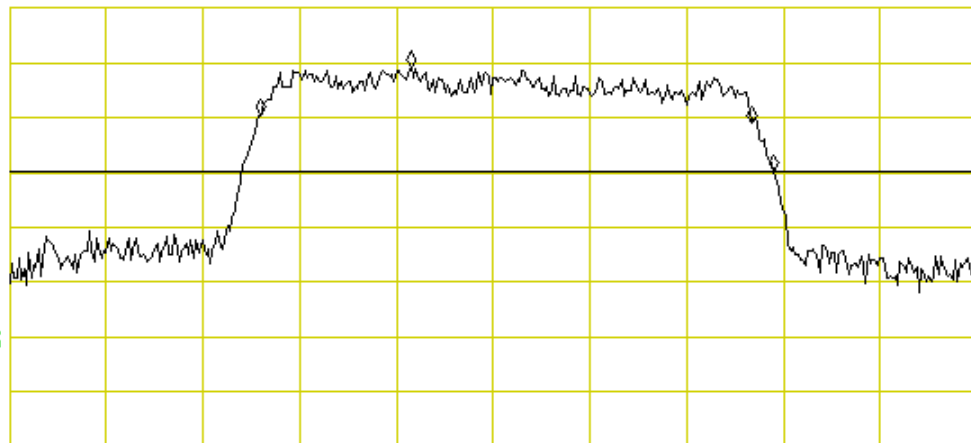
MARKER Δ
1.269 MHz
-1.73 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.269 MHz
-1.73 dB

REF OFFST 10.4 dB
REF 20.0 dBm

LOG
10
dB/
ATN
20 dB

DL
-9.9
dBm
VA SB
SC FC
CORR



CENTER 1.989250 GHz

#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Hi-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

18:30:52 MAR 23, 2005

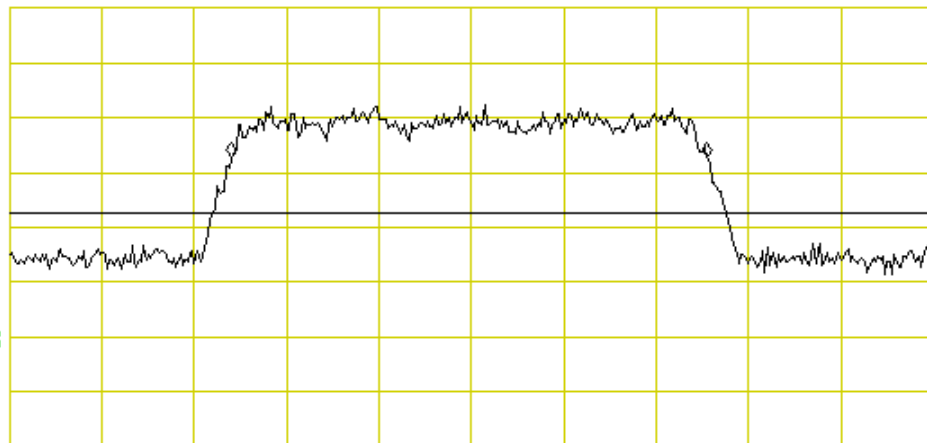
CENTER
1.989300 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.288 MHz
-.01 dB

REF OFFST 10.4 dB
REF -30.0 dBm

LOG
10
dB/
ATN
10 dB

DL
-67.6
dBm
VA SB
SC FC
CORR



CENTER 1.989300 GHz

#IF BW 30 kHz

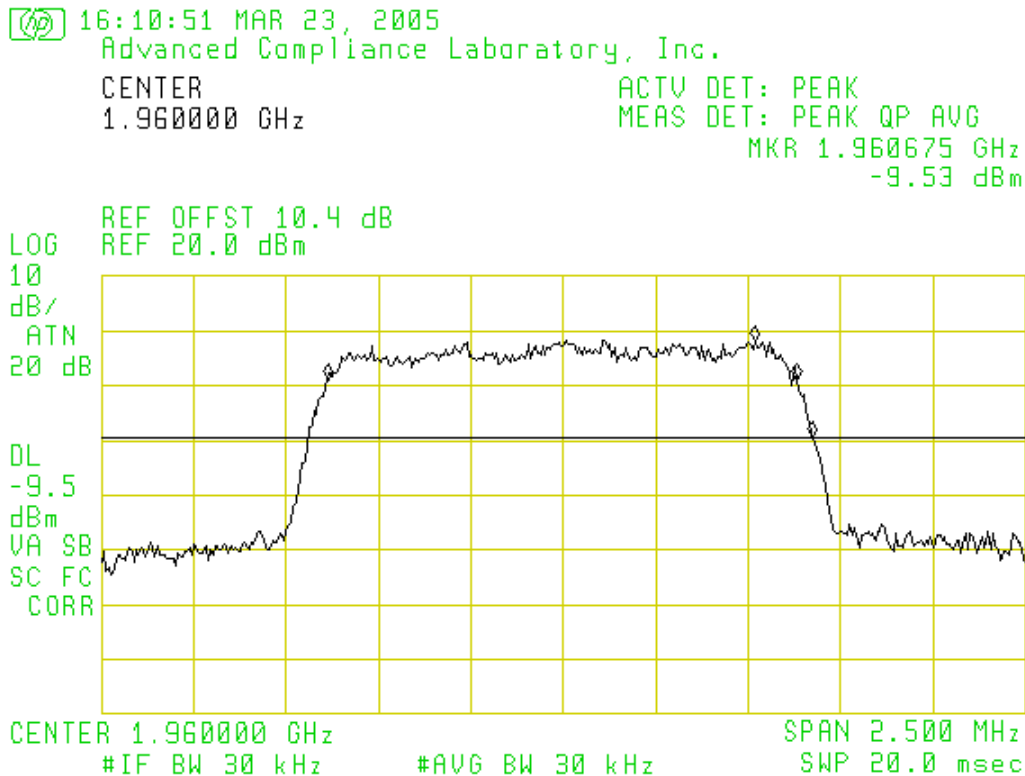
#AVG BW 30 kHz

SPAN 2.500 MHz

SWP 20.0 msec

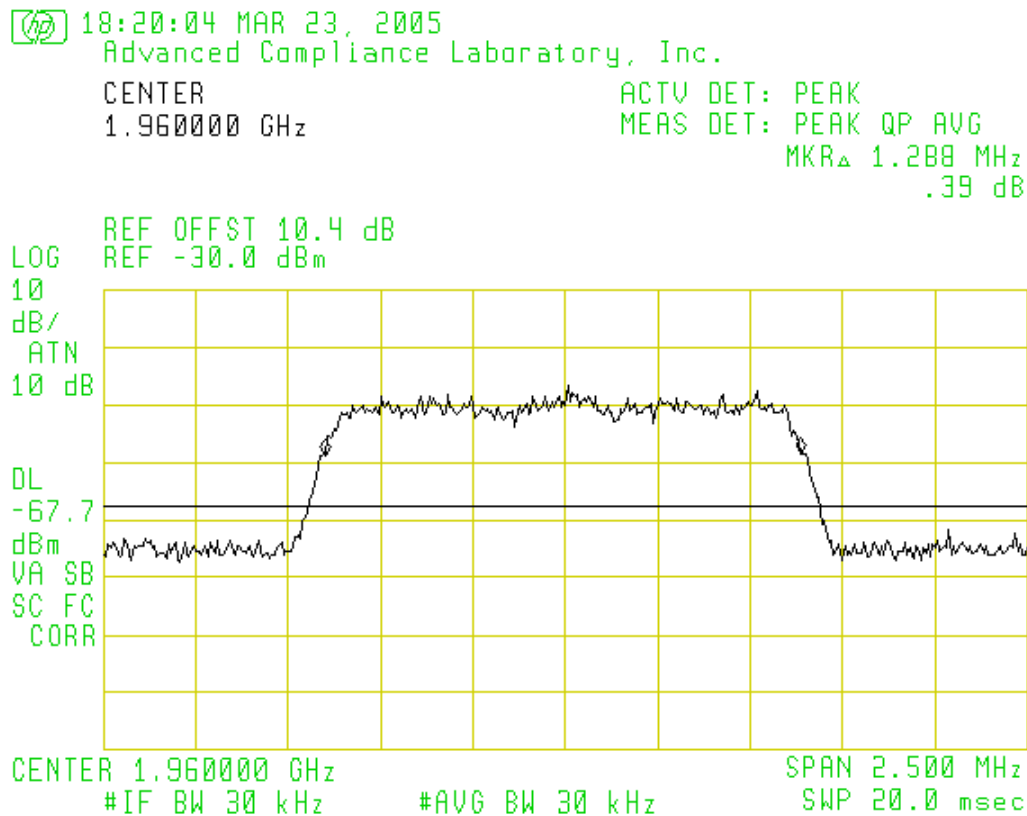
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Mid-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Mid-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Low-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MIBILE

10:30:03 MAR 23, 2005

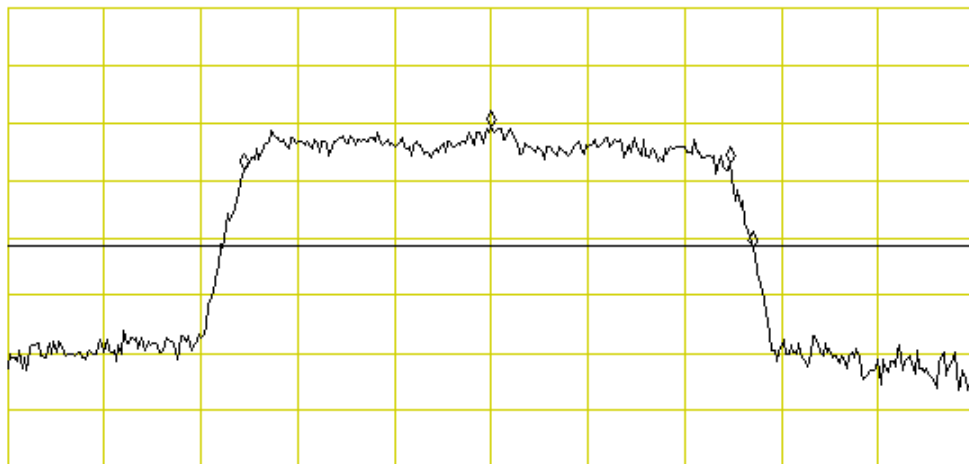
MARKER Δ
1.256 MHz
1.08 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 1.256 MHz
1.08 dB

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-11.5
dBm
VA SB
SC FC
CORR



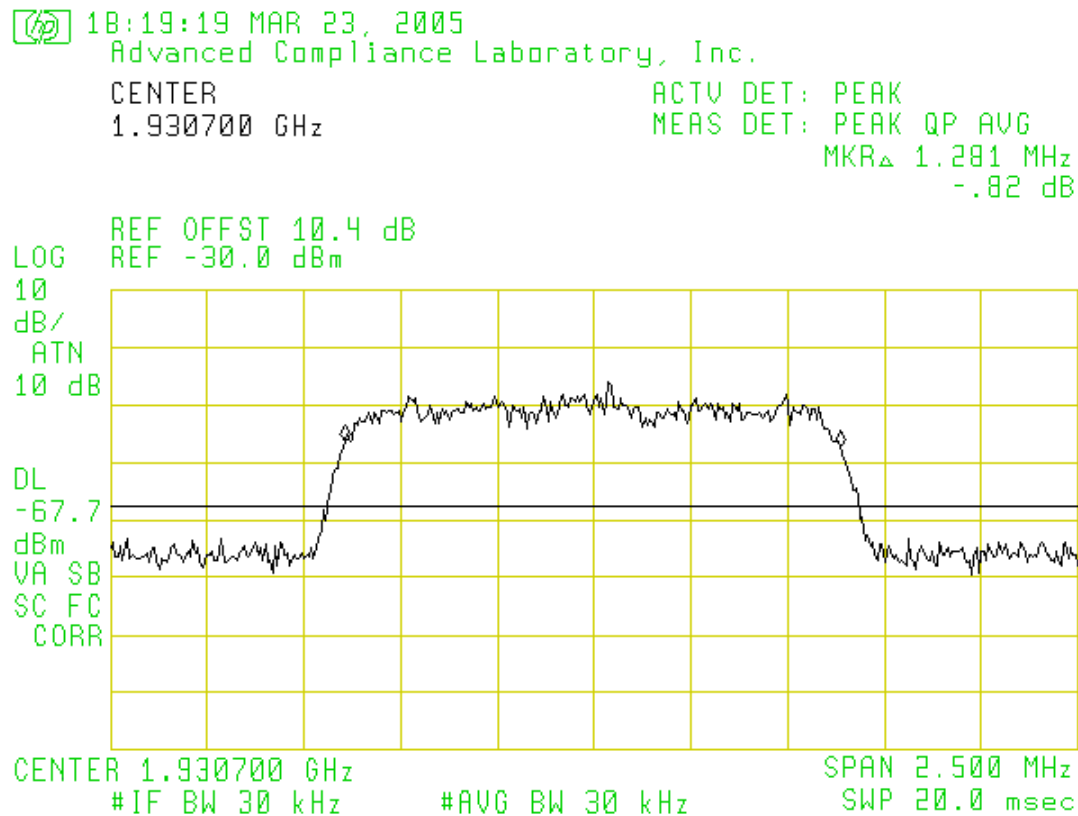
CENTER 1.909300 GHz
#IF BW 30 kHz

#AVG BW 30 kHz

SPAN 2.500 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Low-Channel, CDMA Modulation
Configuration:	SG Input: -55dBm, Output Port: SG



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Hi-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MOBILE

17:49:33 MAR 24, 2005

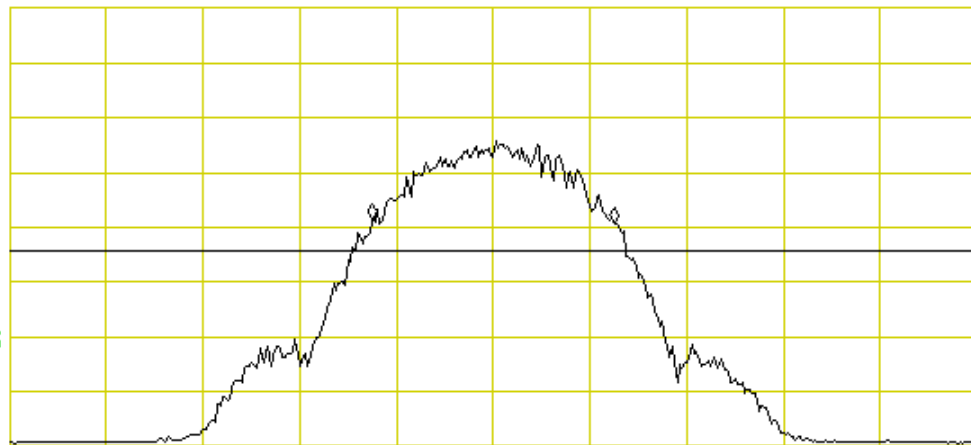
CENTER
1.989800 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 250 kHz
-.93 dB

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-14.5
dBm
VA SB
SC FC
CORR



CENTER 1.989800 GHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

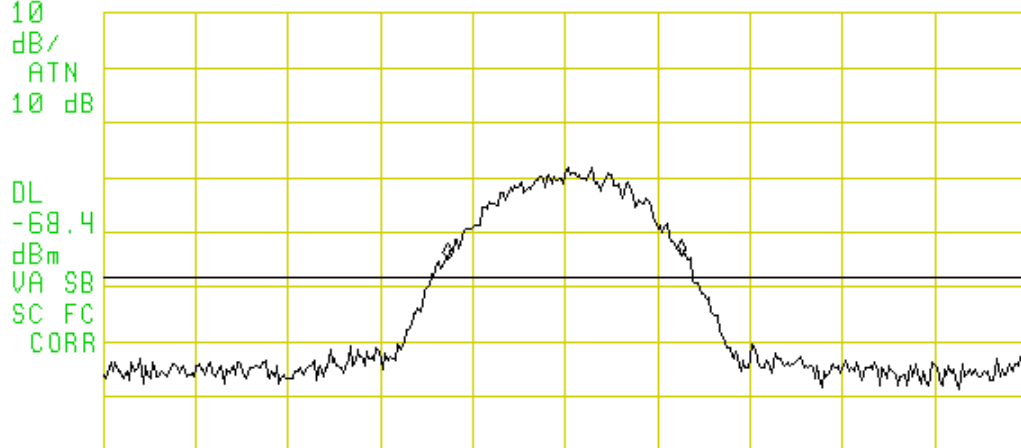
Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Hi-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

16:49:23 MAR 24, 2005

CENTER
1.989800 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 253 kHz
.69 dB

LOG
10
dB/
ATN
10 dB
REF OFFST 10.4 dB
REF -20.0 dBm



CENTER 1.989800 GHz
#IF BW 3.0 kHz
#AVG BW 10 kHz
SPAN 1.000 MHz
SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Mid-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: EUT MOBILE

17:04:24 MAR 24, 2005

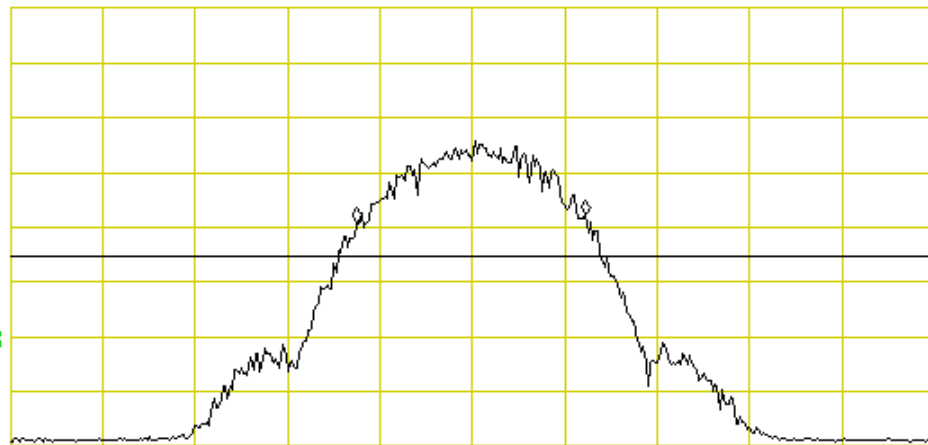
CENTER
1.960000 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 248 kHz
1.32 dB

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-15.4
dBm
VA SB
SC FC
CORR



CENTER 1.960000 GHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Mid-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG

16:48:38 MAR 24, 2005

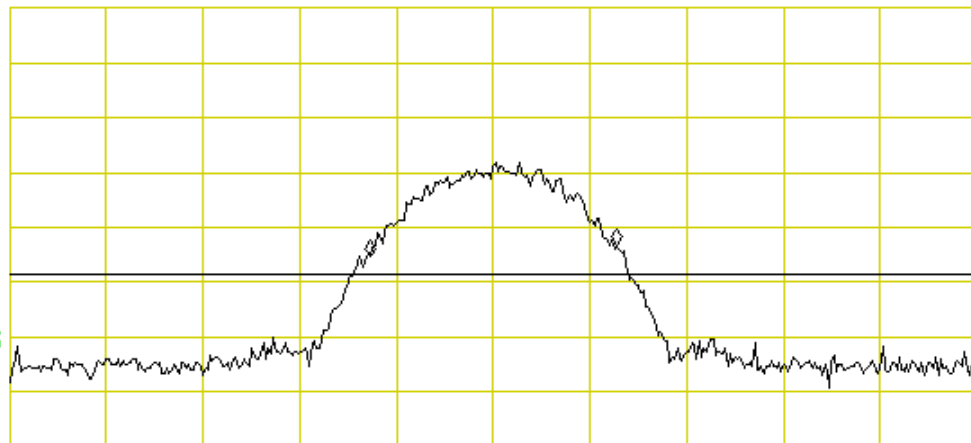
CENTER
1.960000 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 255 kHz
2.06 dB

REF OFFST 10.4 dB
REF -20.0 dBm

LOG
10
dB/
ATN
10 dB

DL
-68.5
dBm
VA SB
SC FC
CORR



CENTER 1.960000 GHz

#IF BW 3.0 kHz

#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Low-Channel, GSM Modulation
Configuration:	SG Input: -25dBm, Output Port: EUT MOBILE

13:29:15 MAR 24, 2005

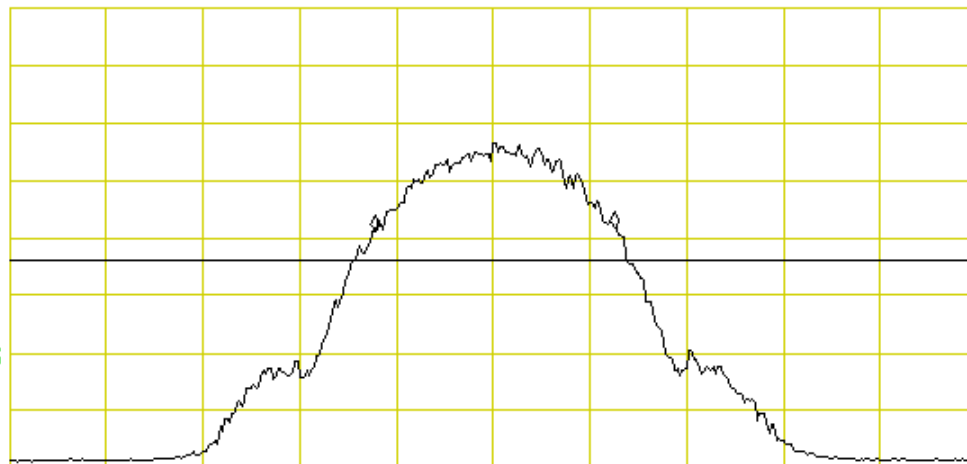
CENTER
1.930200 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 248 kHz
.51 dB

LOG
10
dB/
ATN
30 dB

REF OFFST 10.4 dB
REF 30.0 dBm

DL
-14.2
dBm
VA SB
SC FC
CORR



CENTER 1.930200 GHz

#IF BW 3.0 kHz

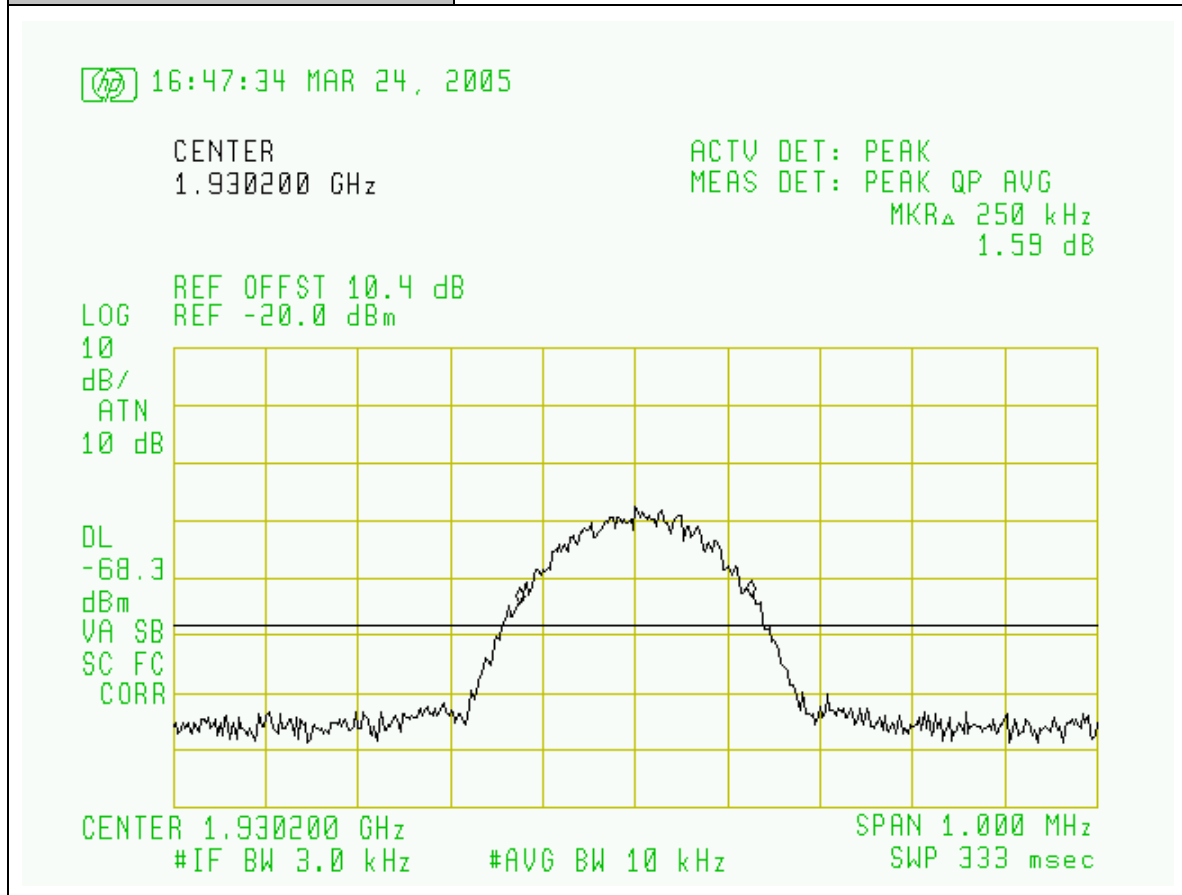
#AVG BW 10 kHz

SPAN 1.000 MHz

SWP 333 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Occupied Bandwidth: PCS Bands
Plot Name:	Downlink, Low-Channel, GSM Modulation
Configuration:	SG Input: -55dBm, Output Port: SG



Section 5. Spurious Emissions at Antenna Terminals

Name of Test:	<i>Spurious Emissions at Antenna Terminals</i>	Test Standard:	22.917 24.238(a)
Tested By:	WEI LI EDWARD LEE	Test Date:	03/24/2005-03/25/2005

Minimum Standard: Para. No. 22.917(e). The mean power of emissions must be attenuated below the mean power of the unmodulated carrier on any frequency twice or more than twice the fundamental emission by at least $43 + 10 \log P$. This is equivalent to -13 dBm absolute power.

Para. No. 24.238(a). The magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under conditions specified in the instruction manual and/or alignment procedure, shall not less than $43 + 10 \log$ (mean output power in watts) dBc below the mean power output outside a licensee's frequency block (-13dBm).

Method of Measurement: Spectrum Analyzer Settings:
 RBW: 100 kHz. As required for digital modulations.
 RBW: 1MHz. When frequency is located above 1GHz.
 VBW: $\square$ RBW
 Start Frequency: 0 MHz
 Stop Frequency: 13 GHz (Cellular), 22GHz (PCS)
 Sweep: Auto

For Inter-modulation measurement: Two RF signals set as inputs. The frequencies of both RF signals shall be within the repeater's operating band. The spacing between both RF signals shall be the minimum possible spacing applied in a network. The level of both RF input signals shall be increased, until the maximum rated output power per channel, as declared by the manufacturer, is reached.

Frequencies: $f_1 = F_{(\text{Low CH/Mid CH/High CH})}$, $f_2 = f_1 \pm \Delta$

Spacing $\Delta = 2.5\text{MHz}$ for CDMA and 600KHz for GSM

Each RF Input Level:

about -3dB comparing to the max. input level of single RF Input test

Test Result:

Complies

Test Data:

Attached Plots

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

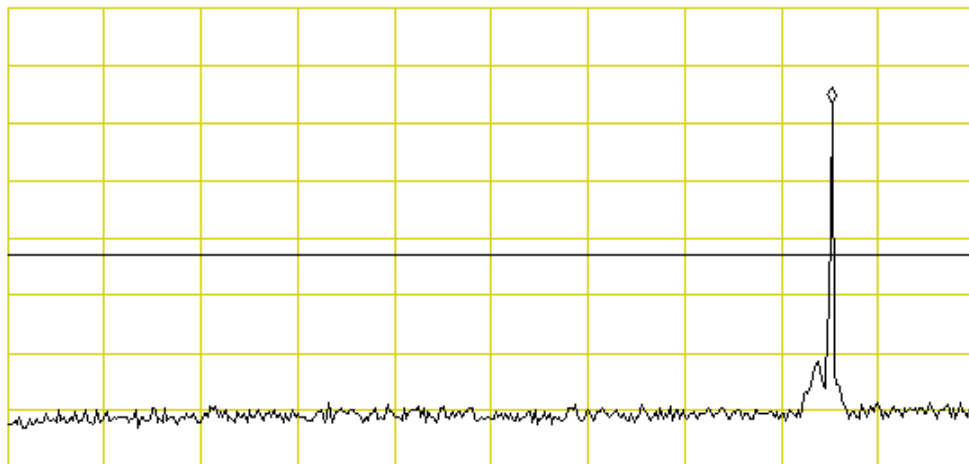
16:05:57 MAR 27, 2005

DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 855.5 MHz
13.45 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/
ATN
50 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 20.0 MHz STOP 1.0000 GHz
#IF BW 100 kHz #AVG BW 100 kHz SWP 294 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

15:58:48 MAR 27, 2005

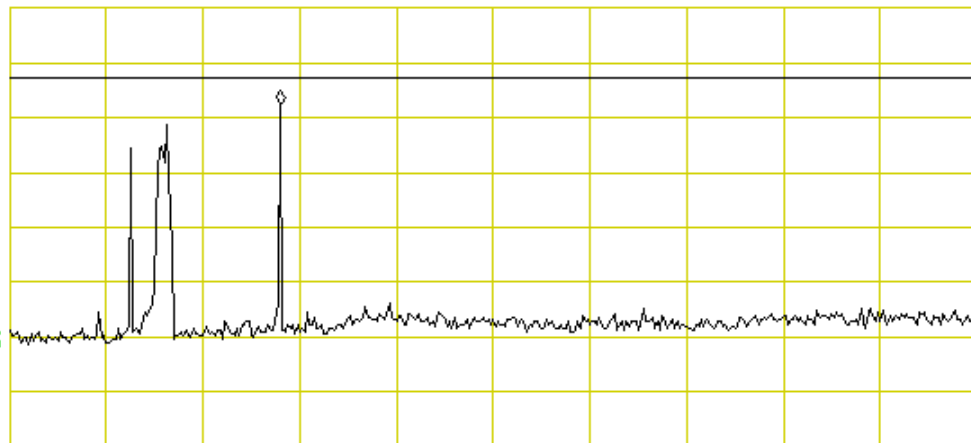
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.548 GHz
-17.98 dBm

REF OFFST 10.4 dB
REF .0 dBm

LOG
10
dB/
ATN
10 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 1.000 GHz

#IF BW 1.0 MHz

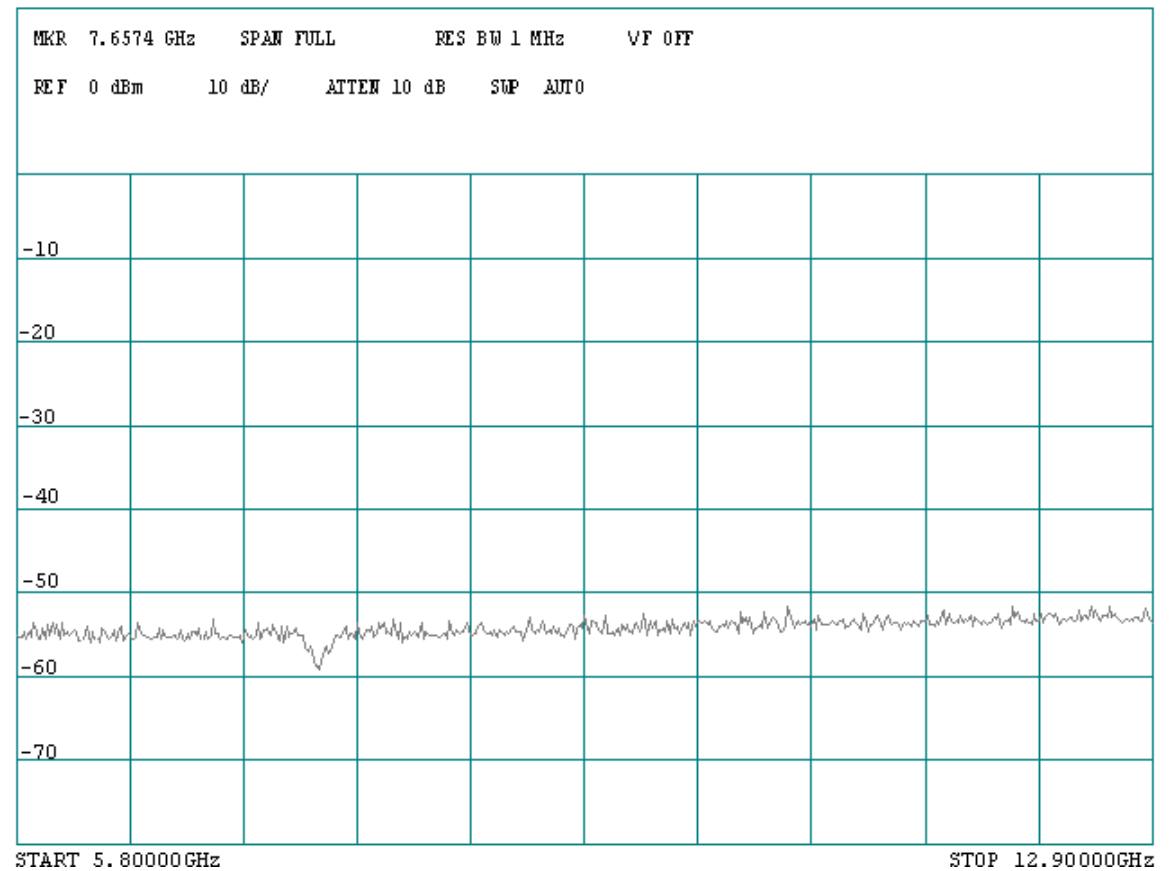
#AVG BW 1 MHz

STOP 6.500 GHz

SWP 110 msec

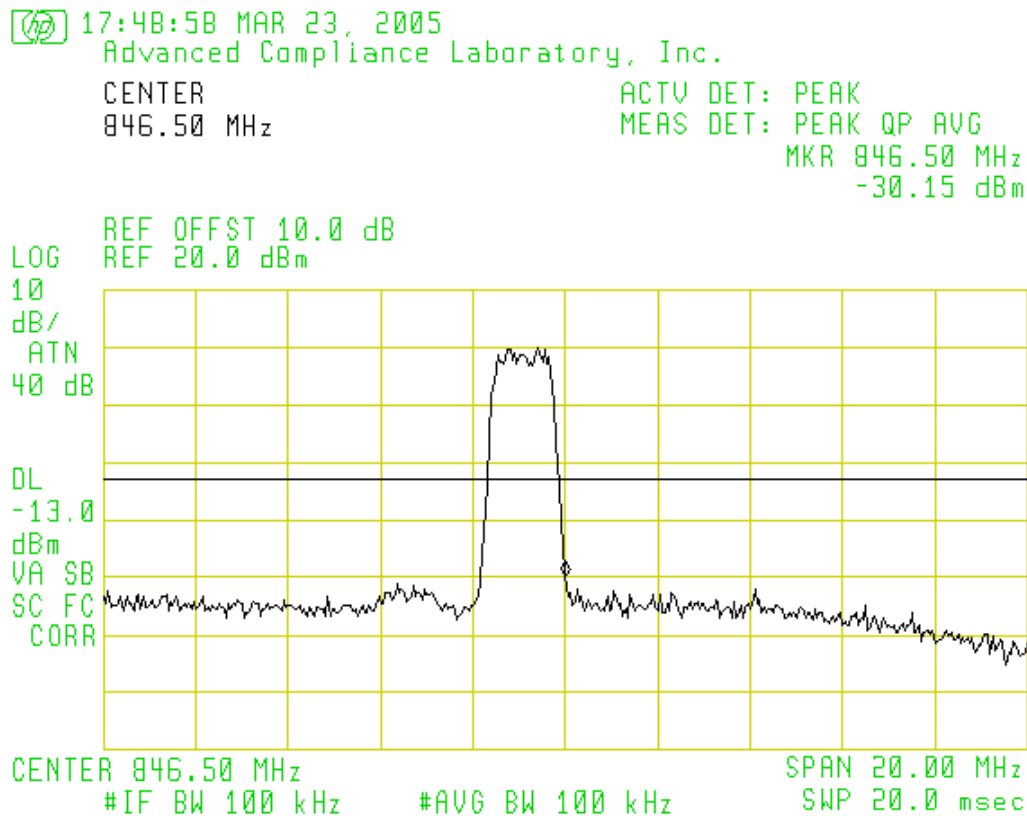
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	UL, Hi-Chn, Intermodulation, Upper Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

16:03:41 MAR 27, 2005

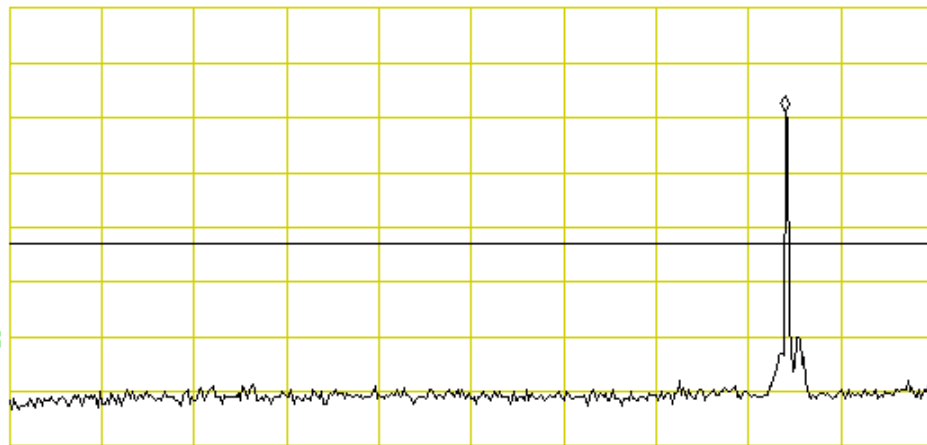
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 843.2 MHz
11.10 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/

ATN
50 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 20.0 MHz

#IF BW 100 kHz

#AVG BW 100 kHz

STOP 1.0000 GHz

SWP 294 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

15:49:49 MAR 27, 2005

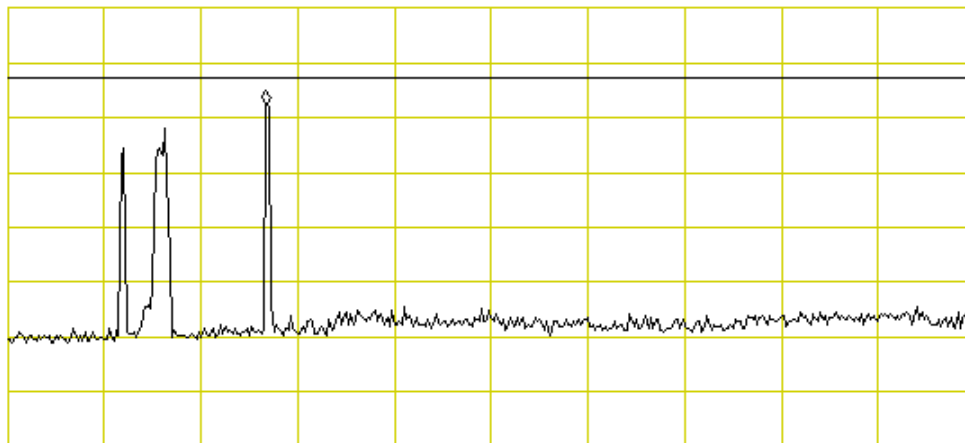
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.479 GHz
-17.90 dBm

REF OFFST 10.4 dB
REF .0 dBm

LOG
10
dB/
ATN
10 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 1.000 GHz

#IF BW 1.0 MHz

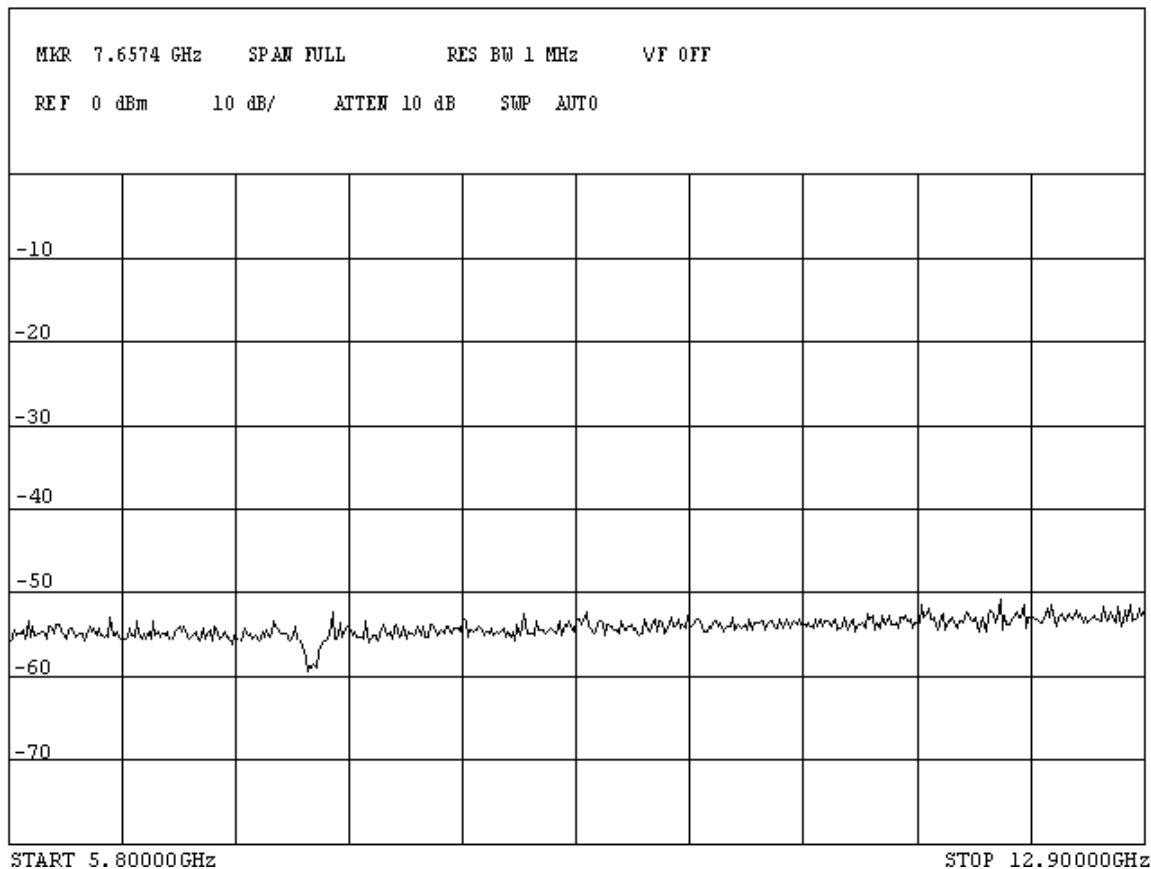
#AVG BW 1 MHz

STOP 6.500 GHz

SWP 110 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

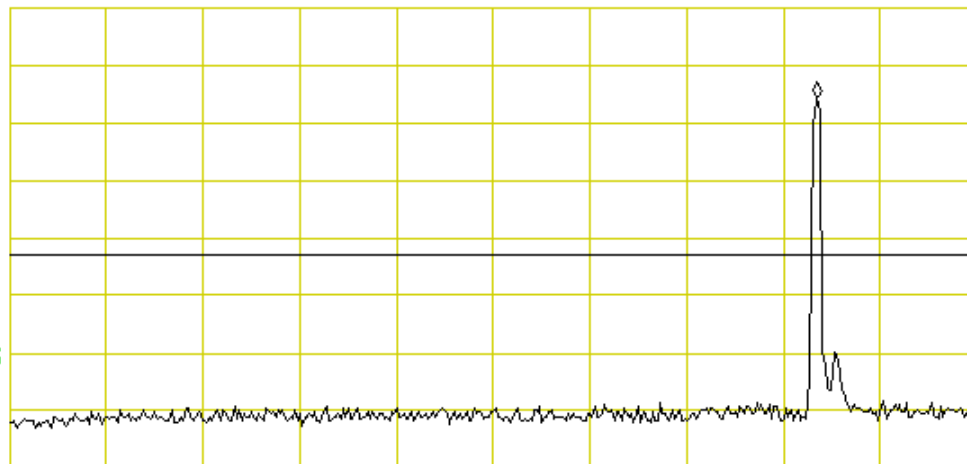
15:39:27 MAR 27, 2005

DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 838.3 MHz
14.13 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/
ATN
50 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 20.0 MHz STOP 1.0000 GHz
#IF BW 100 kHz #AVG BW 100 kHz SWP 294 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

15:49:49 MAR 27, 2005

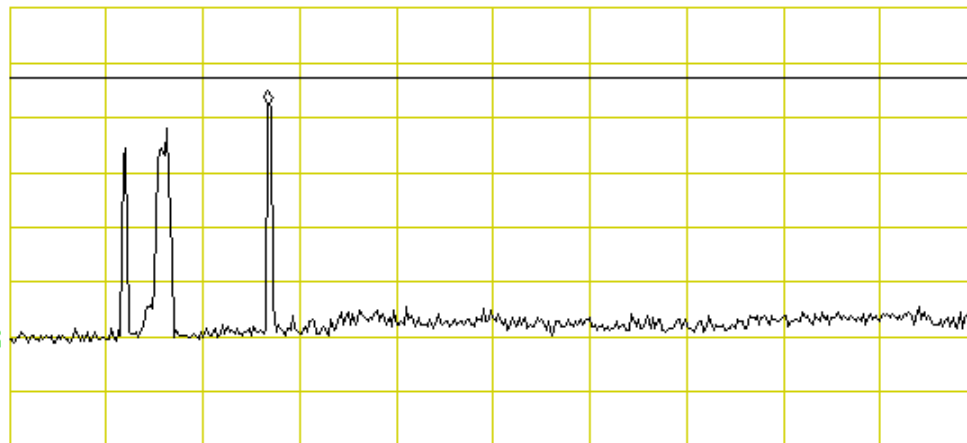
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.479 GHz
-17.90 dBm

REF OFFST 10.4 dB
REF .0 dBm

LOG
10
dB/
ATN
10 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 1.000 GHz

#IF BW 1.0 MHz

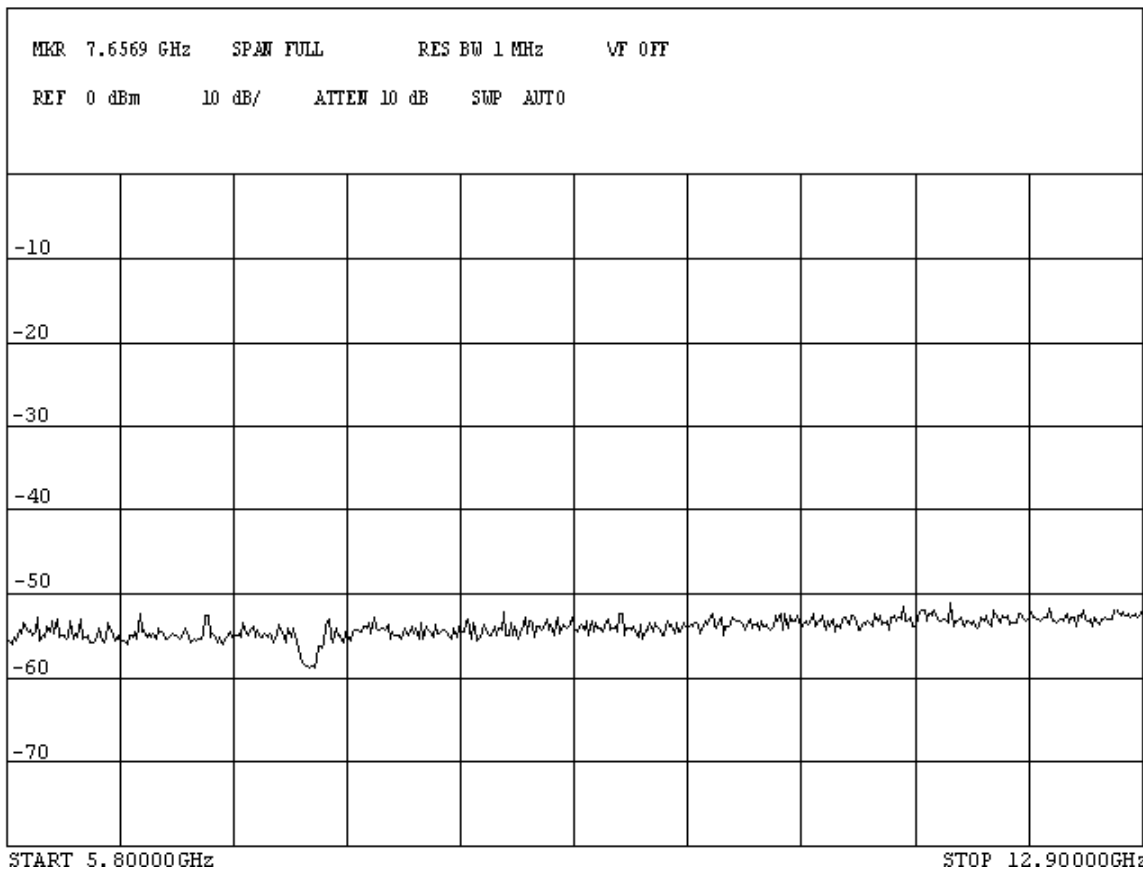
#AVG BW 1 MHz

STOP 6.500 GHz

SWP 110 msec

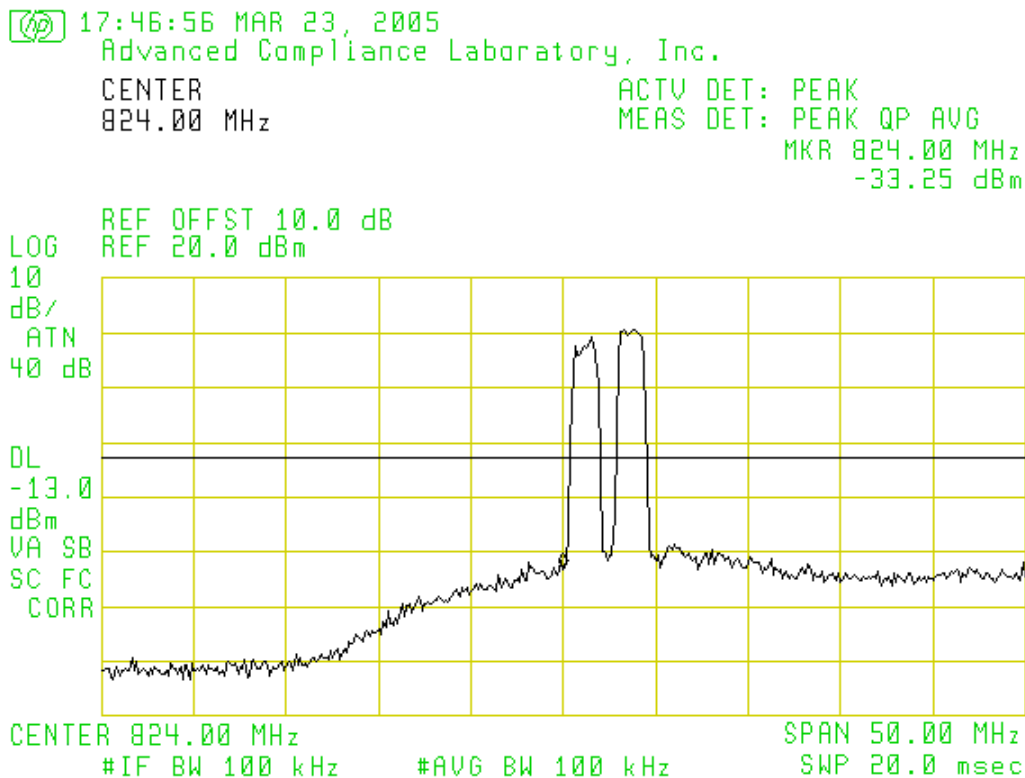
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	UL, Low-Chn, Intermodulation, Lower Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Uplink, Mid-Chn, Intermodulation
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

12:30:19 MAR 22, 2005

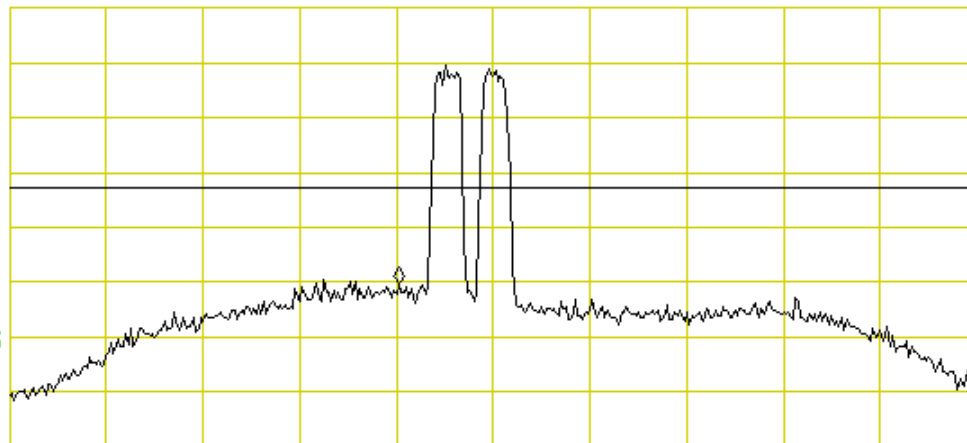
CENTER
834.40 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 829.53 MHz
-30.44 dBm

REF OFFST 10.0 dB
REF 20.0 dBm

LOG
10
dB/
ATN
40 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



CENTER 834.40 MHz

#IF BW 100 kHz

#AVG BW 100 kHz

SPAN 50.00 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

16:31:08 MAR 27, 2005

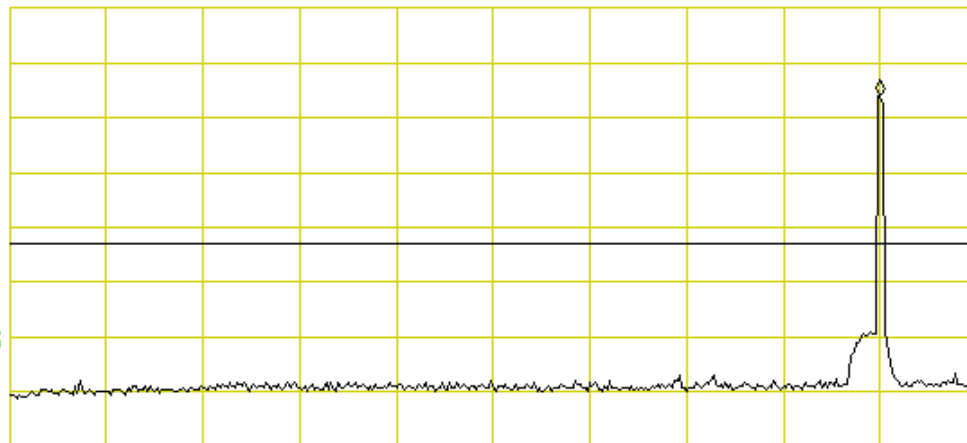
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 902.0 MHz
13.87 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 20.0 MHz STOP 1.0000 GHz
#IF BW 100 kHz #AVG BW 100 kHz SWP 294 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

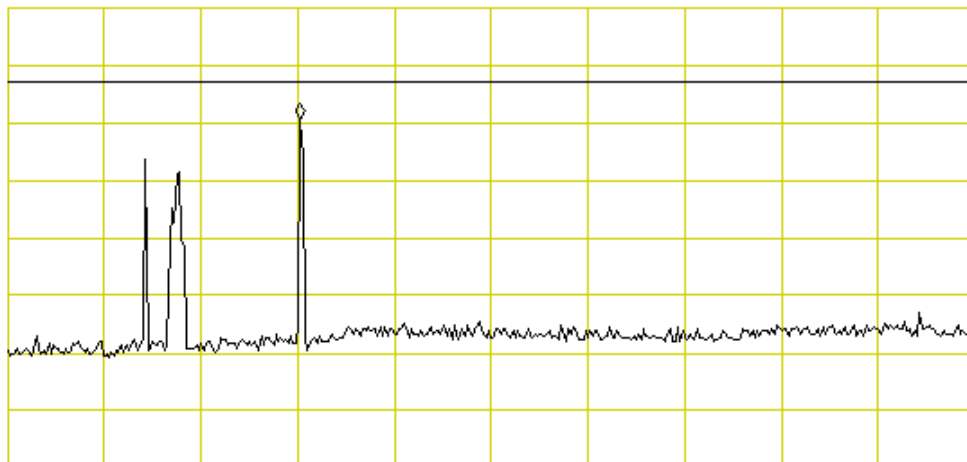
16:46:23 MAR 27, 2005

DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.673 GHz
-19.45 dBm

LOG REF OFFST 10.4 dB
10 REF .0 dBm

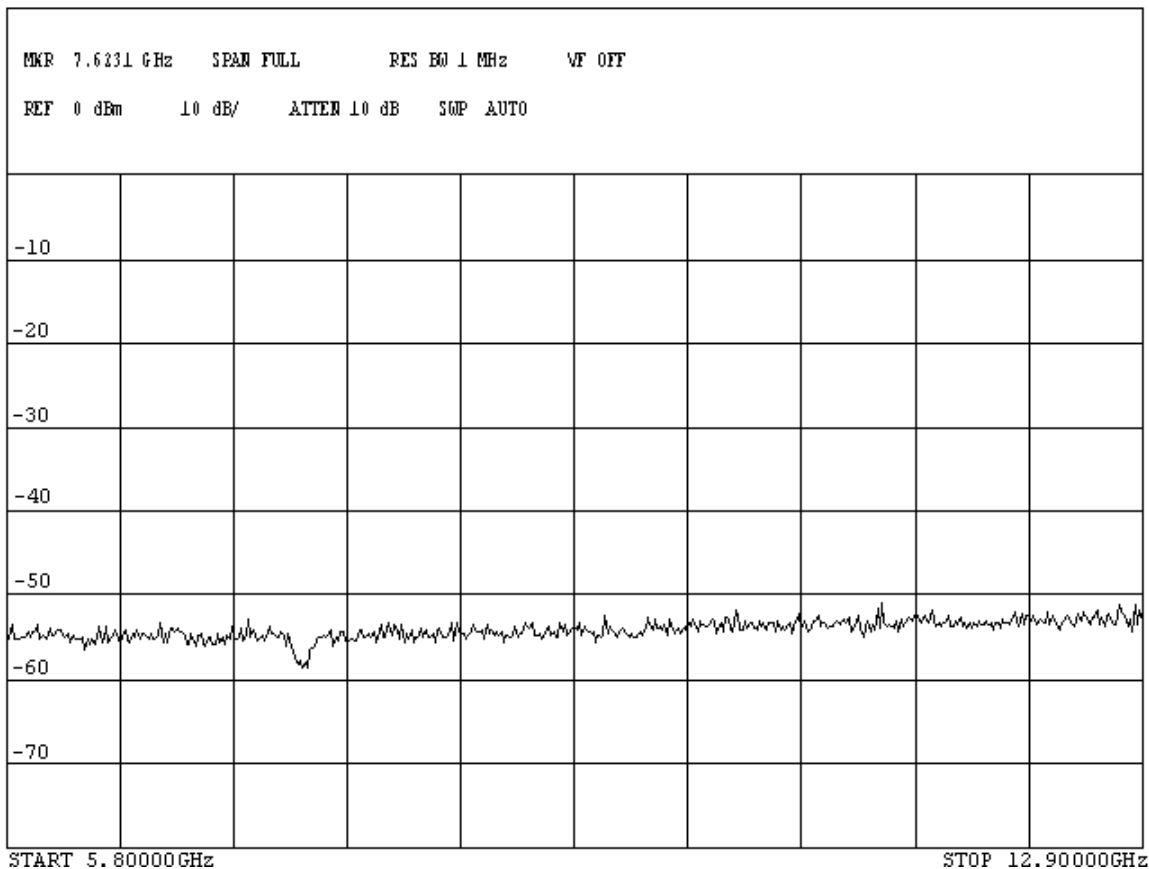
DL
-13.0
dBm
VA SB
SC FC
CORR



START 1.000 GHz STOP 6.500 GHz
#IF BW 1.0 MHz #AVG BW 1 MHz SWP 110 msec

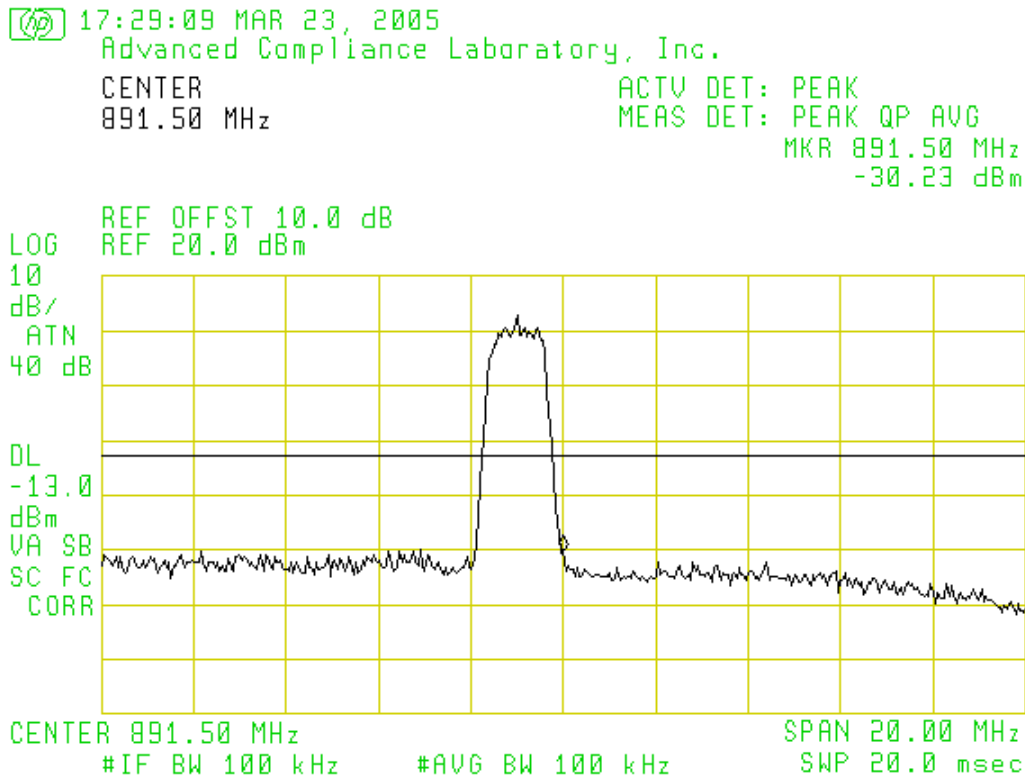
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	DL, Hi-Chn, Intermodulation, Upper Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

16:33:06 MAR 27, 2005

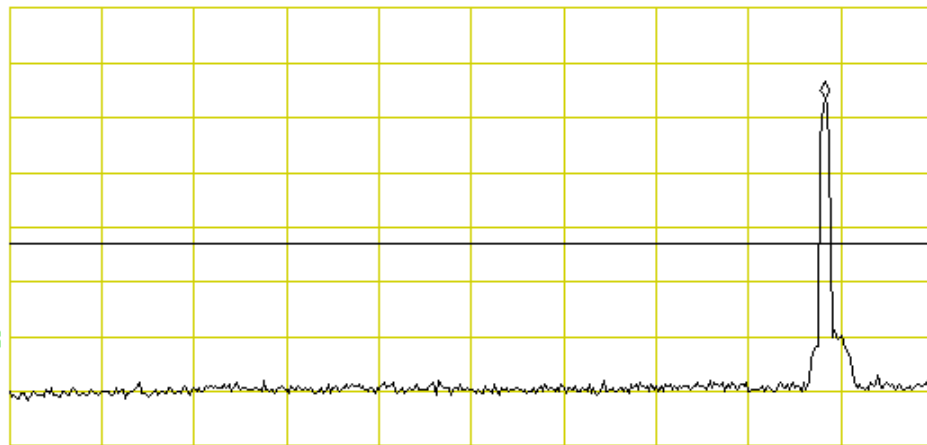
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 884.9 MHz
13.53 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/

ATN
50 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 20.0 MHz #IF BW 100 kHz #AVG BW 100 kHz STOP 1.0000 GHz SWP 294 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

16:43:31 MAR 27, 2005

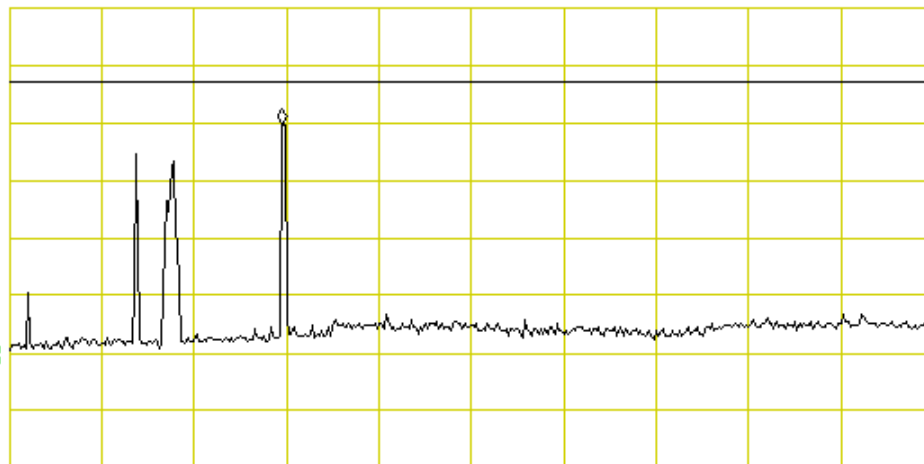
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.631 GHz
-20.30 dBm

REF OFFST 10.4 dB
REF .0 dBm

LOG
10
dB/
ATN
10 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 1.000 GHz

#IF BW 1.0 MHz

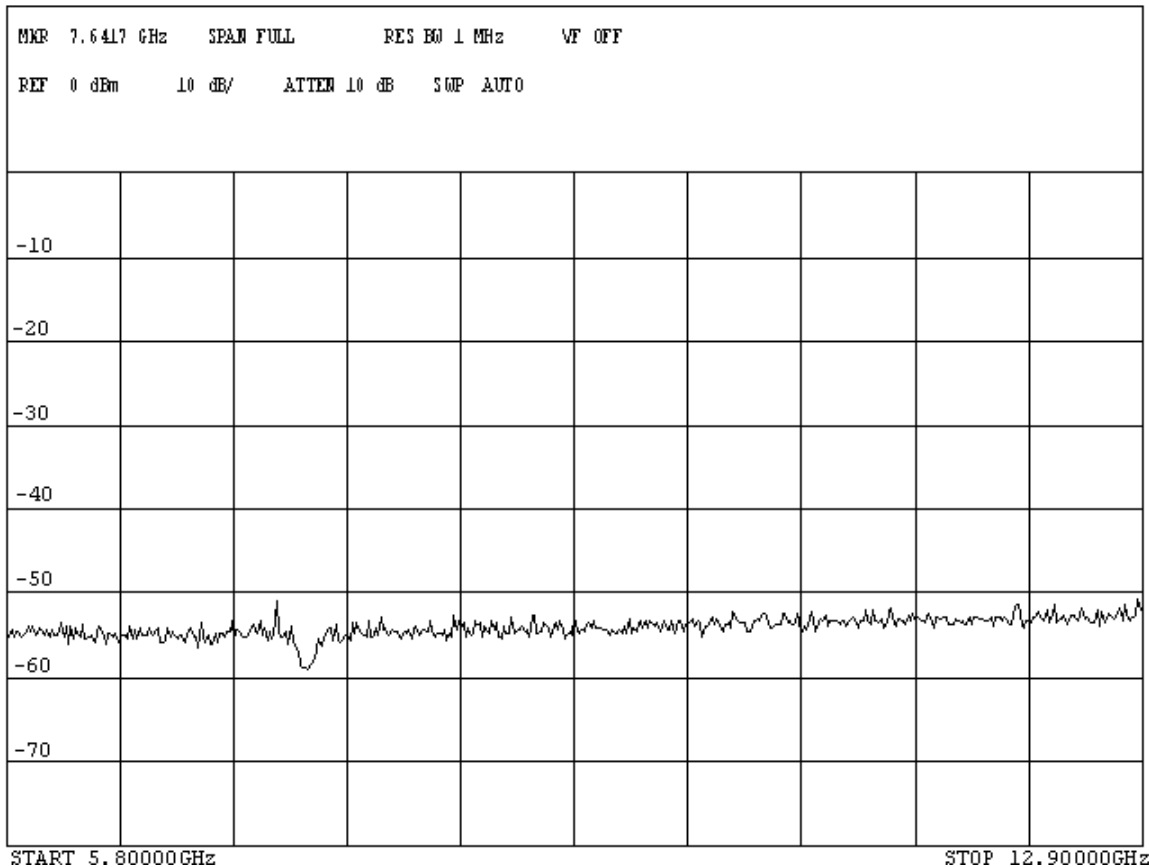
#AVG BW 1 MHz

STOP 6.500 GHz

SWP 110 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

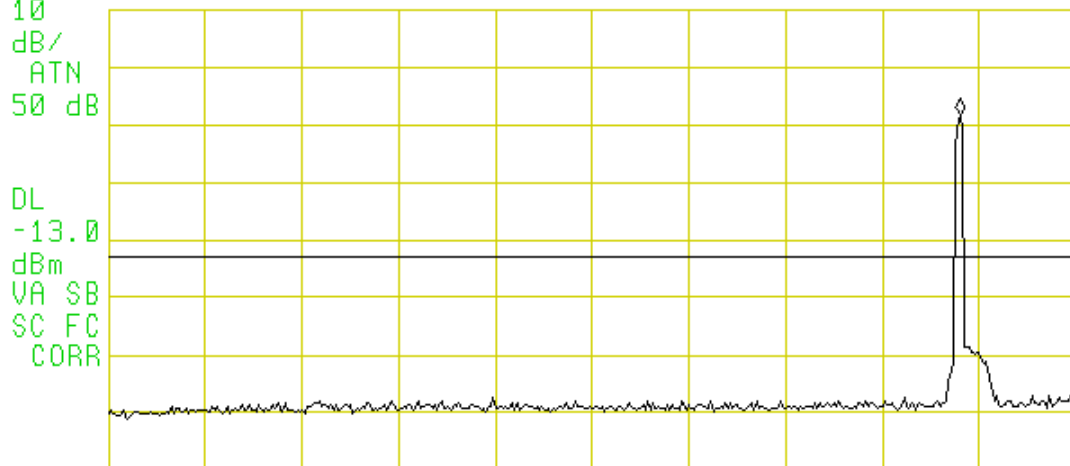
Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

16:34:23 MAR 27, 2005

DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 882.4 MHz
11.64 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/
ATN
50 dB



START 20.0 MHz STOP 1.0000 GHz
#IF BW 100 kHz #AVG BW 100 kHz SWP 294 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

16:40:08 MAR 27, 2005

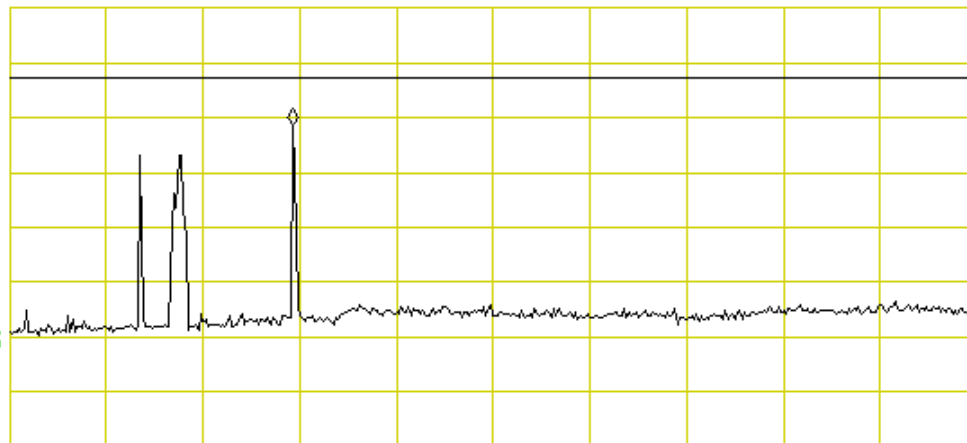
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 2.617 GHz
-21.42 dBm

REF OFFST 10.4 dB
REF .0 dBm

LOG
10
dB/
ATN
10 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 1.000 GHz

#IF BW 1.0 MHz

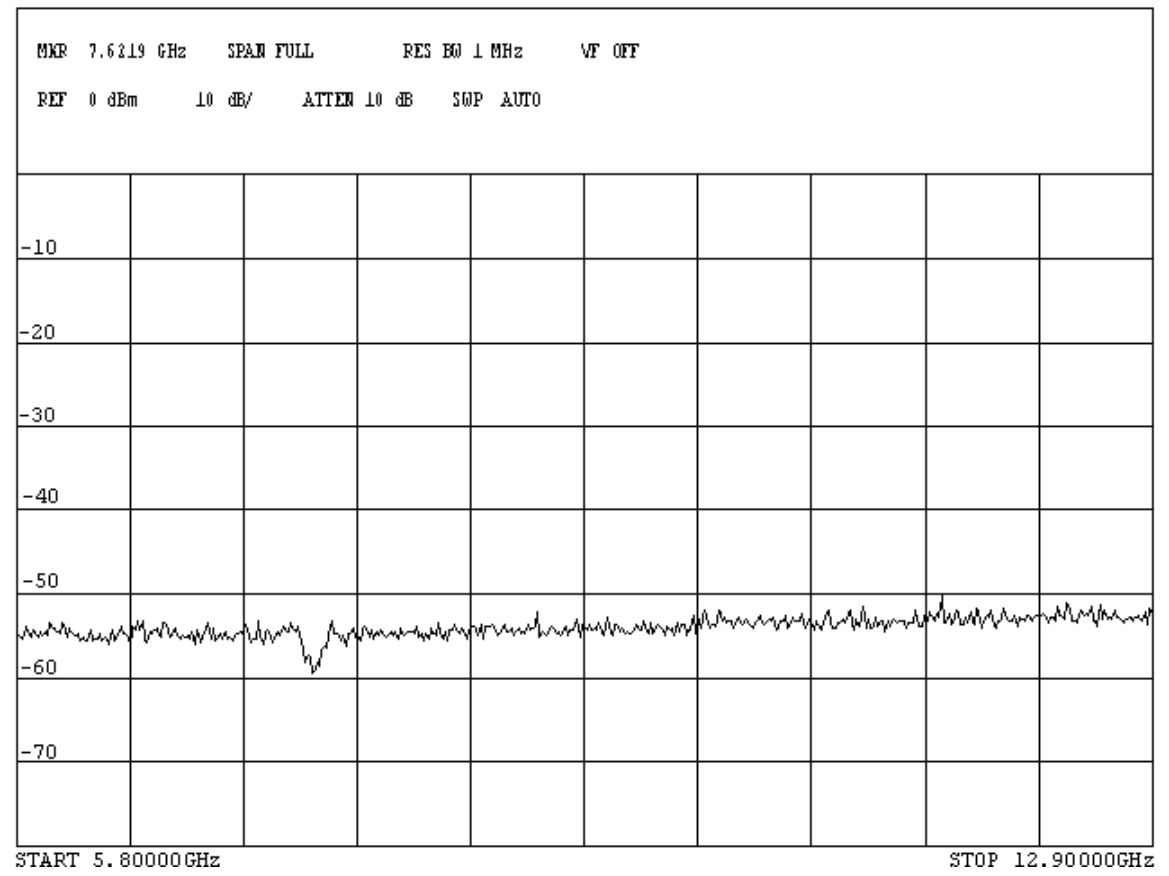
#AVG BW 1 MHz

STOP 6.500 GHz

SWP 110 msec

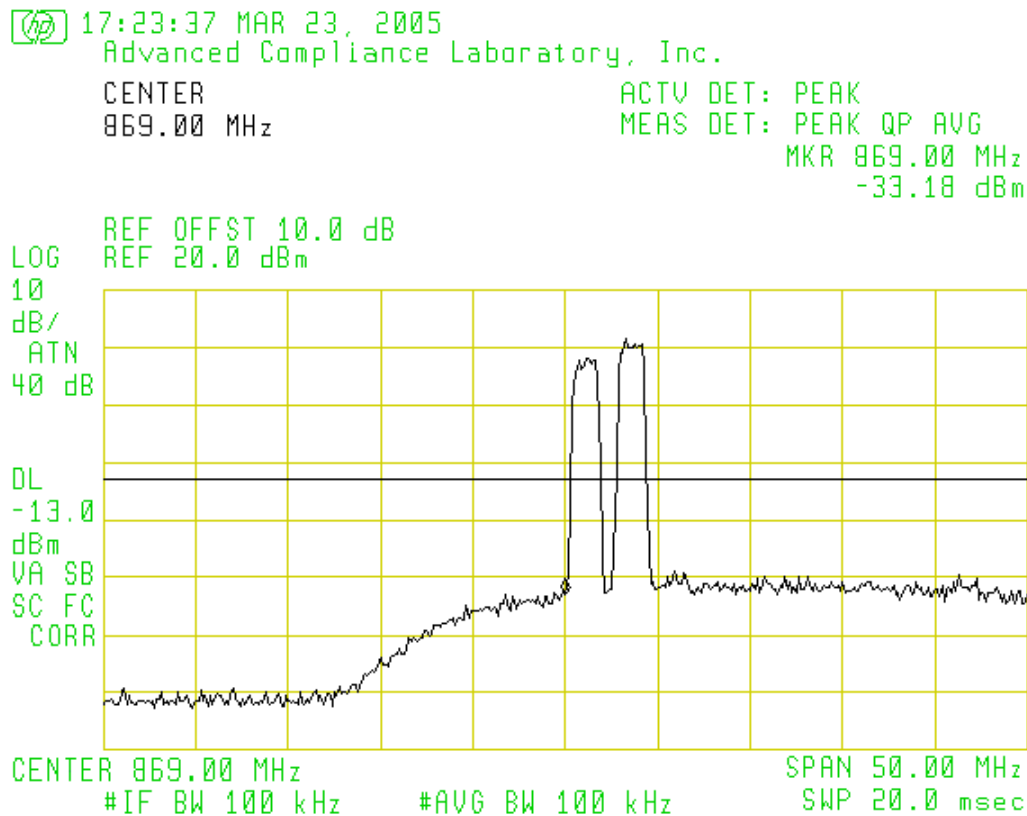
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	DL, Low-Chn, Intermodulation, Lower Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / CDMA Modulation
Plot Name:	Downlink, Mid-Chn, Intermodulation
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

15:47:39 MAR 22, 2005

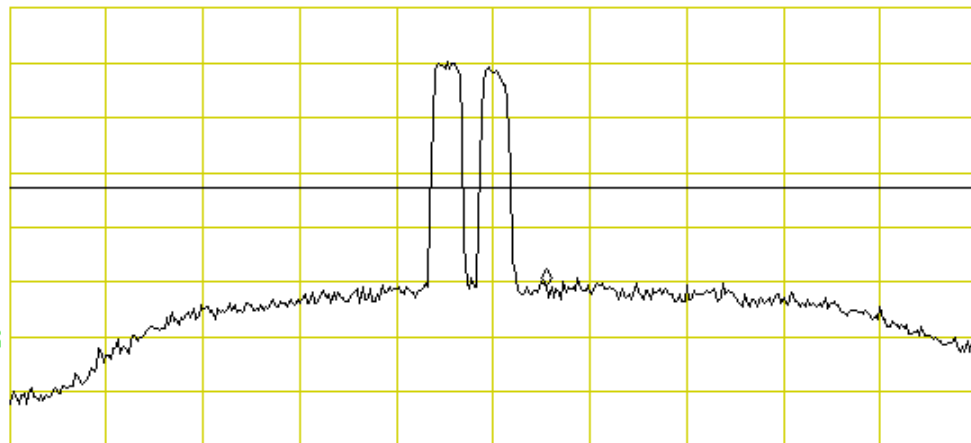
CENTER
879.40 MHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 882.15 MHz
-30.79 dBm

REF OFFST 10.0 dB
REF 20.0 dBm

LOG
10
dB/
ATN
40 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



CENTER 879.40 MHz

#IF BW 100 kHz

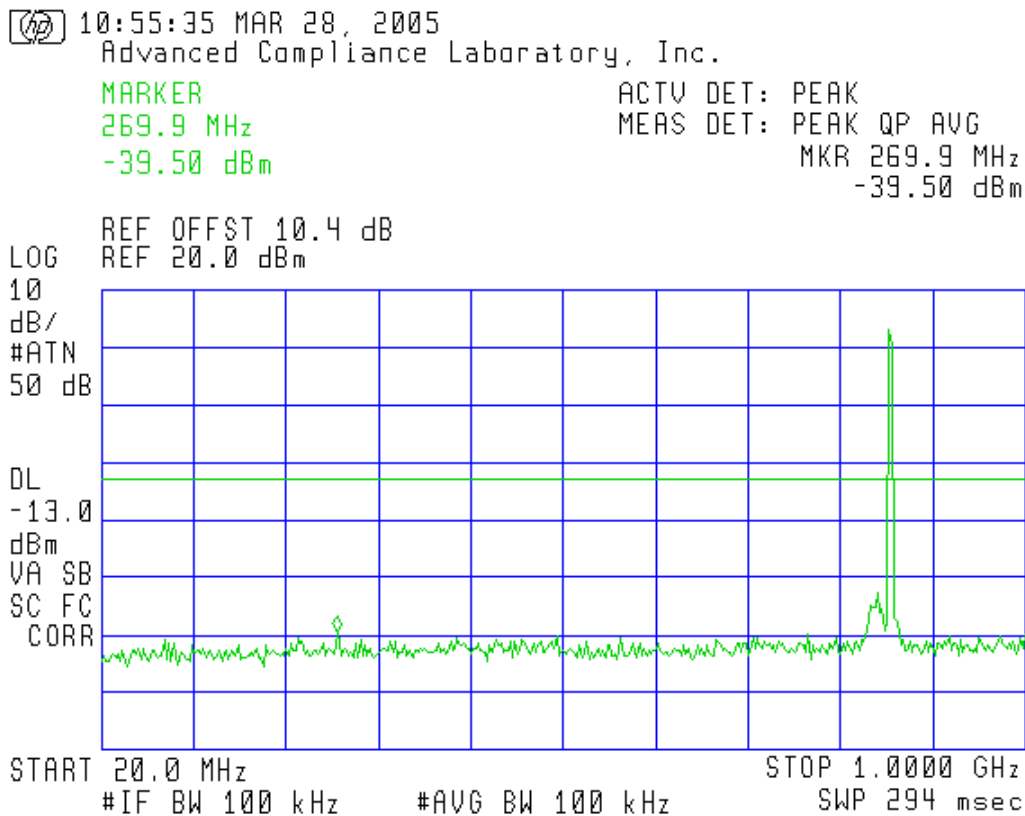
#AVG BW 100 kHz

SPAN 50.00 MHz

SWP 20.0 msec

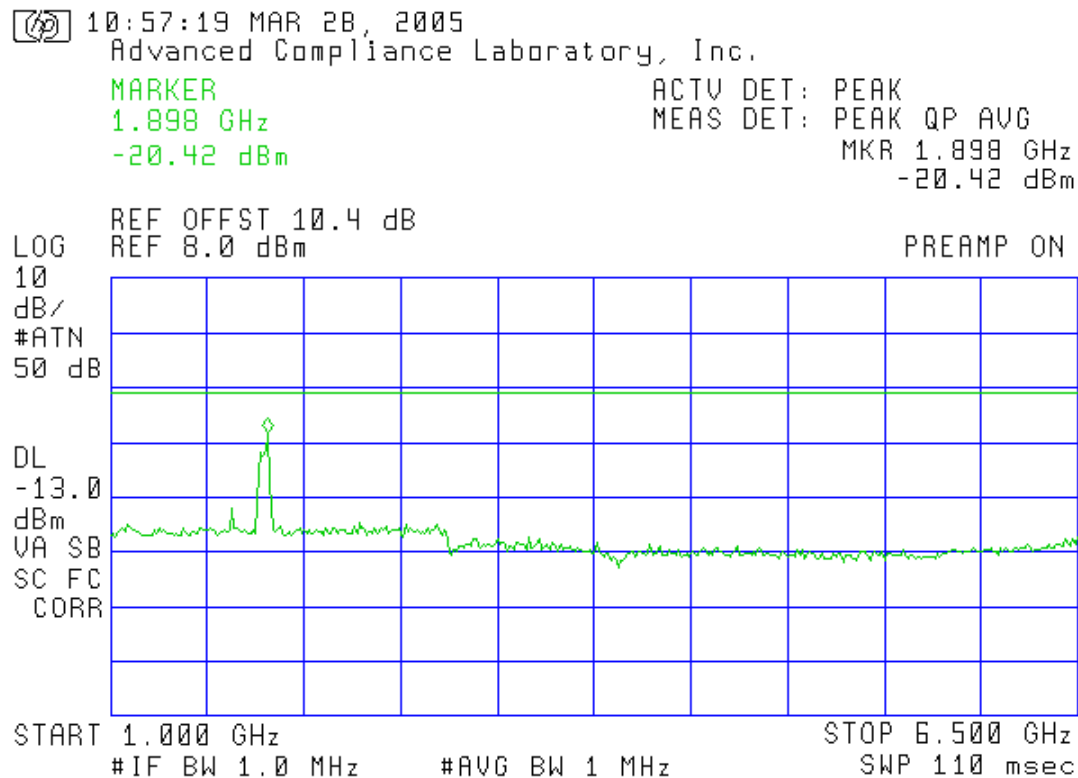
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



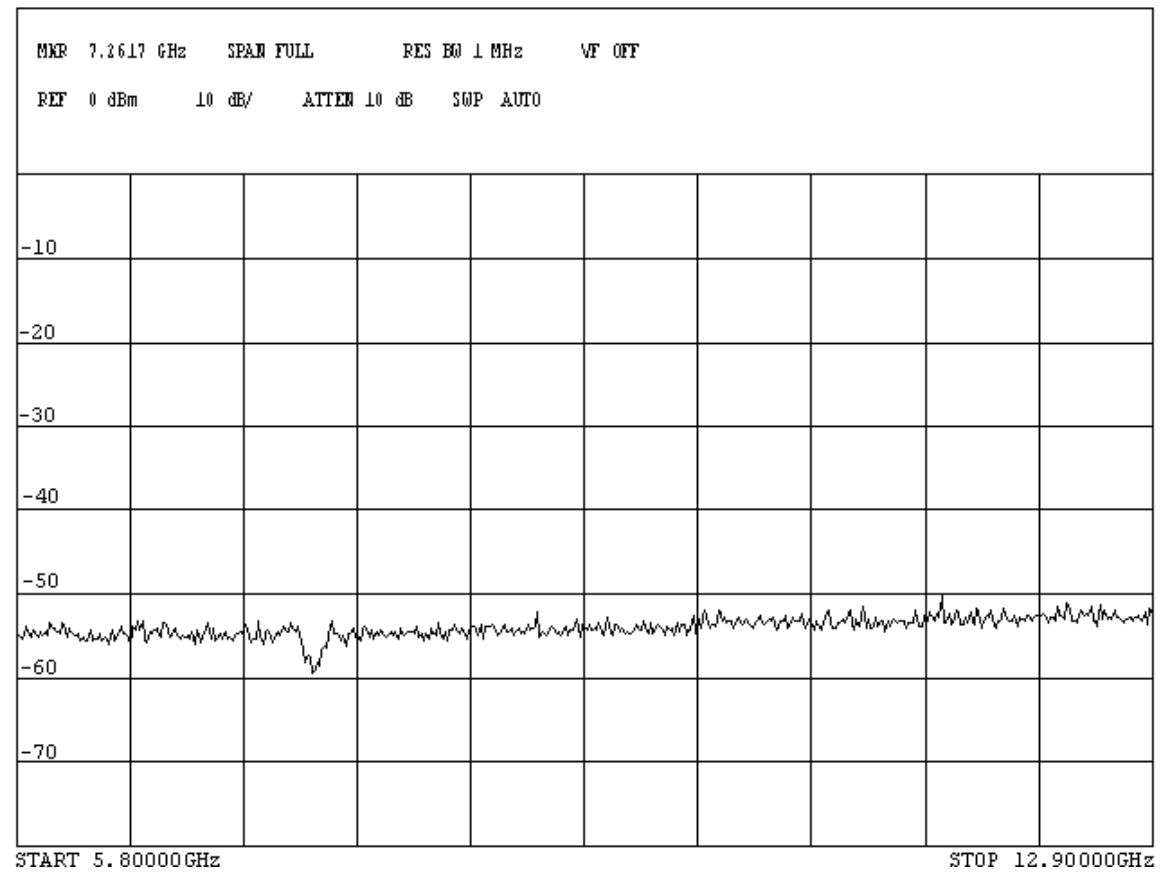
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



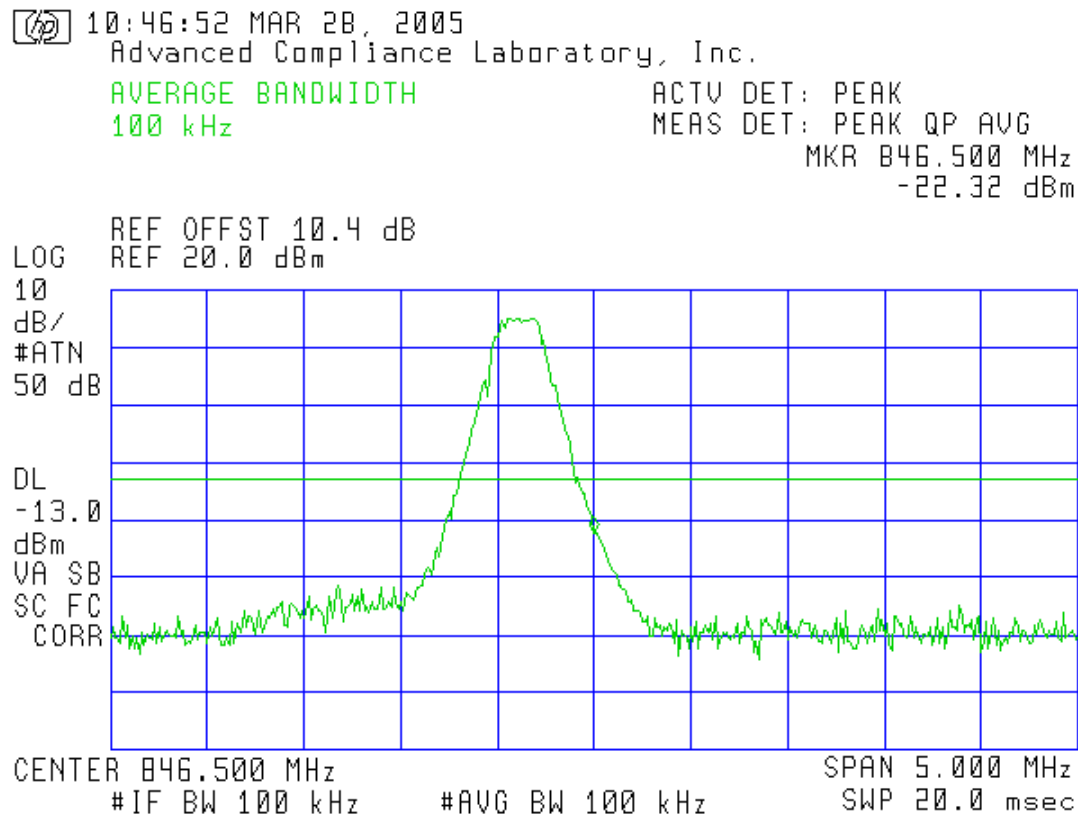
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



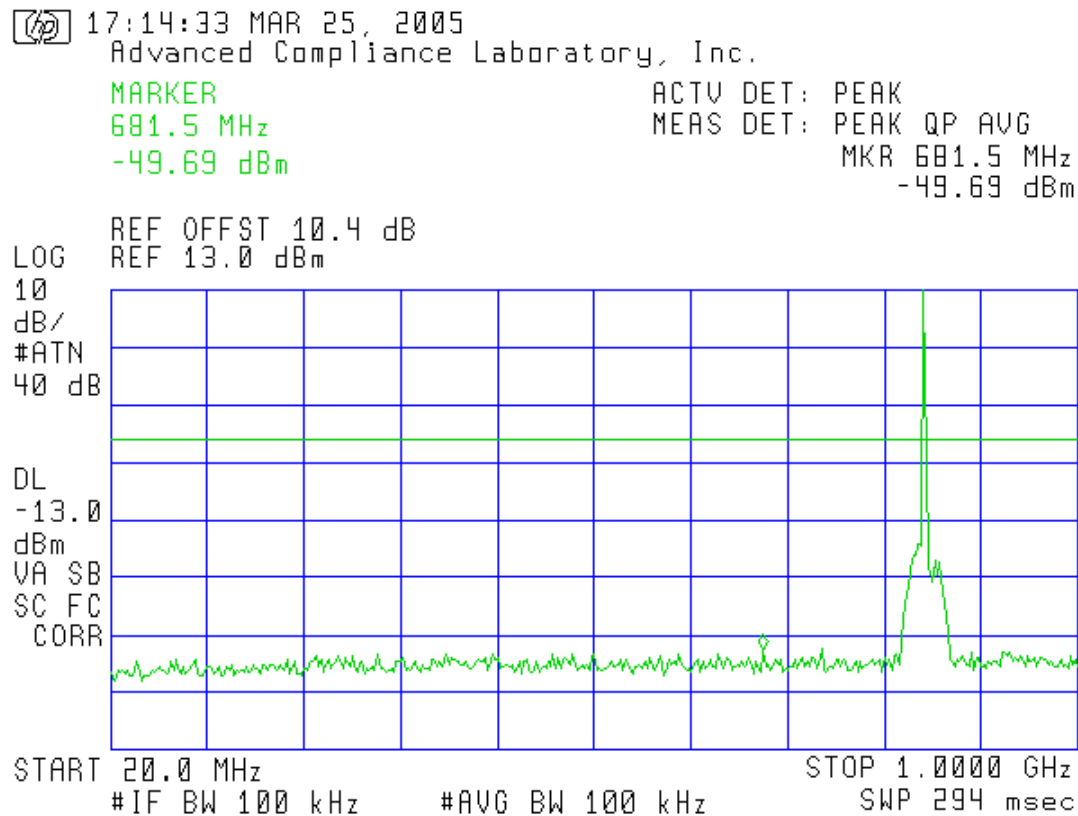
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	UL, Hi-Chn, Upper Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



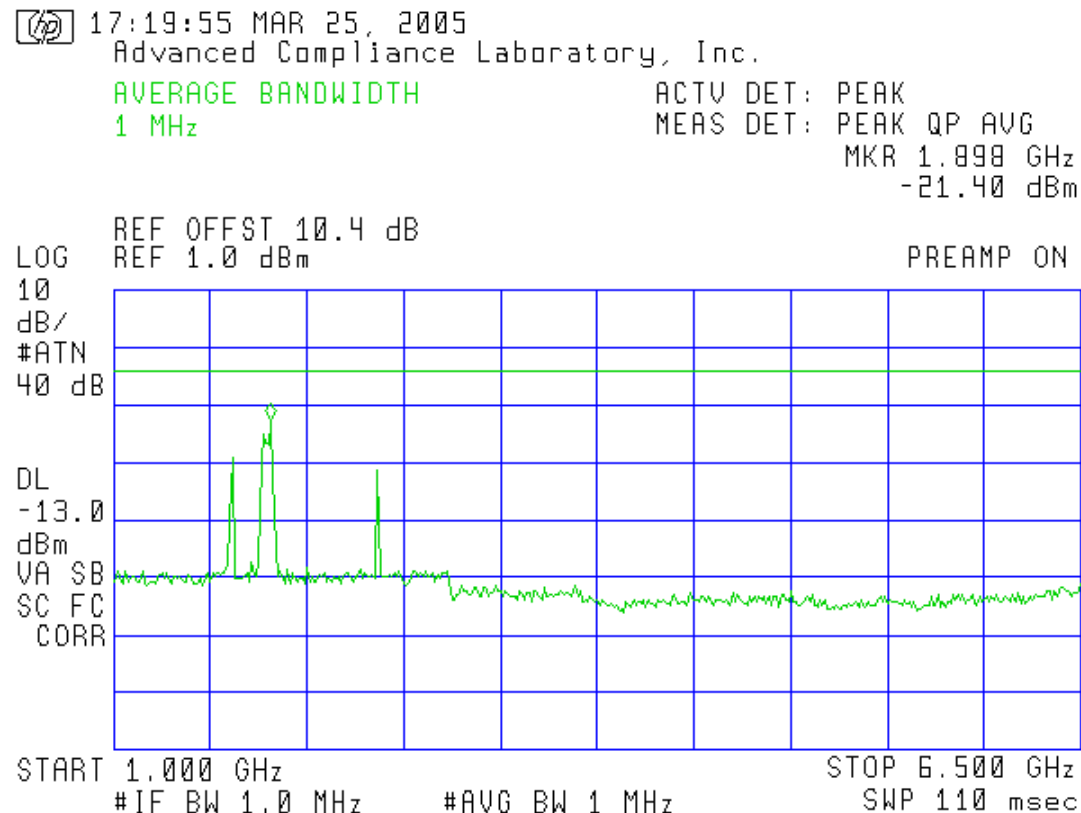
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



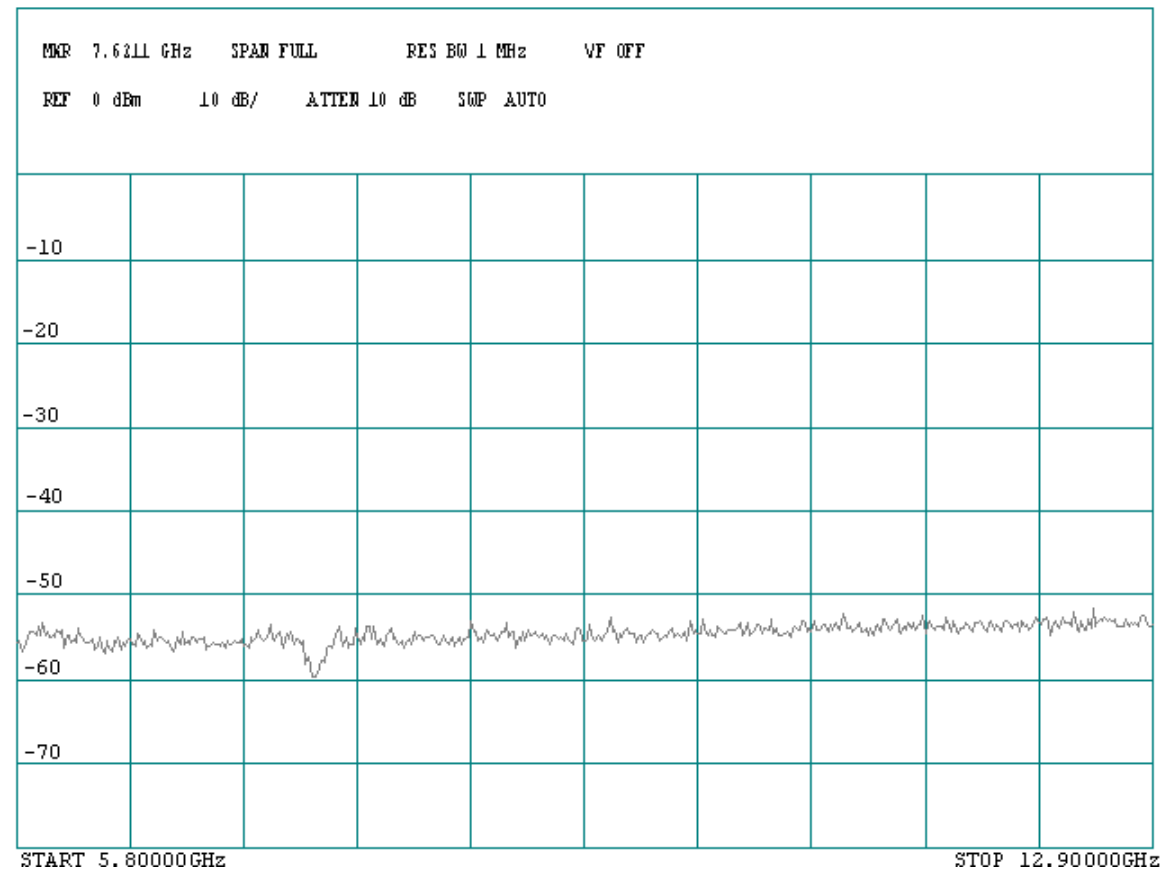
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



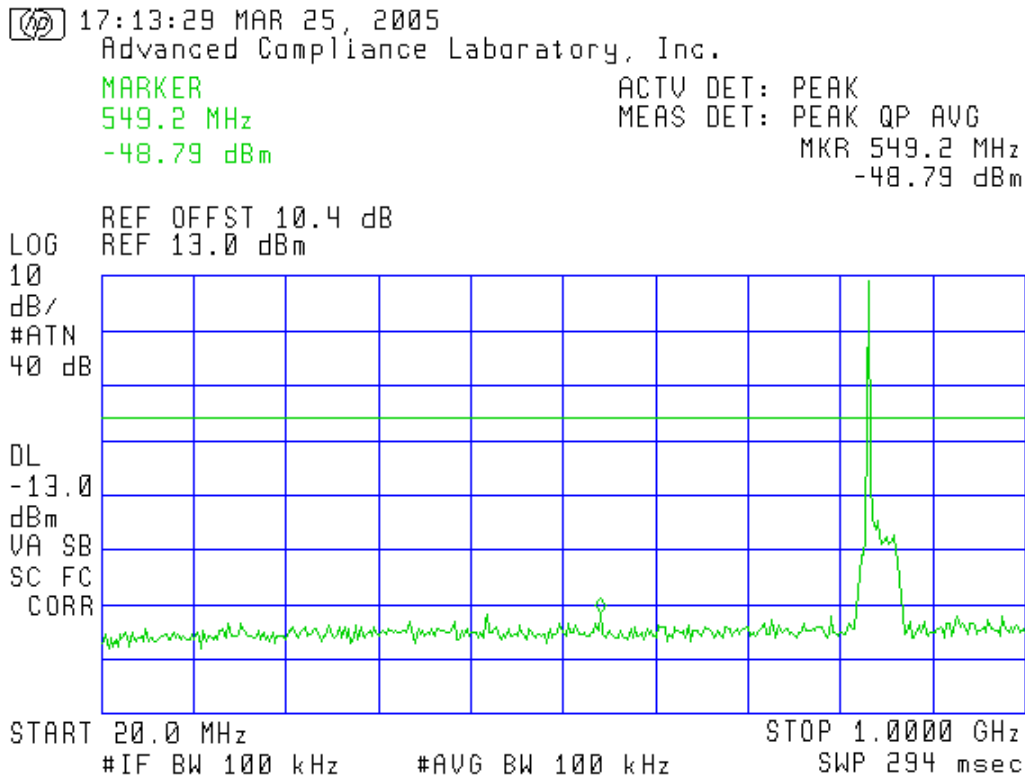
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



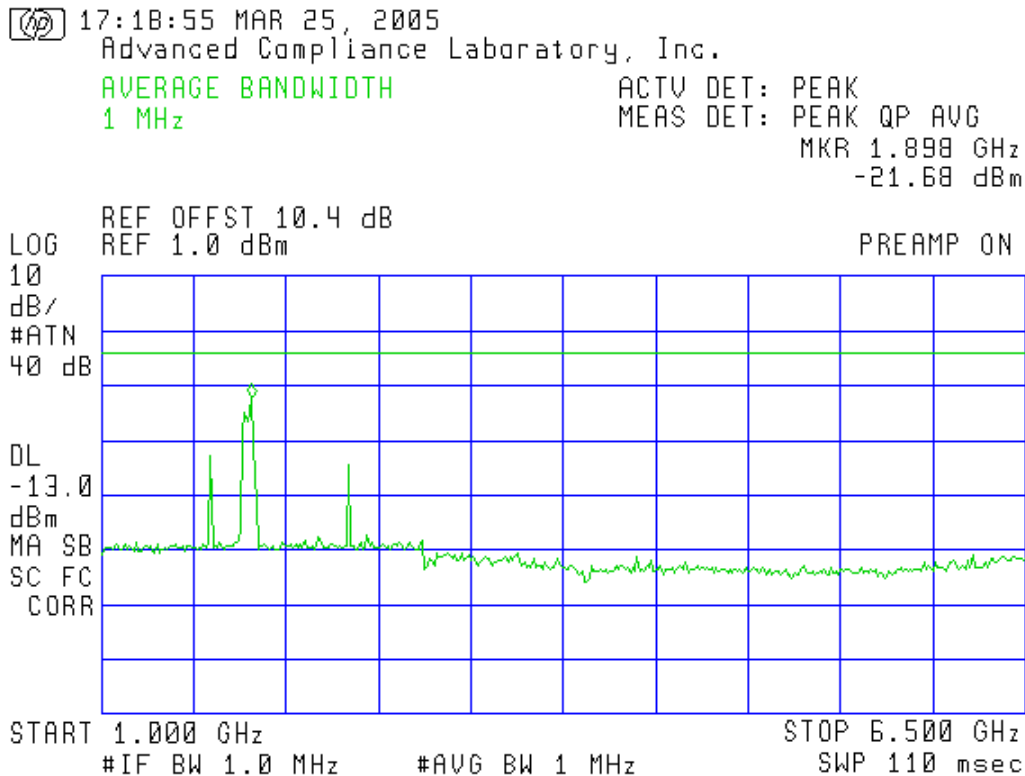
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



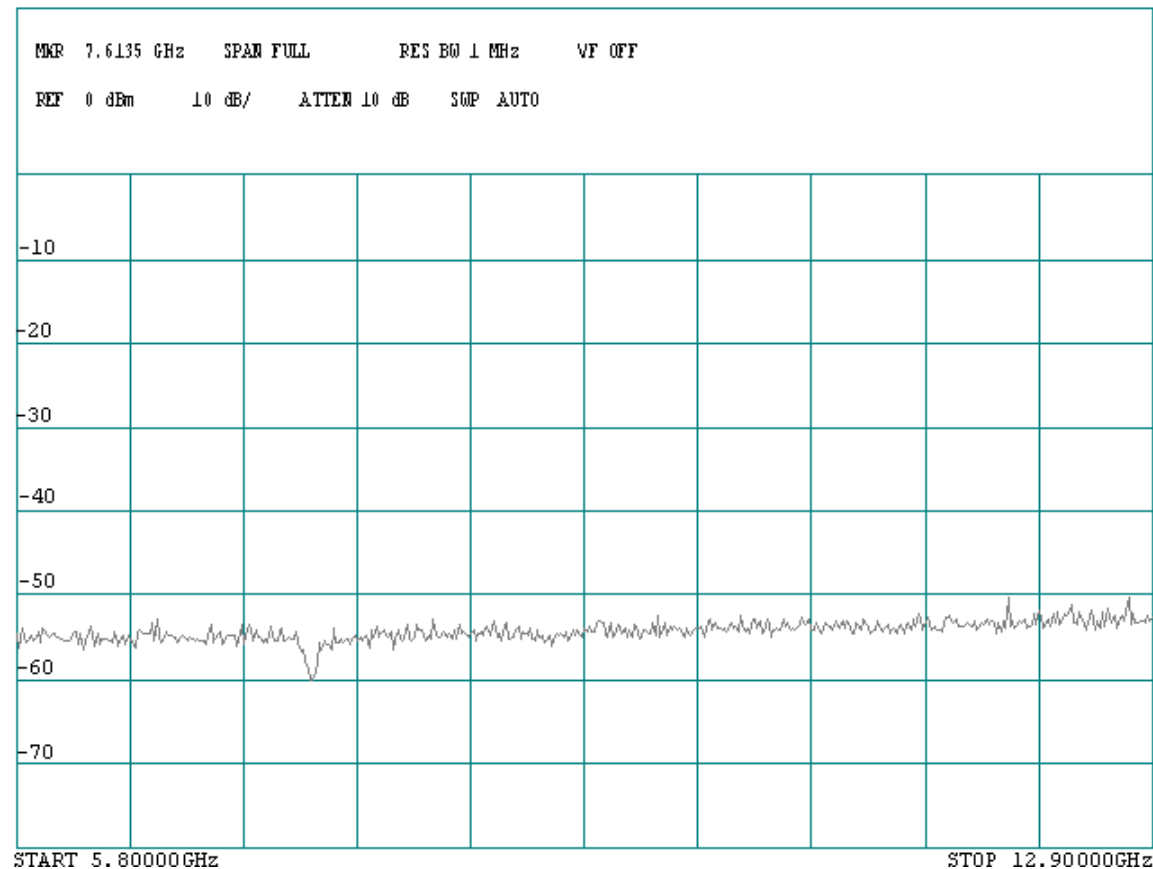
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



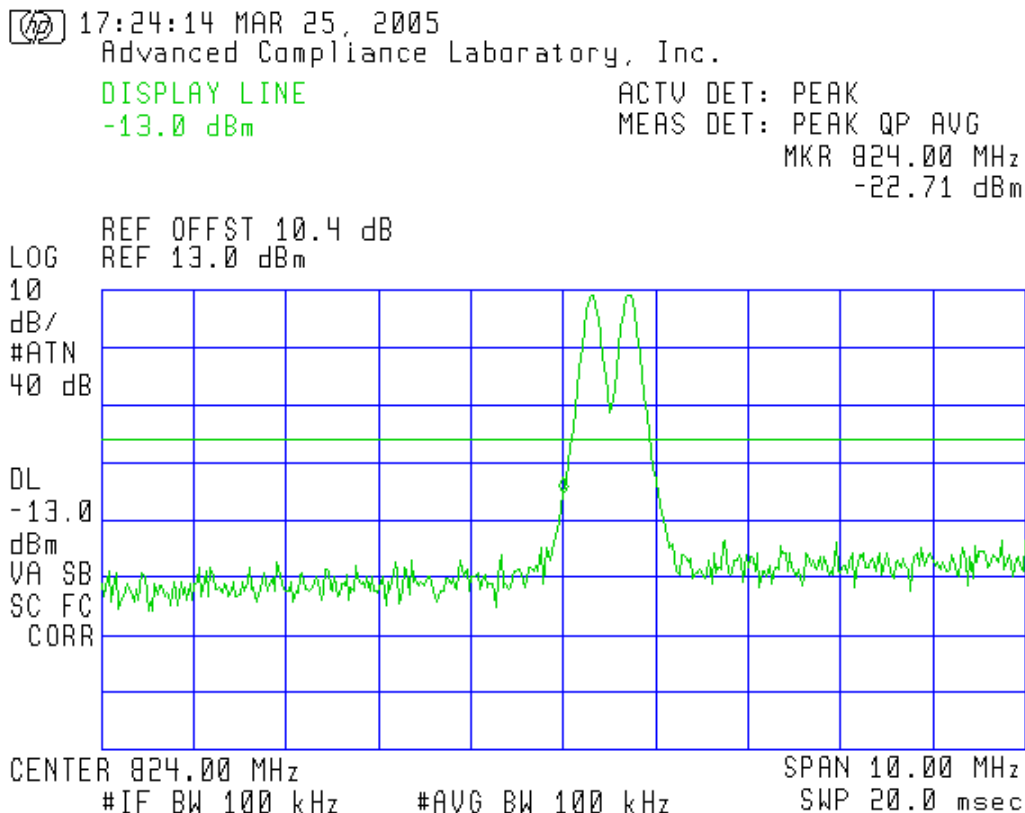
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



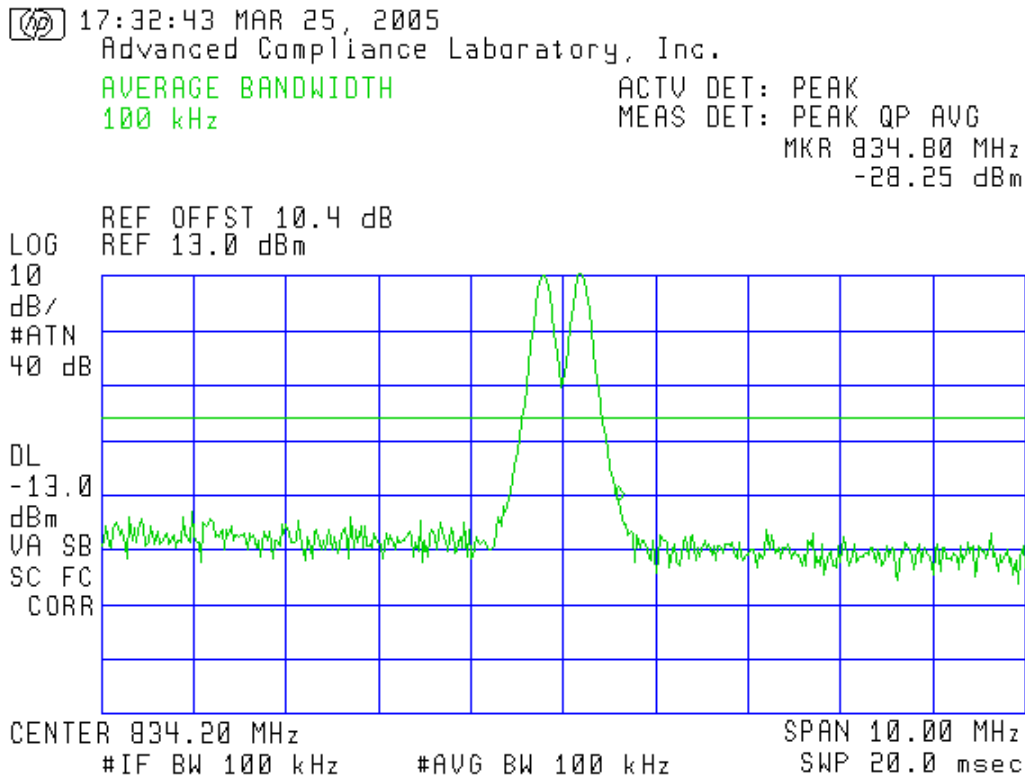
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	UL, Low-Chn, Lower Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



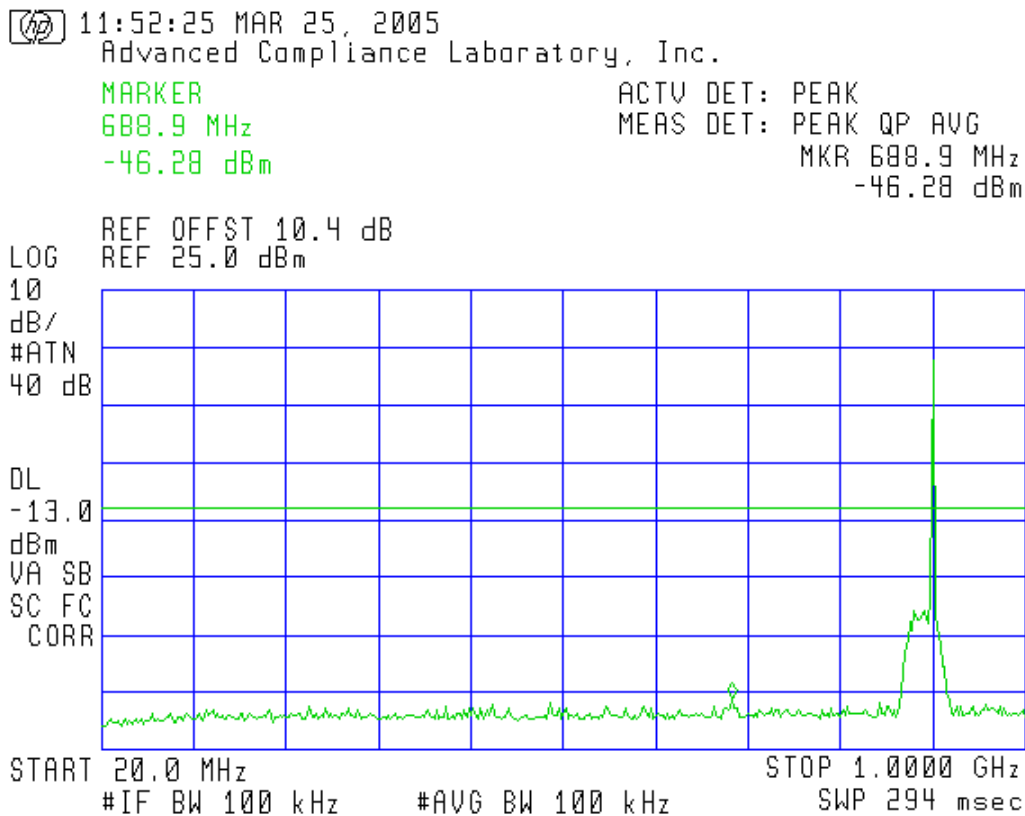
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Uplink, Mid-Chn, Intermodulation
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



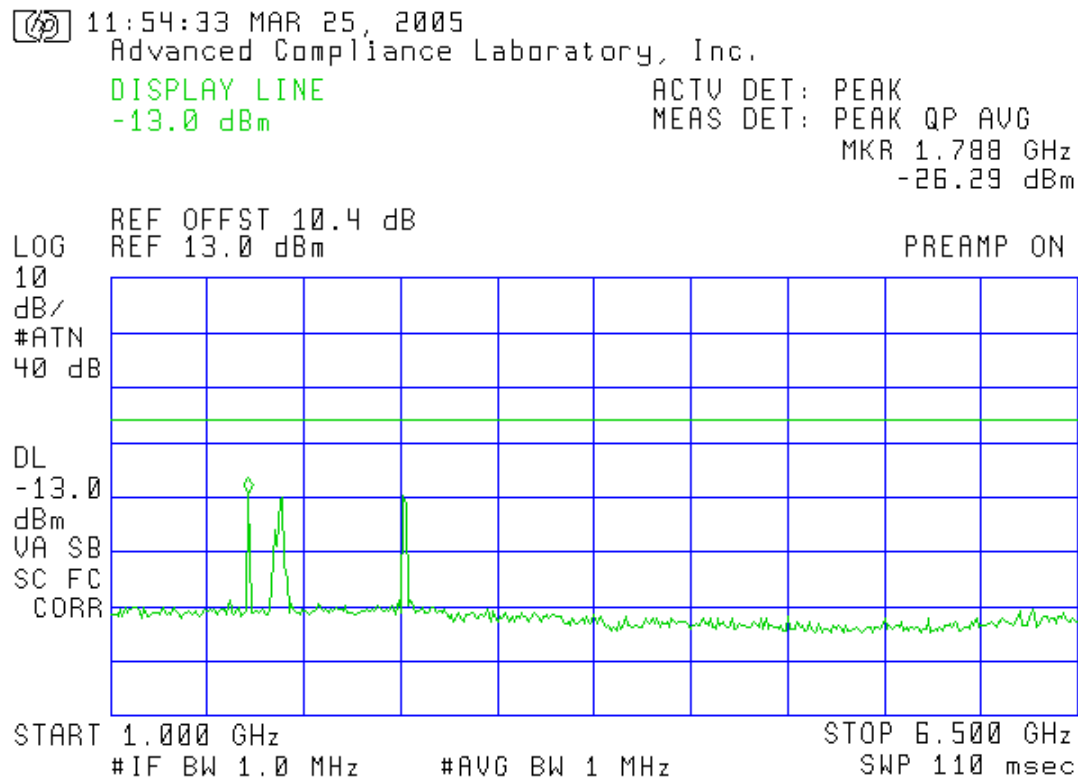
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



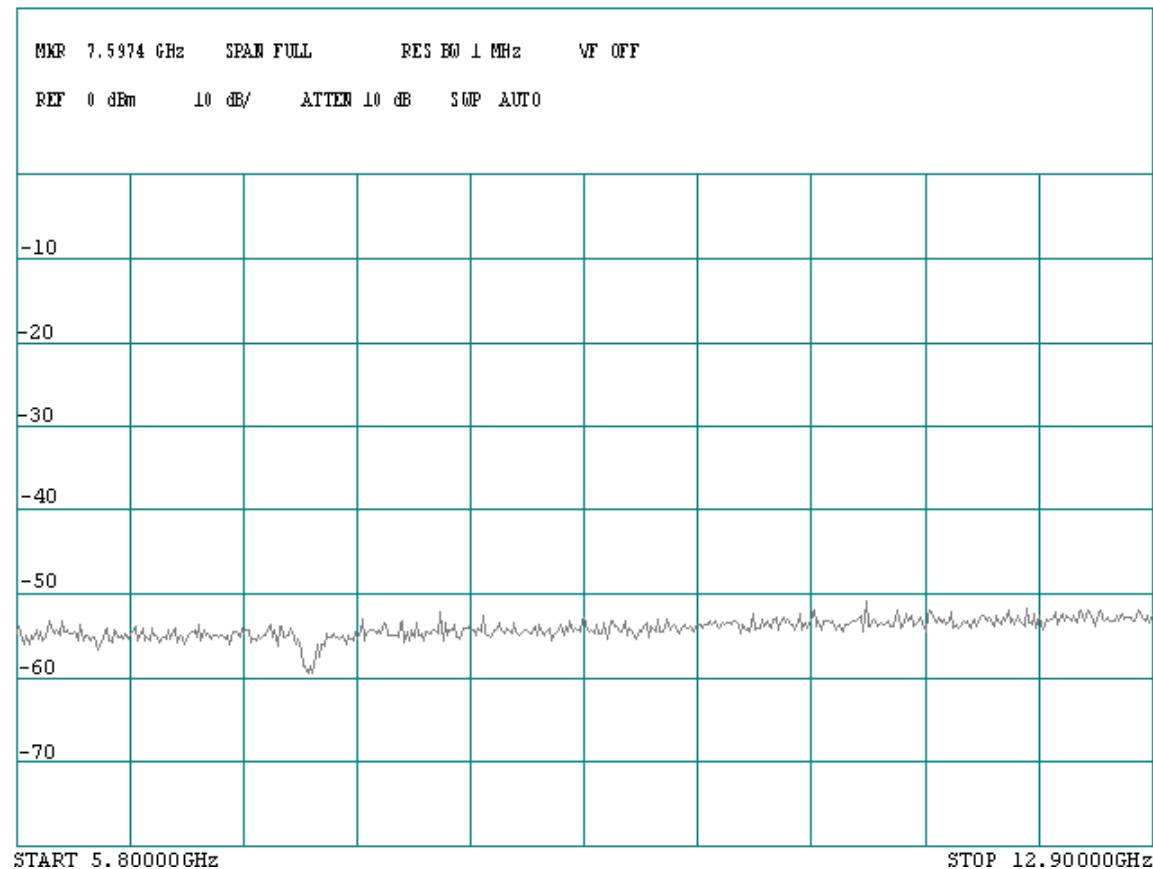
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



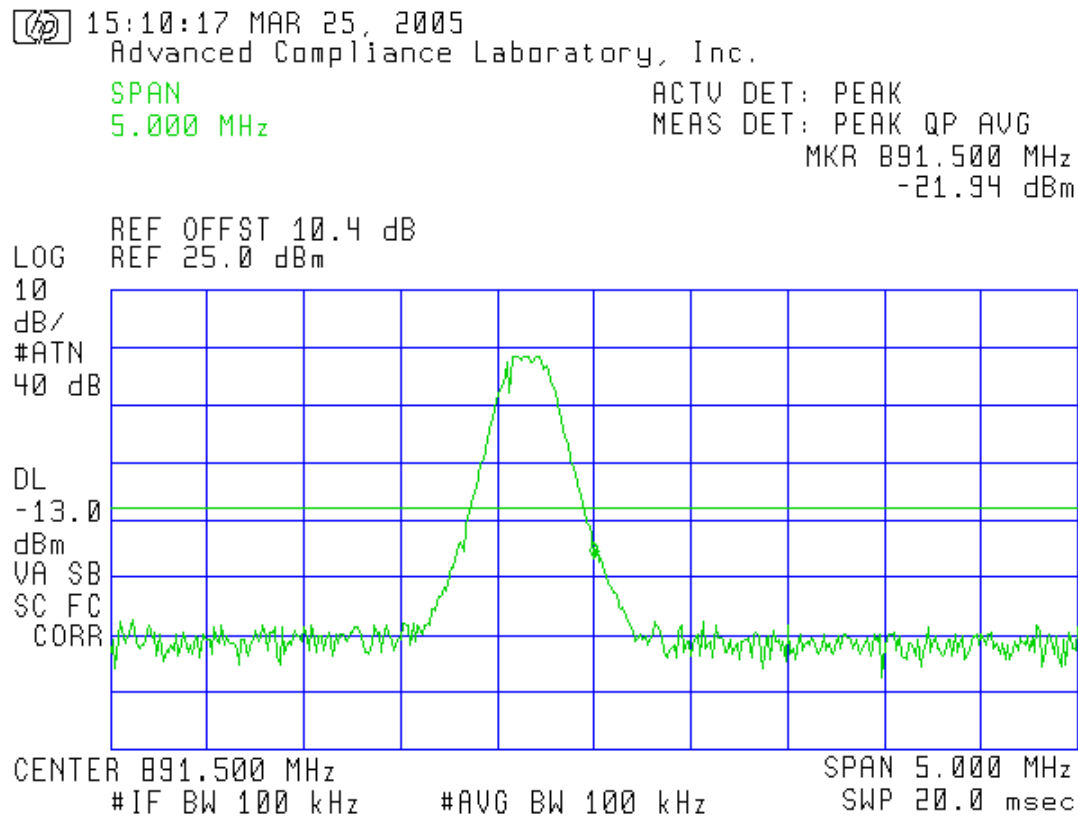
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



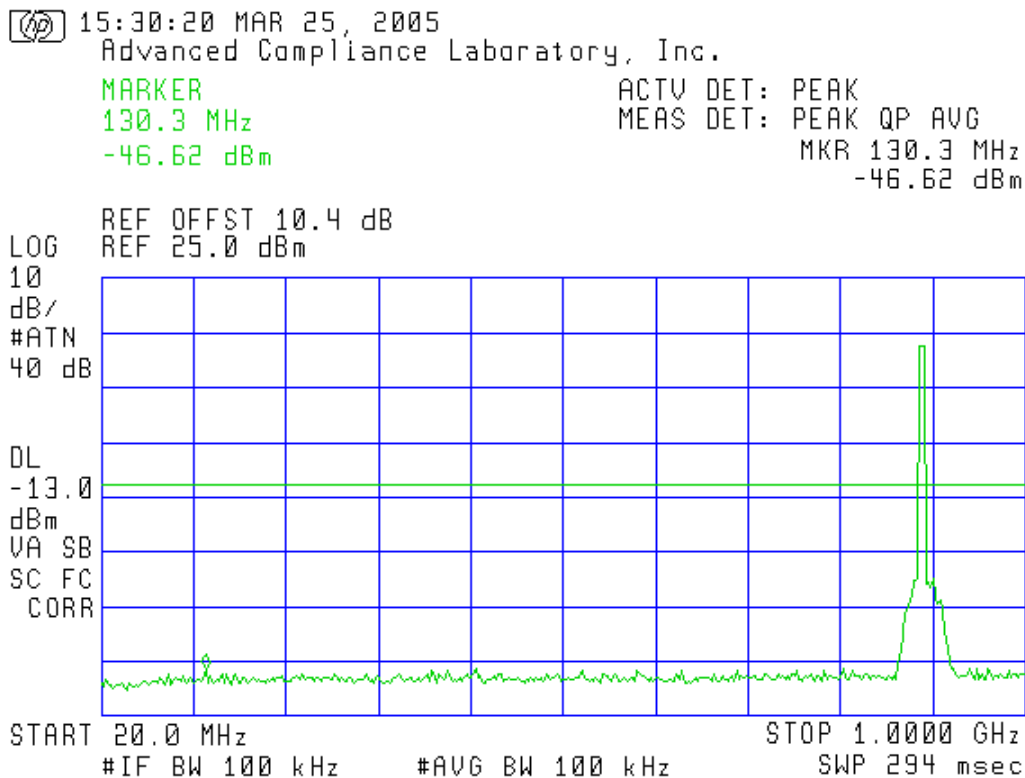
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Hi-Chn, Upper Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



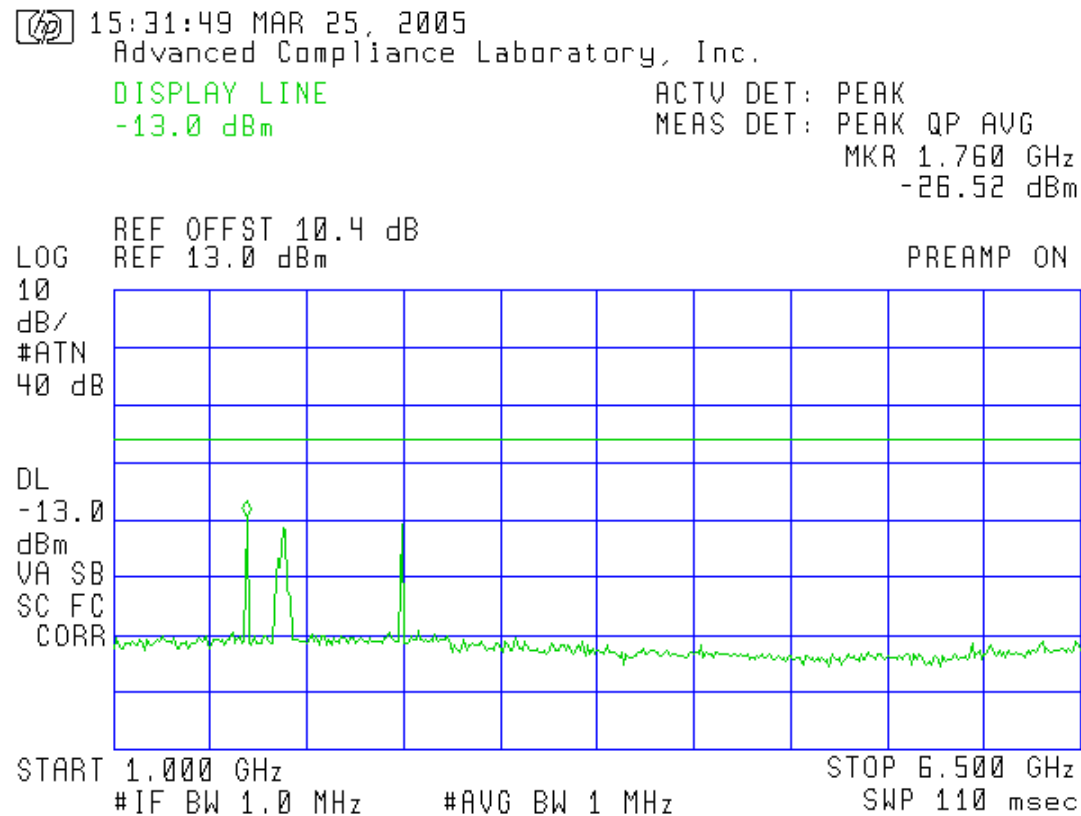
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



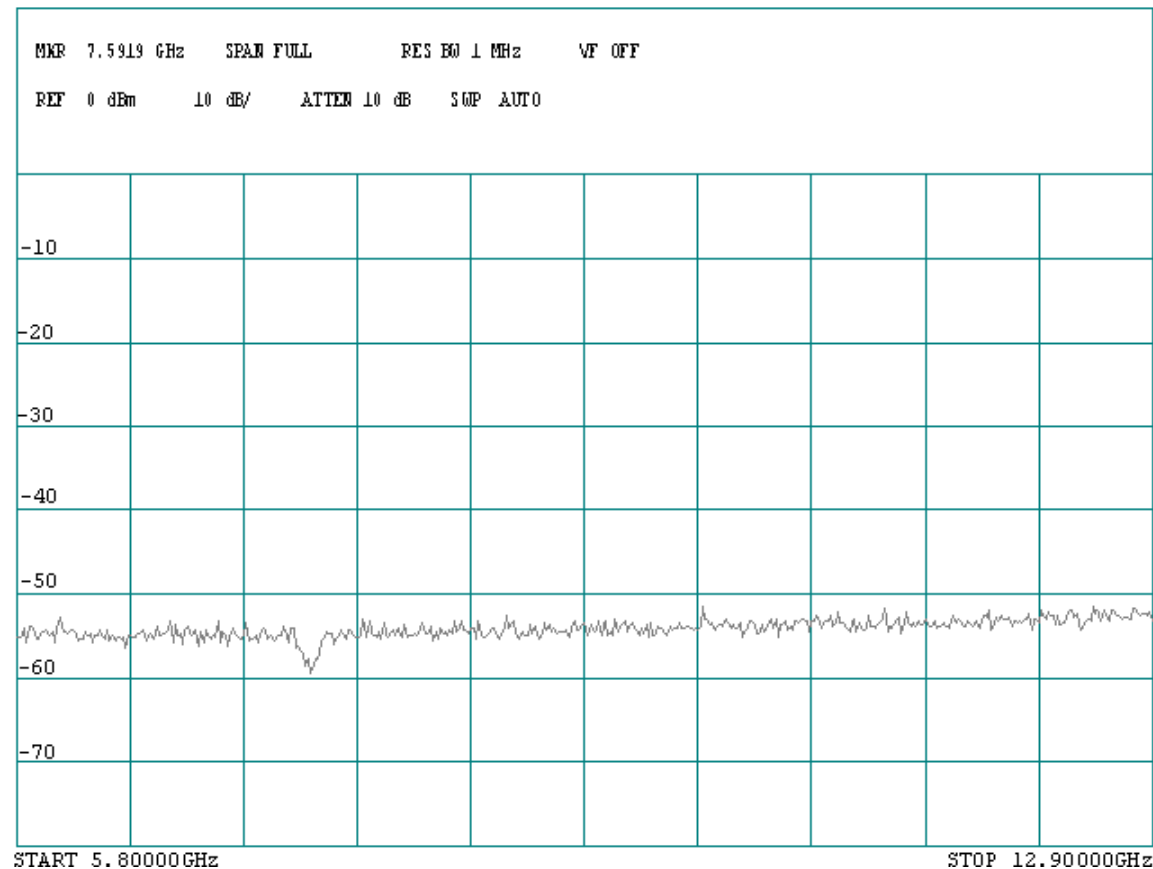
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



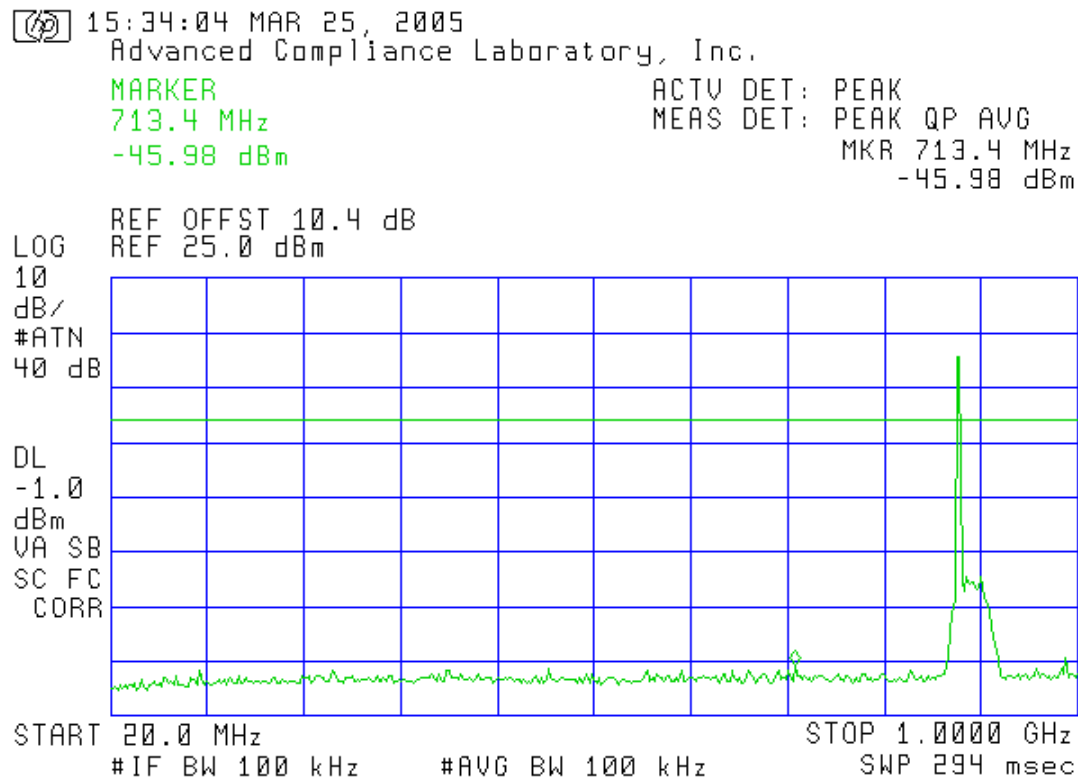
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



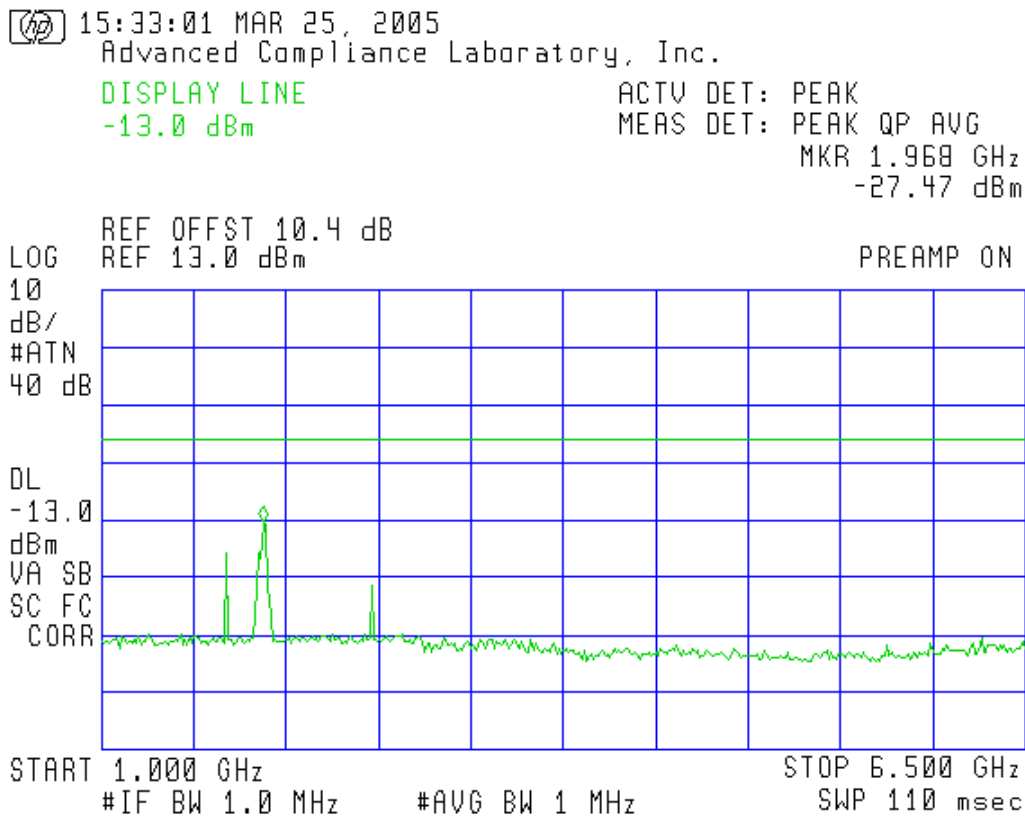
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



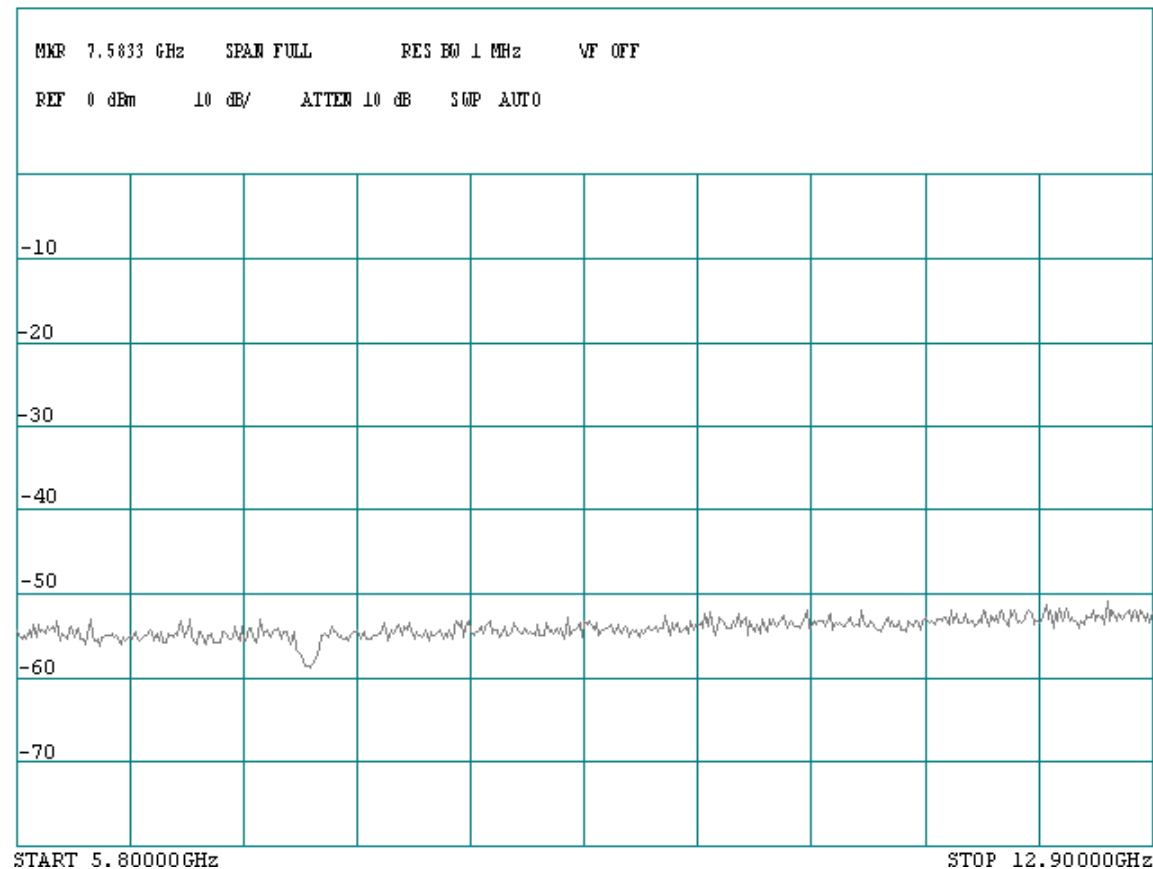
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



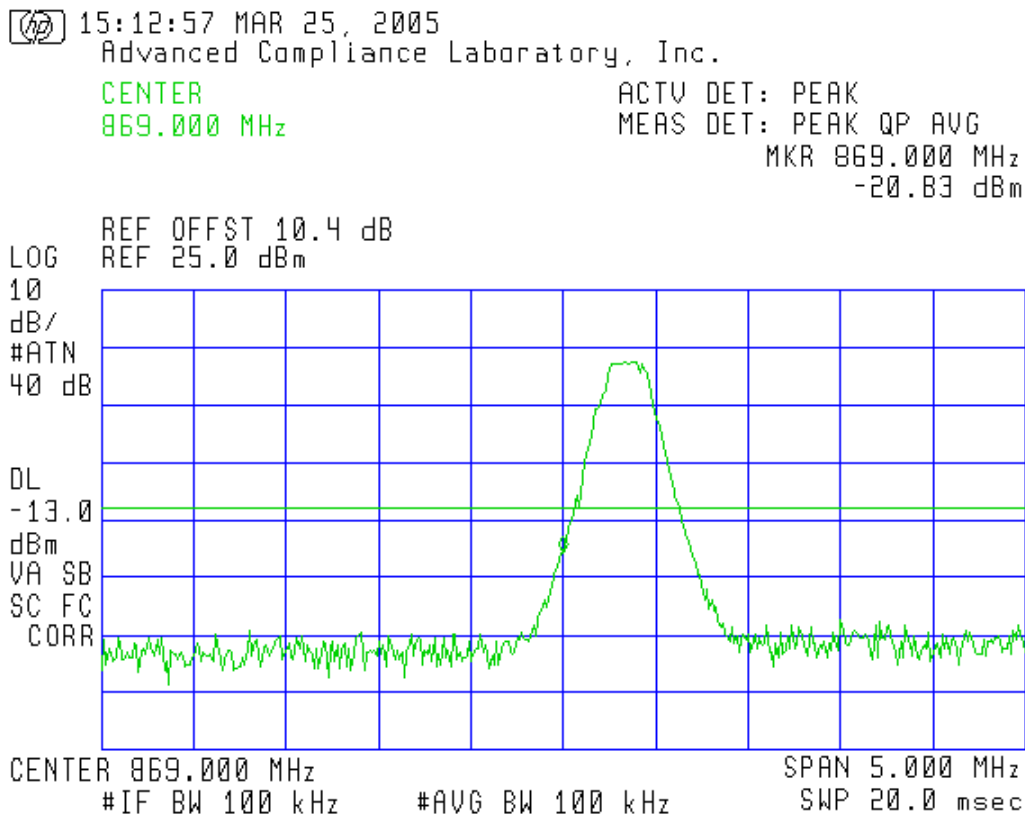
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



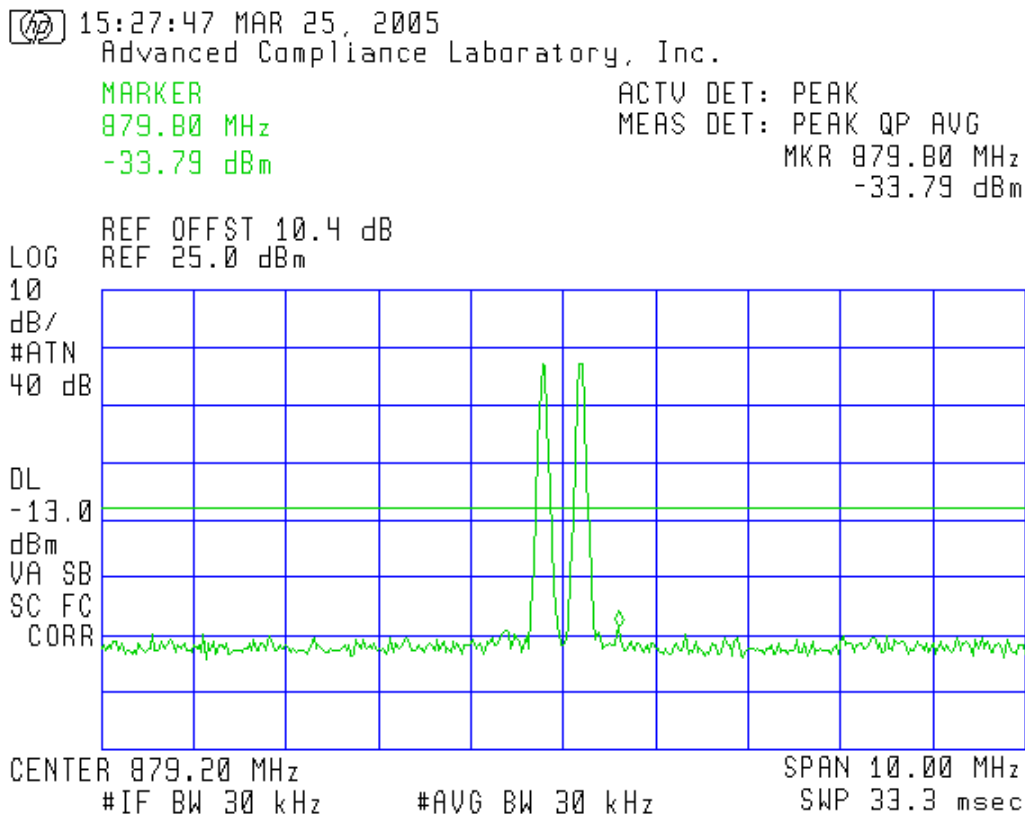
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Low-Chn, Lower Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: Cellular Bands / GSM Modulation
Plot Name:	Downlink, Mid-Chn, Intermodulation
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

16:12:31 MAR 27, 2005

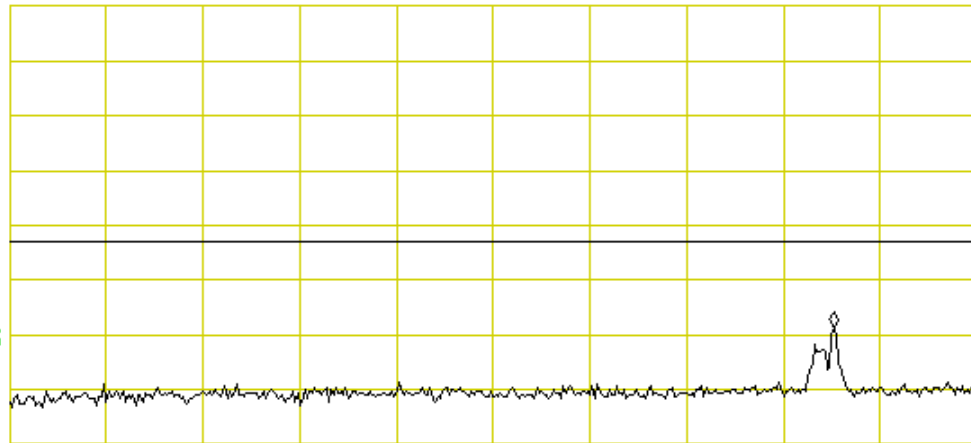
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 855.5 MHz
-28.89 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 20.0 MHz

#IF BW 100 kHz

#AVG BW 100 kHz

STOP 1.0000 GHz

SWP 294 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

16:18:10 MAR 27, 2005

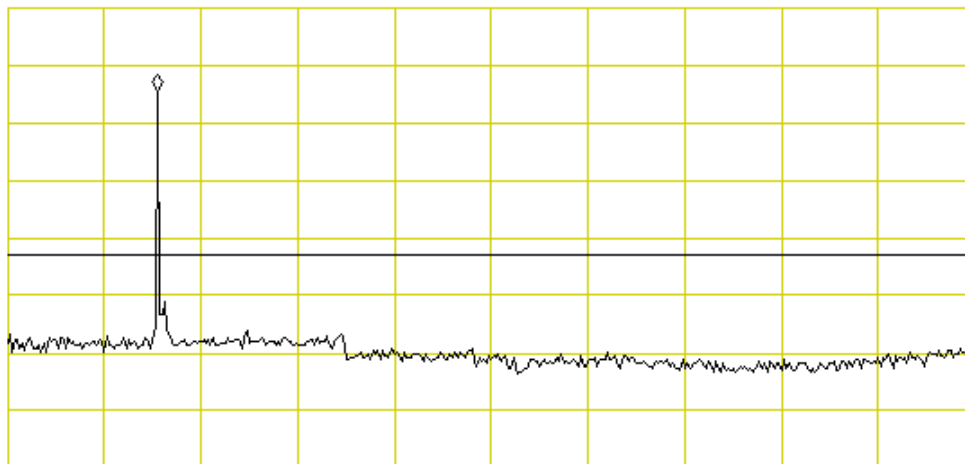
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.857 GHz
15.46 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/
ATN
60 dB

PREAMP ON

DL
-13.0
dBm
VA SB
SC FC
CORR



START 1.000 GHz

#IF BW 1.0 MHz

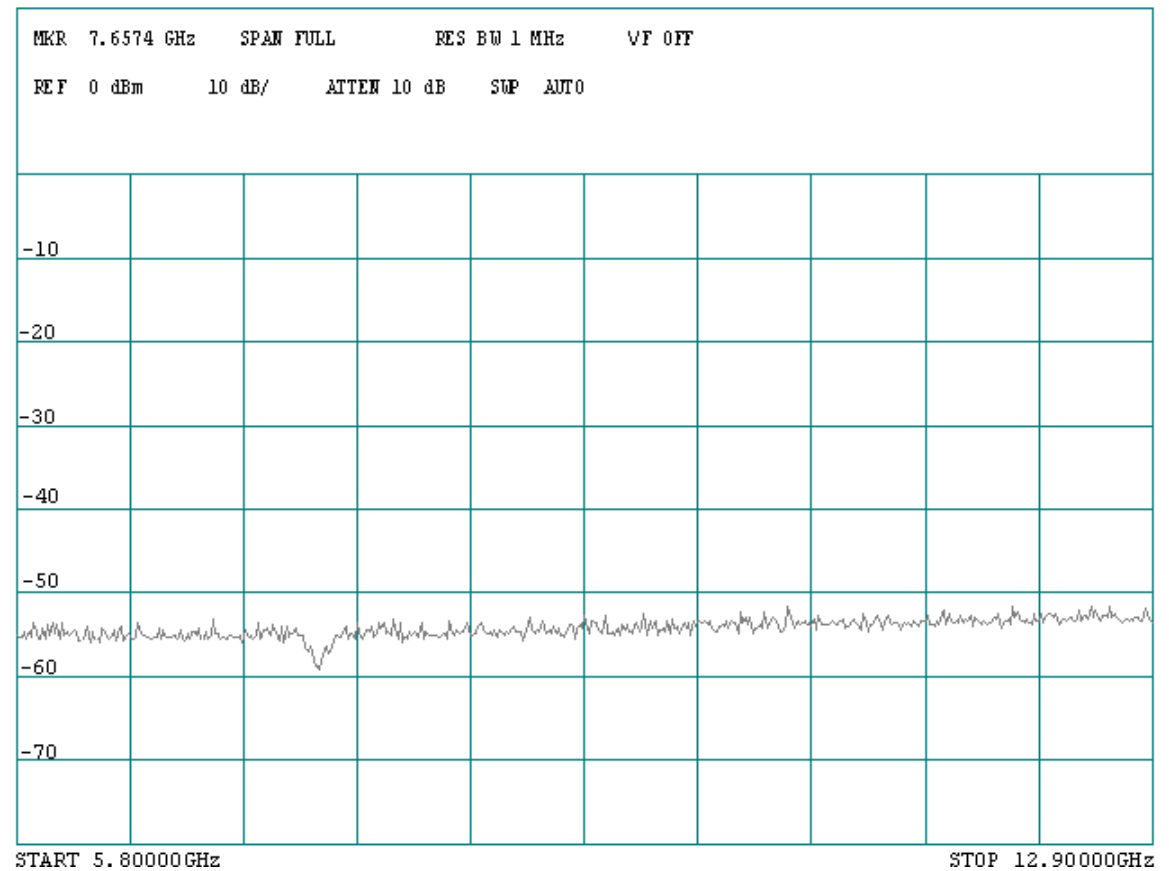
#AVG BW 1 MHz

STOP 6.500 GHz

SWP 110 msec

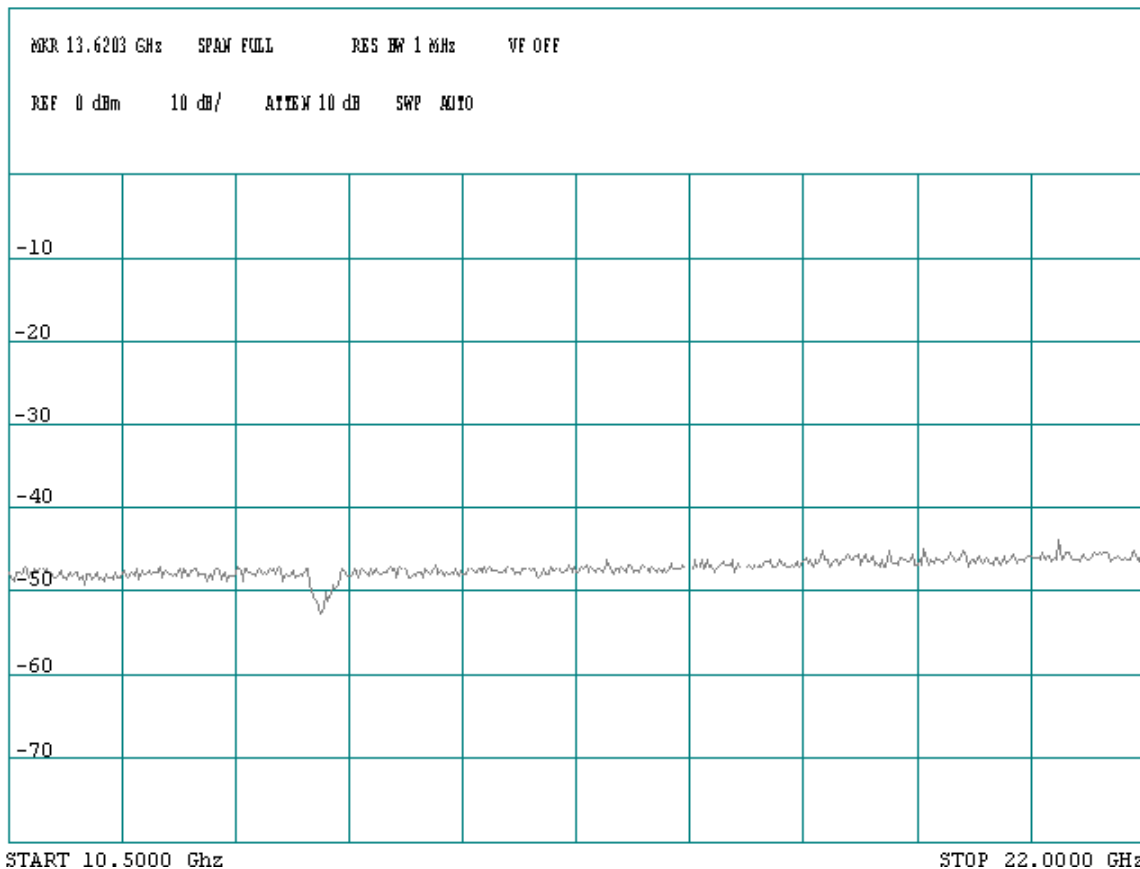
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	UL, Hi-Chn, Intermodulation, Upper Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

12:15:53 MAR 23, 2005

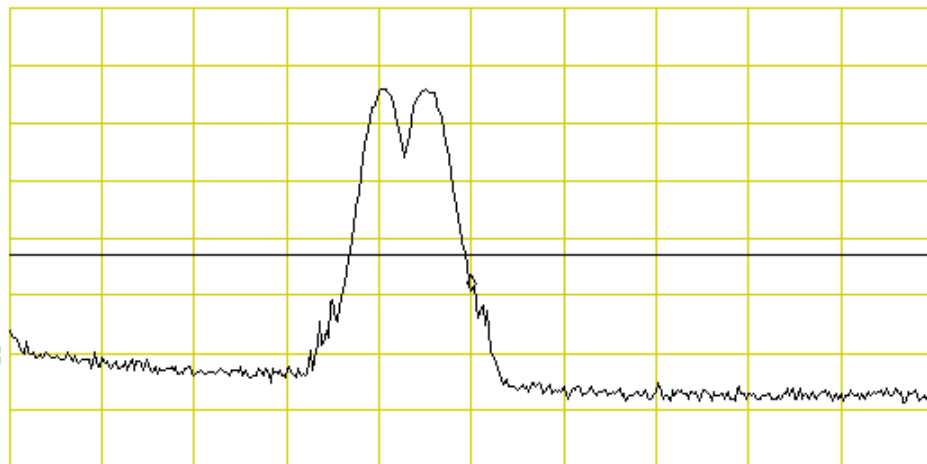
CENTER
1.91000 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.91000 GHz
-19.36 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
30 dB

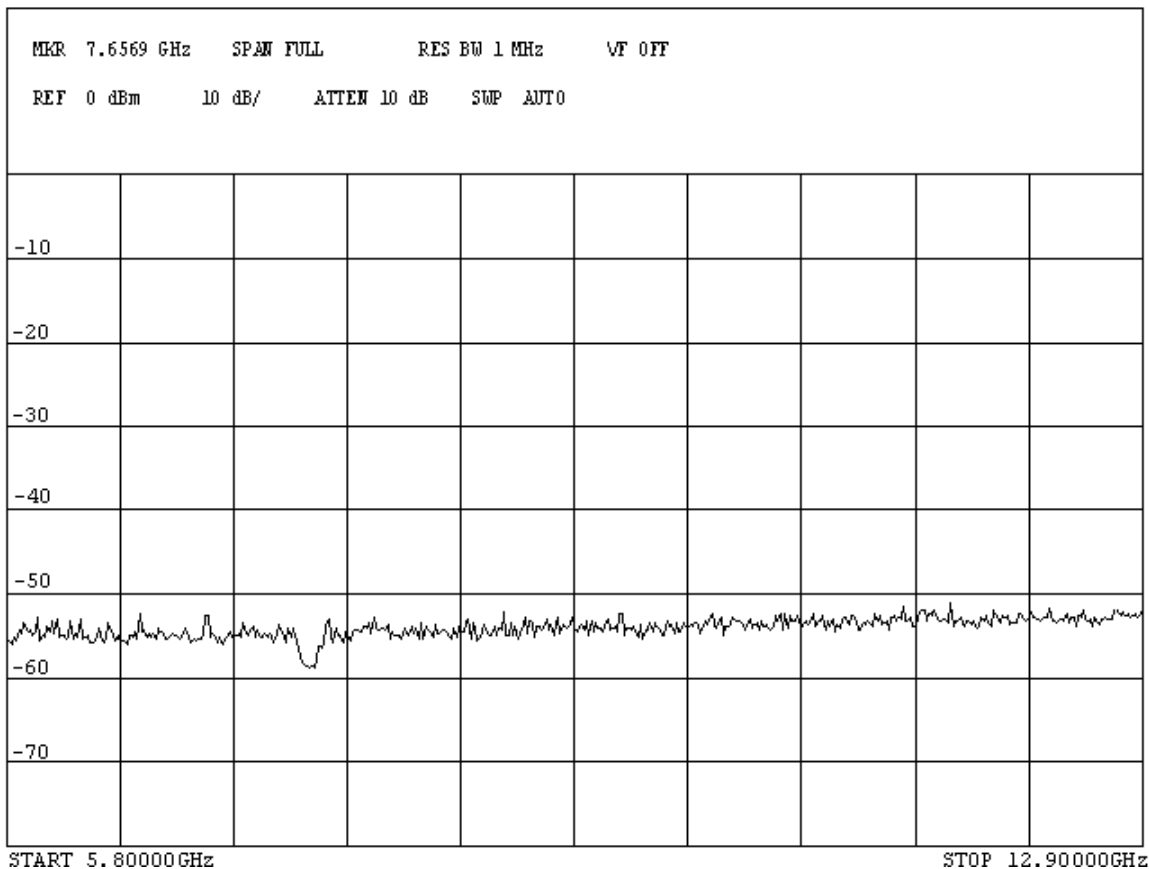
DL
-13.0
dBm
VA SB
SC FC
CORR



CENTER 1.91000 GHz SPAN 50.00 MHz
#IF BW 1.0 MHz #AVG BW 1 MHz SWP 20.0 msec

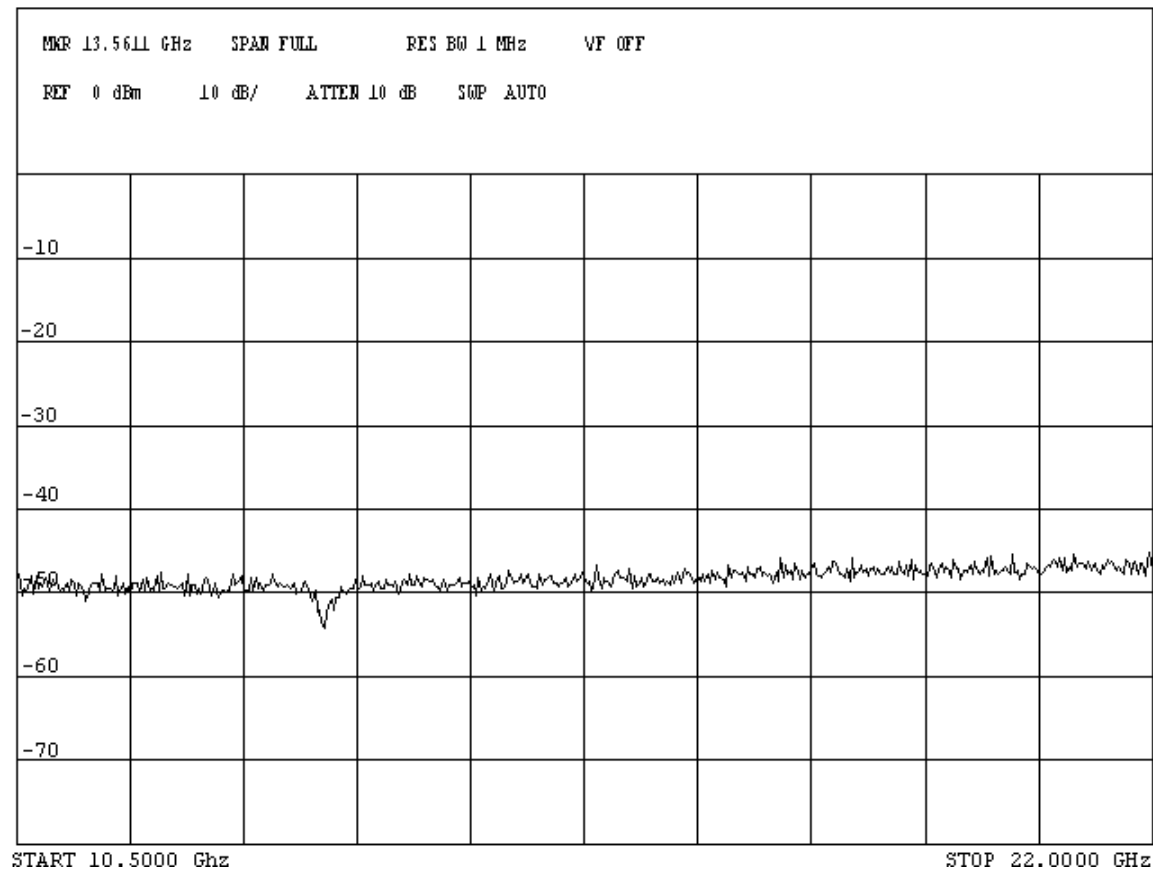
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

16:12:31 MAR 27, 2005

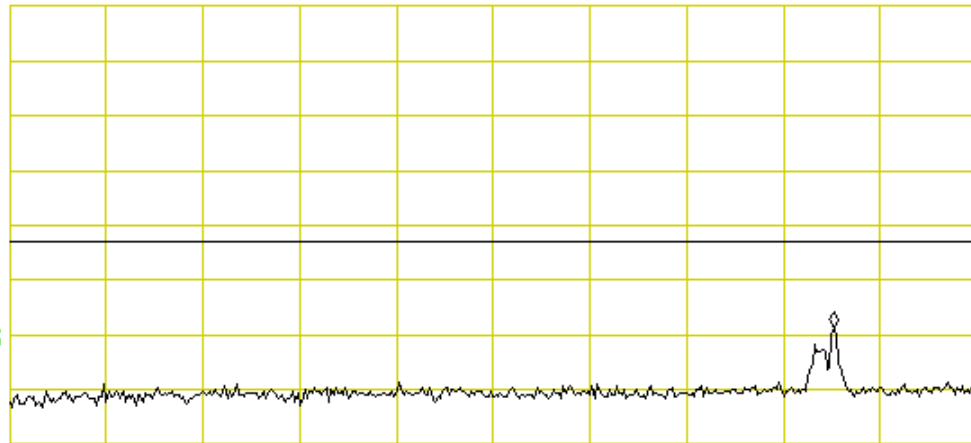
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 855.5 MHz
-28.89 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 20.0 MHz

#IF BW 100 kHz

#AVG BW 100 kHz

STOP 1.0000 GHz

SWP 294 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

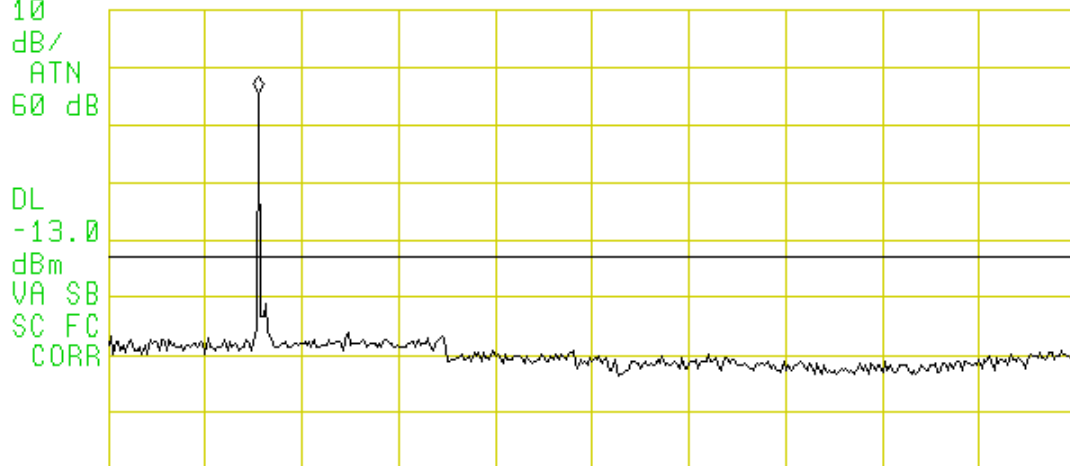
16:18:10 MAR 27, 2005

DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.857 GHz
15.46 dBm

LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/
ATN
60 dB

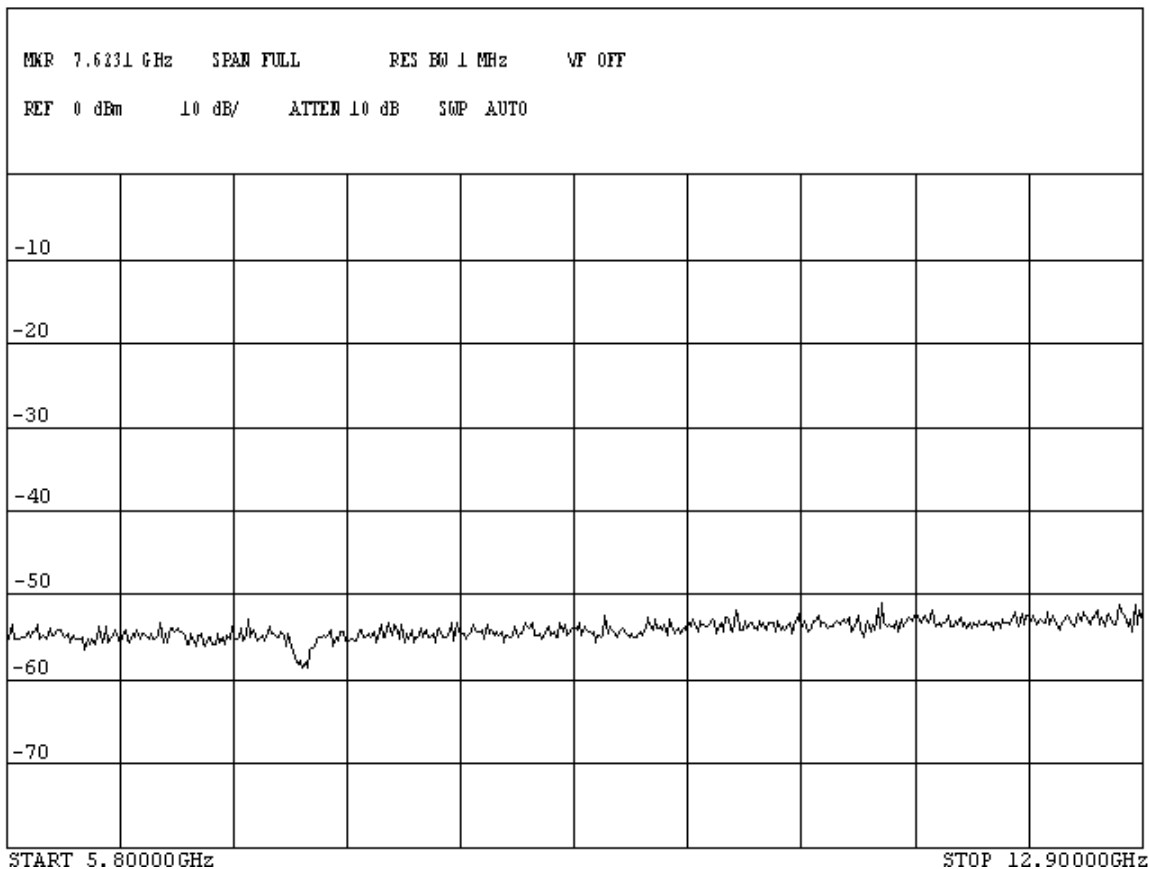
PREAMP ON



START 1.000 GHz STOP 6.500 GHz
#IF BW 1.0 MHz #AVG BW 1 MHz SWP 110 msec

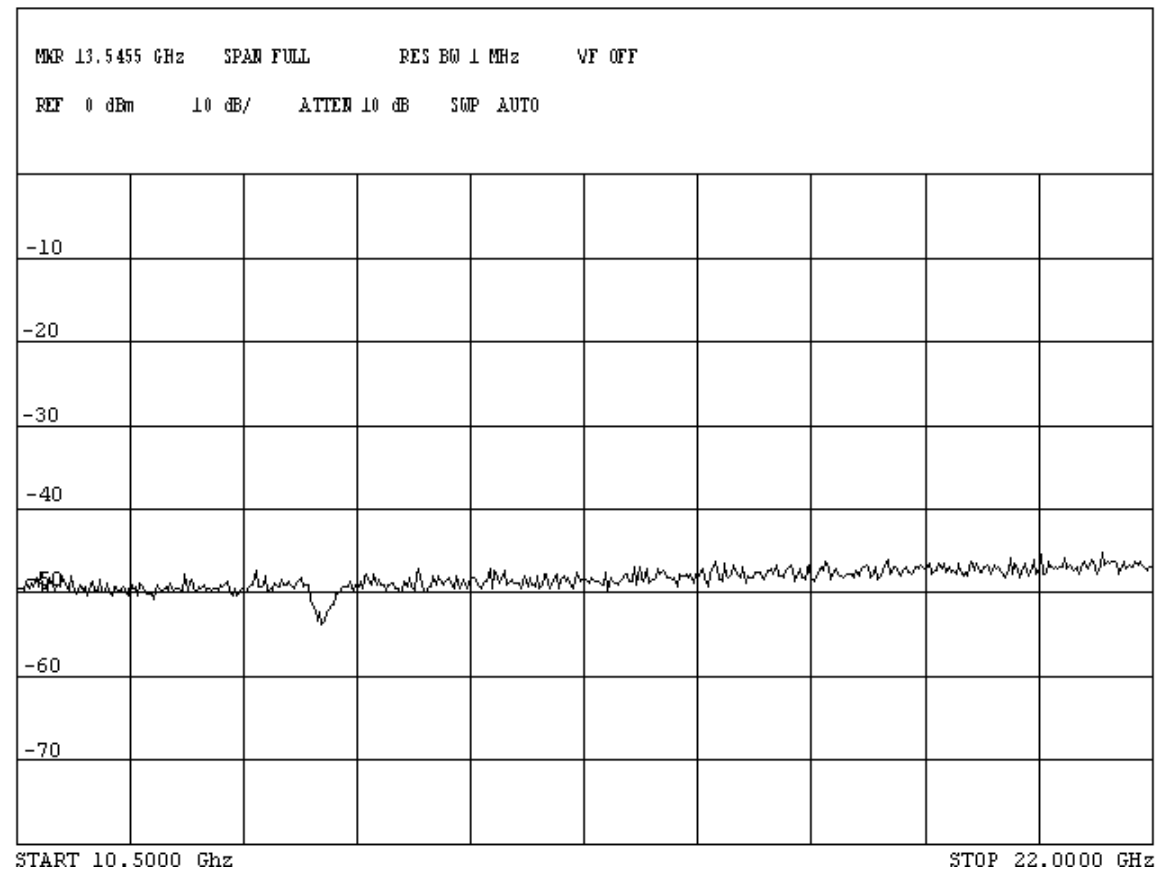
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



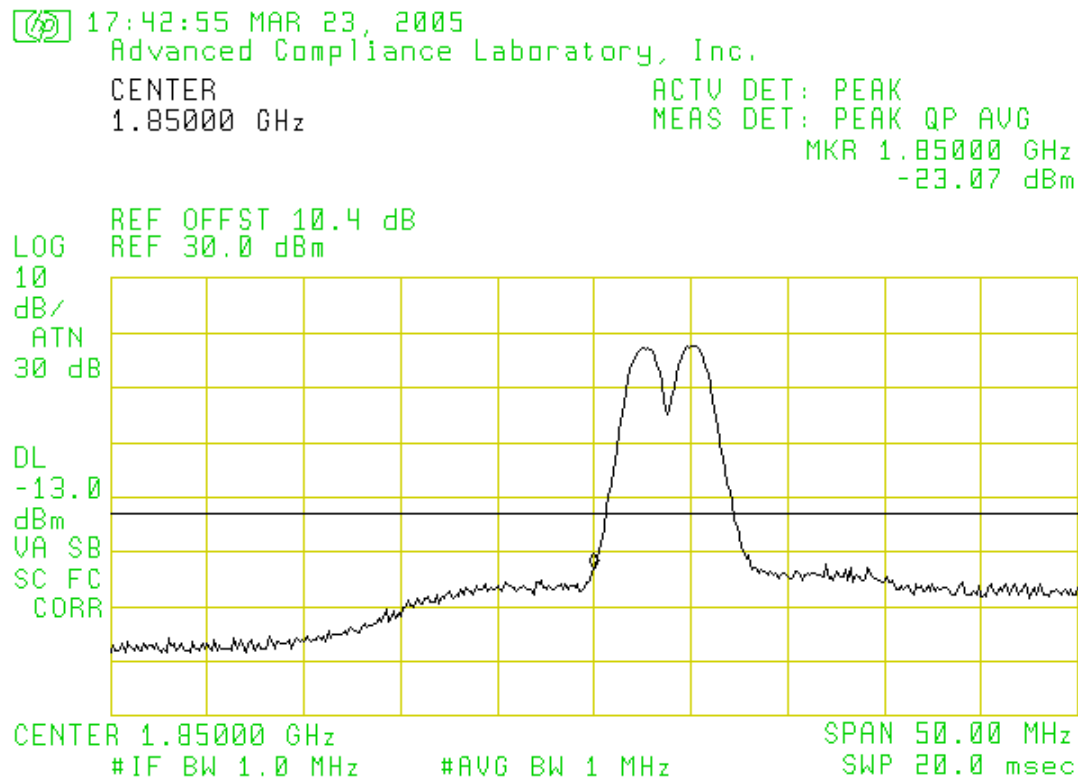
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	UL, Low-Chn, Intermodulation, Lower Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

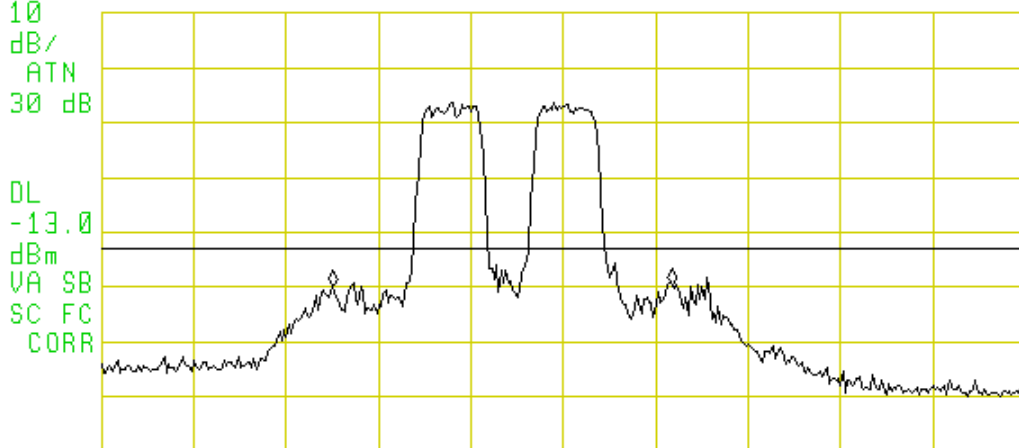
Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Uplink, Mid-Chn, Intermodulation
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

19:25:20 MAR 22, 2005

CENTER
1.88000 GHz

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.87500 GHz
-20.14 dBm

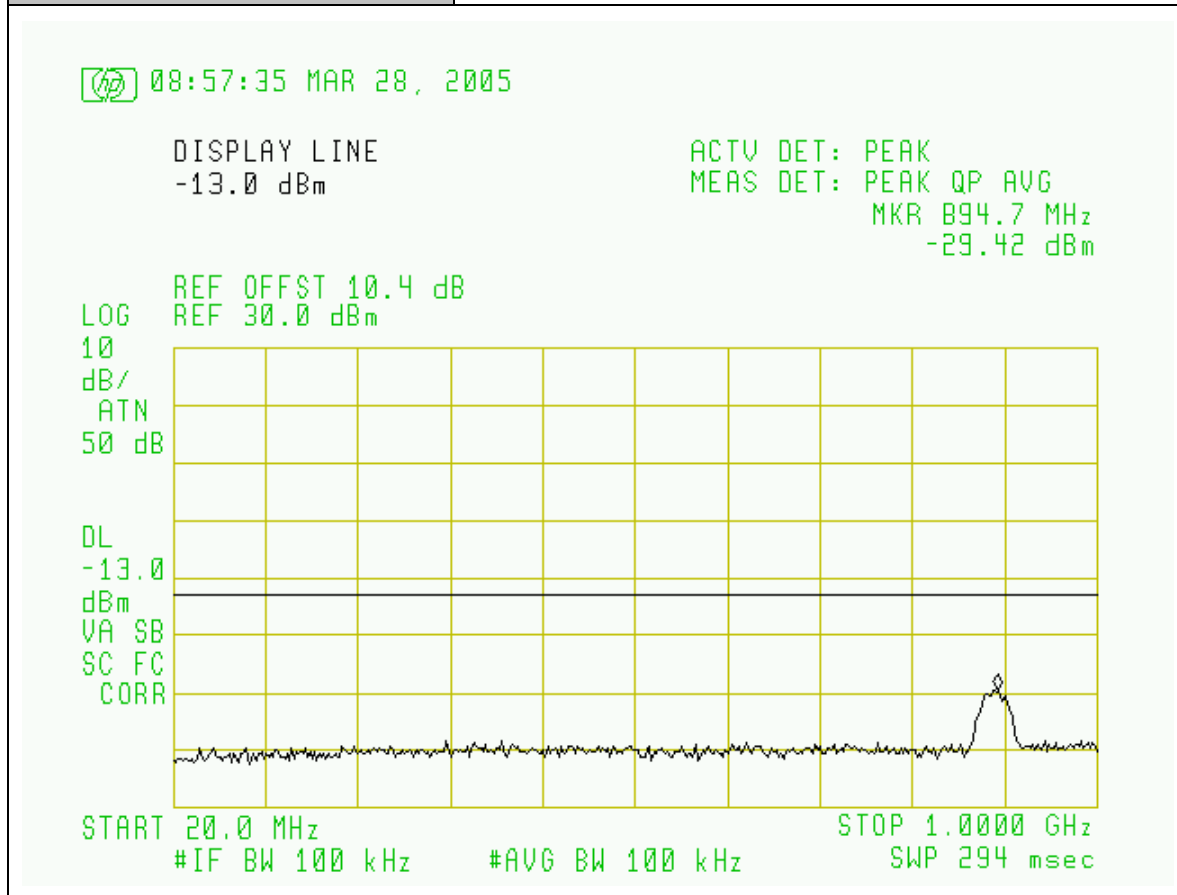
LOG
10
dB/
ATN
30 dB
REF OFFST 10.4 dB
REF 30.0 dBm



CENTER 1.88000 GHz
#IF BW 100 kHz
#AVG BW 100 kHz
SPAN 20.00 MHz
SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

08:50:46 MAR 28, 2005

MARKER
3.981 GHz
-31.01 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 3.981 GHz
-31.01 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

PREAMP ON

LOG
10
dB/
ATN
60 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 1.000 GHz

#IF BW 1.0 MHz

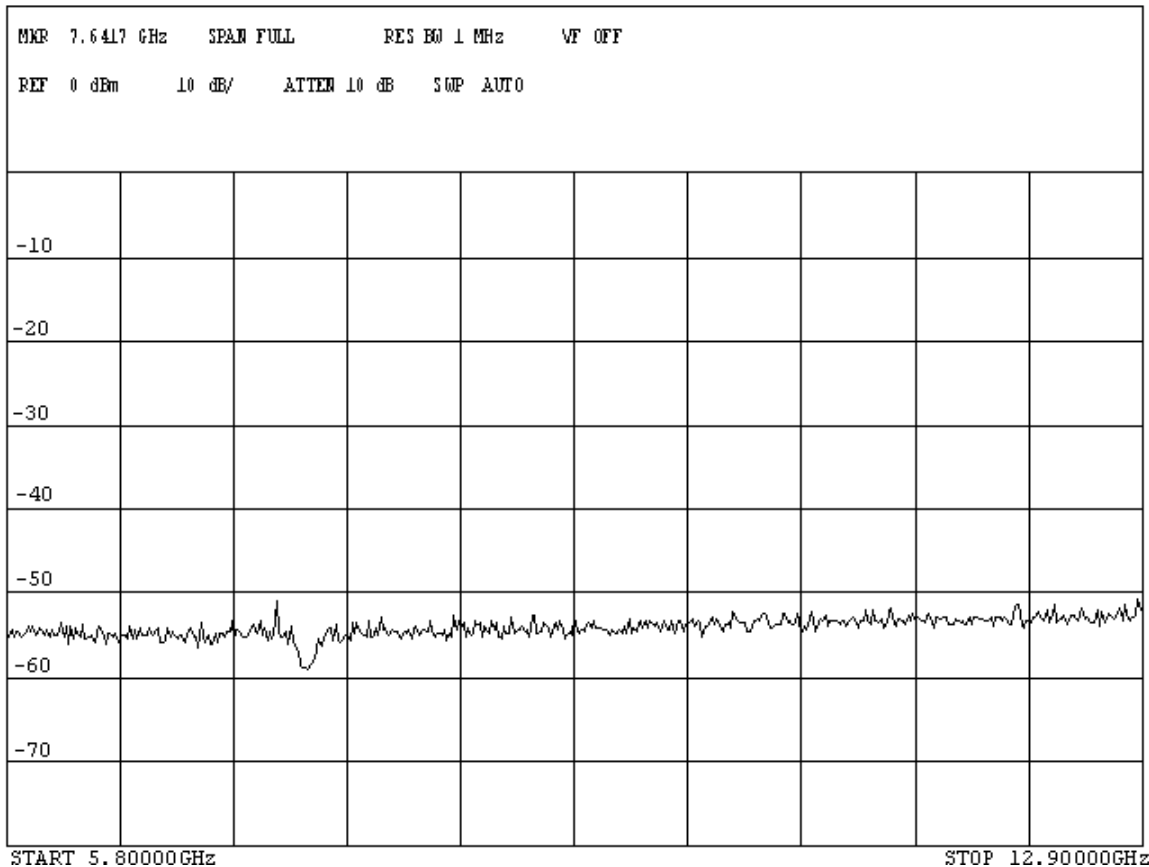
#AVG BW 1 MHz

STOP 6.500 GHz

SWP 110 msec

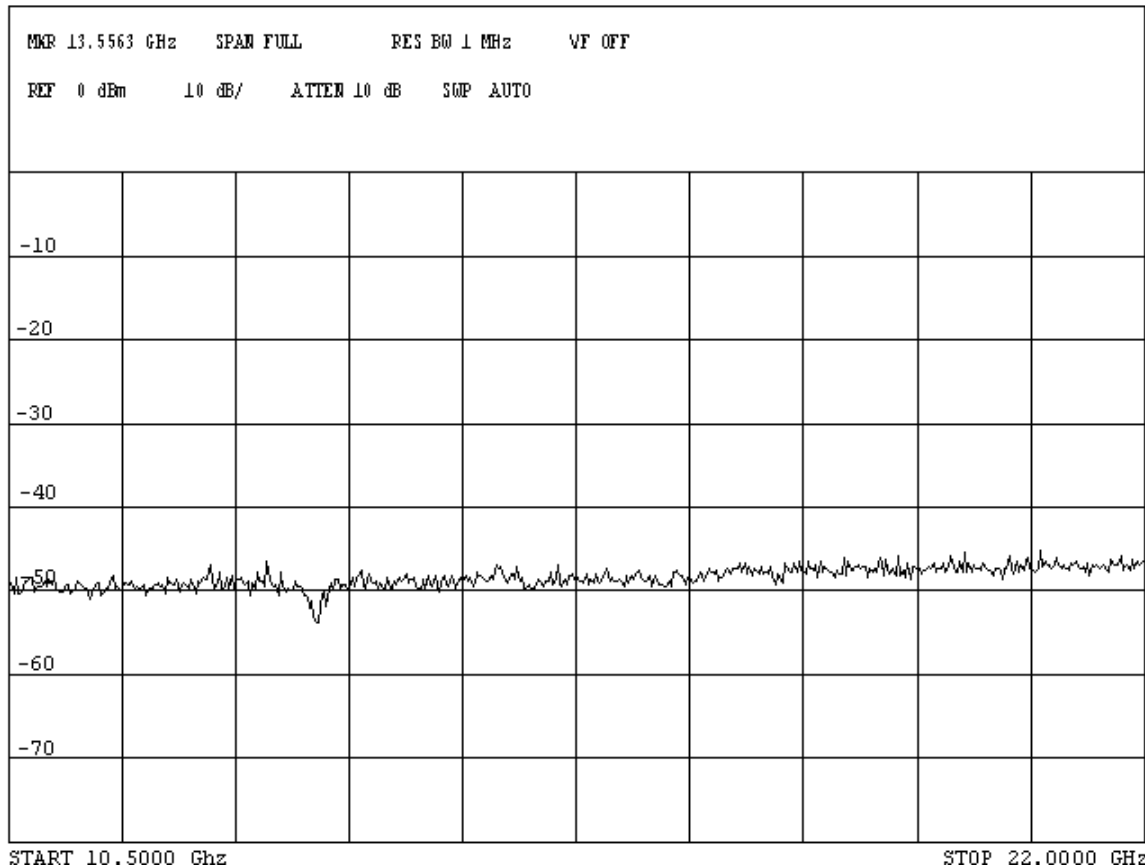
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

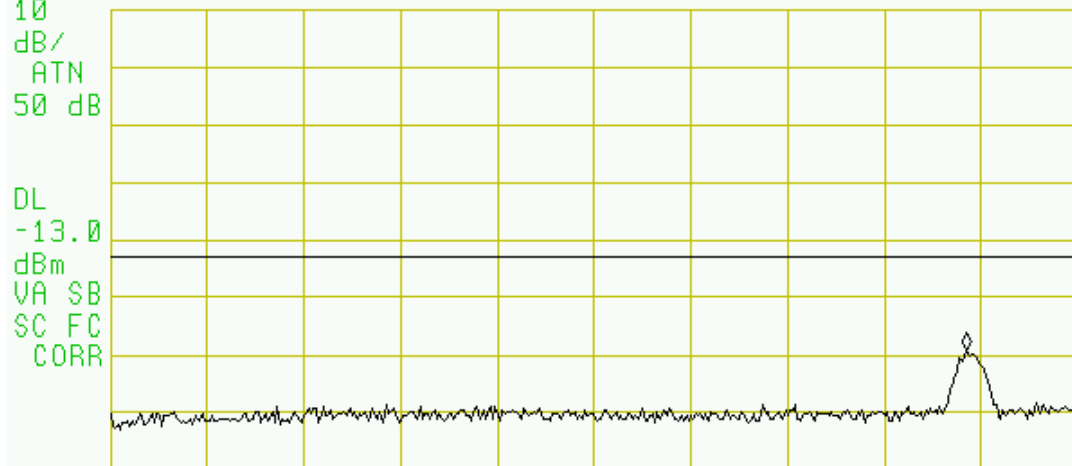
Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

08:57:00 MAR 28, 2005

DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 887.3 MHz
-29.04 dBm

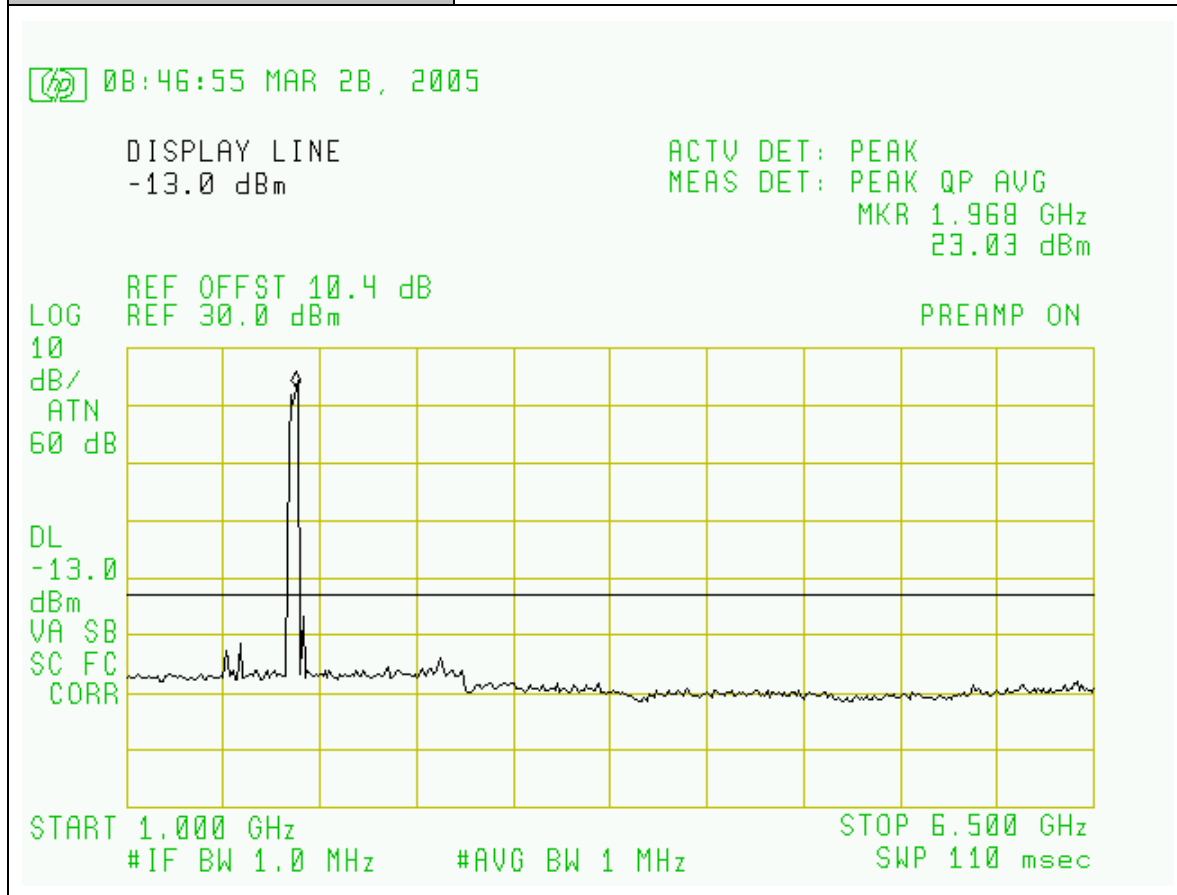
LOG REF OFFST 10.4 dB
10 REF 30.0 dBm
dB/
ATN
50 dB



START 20.0 MHz STOP 1.0000 GHz
#IF BW 100 kHz #AVG BW 100 kHz SWP 294 msec

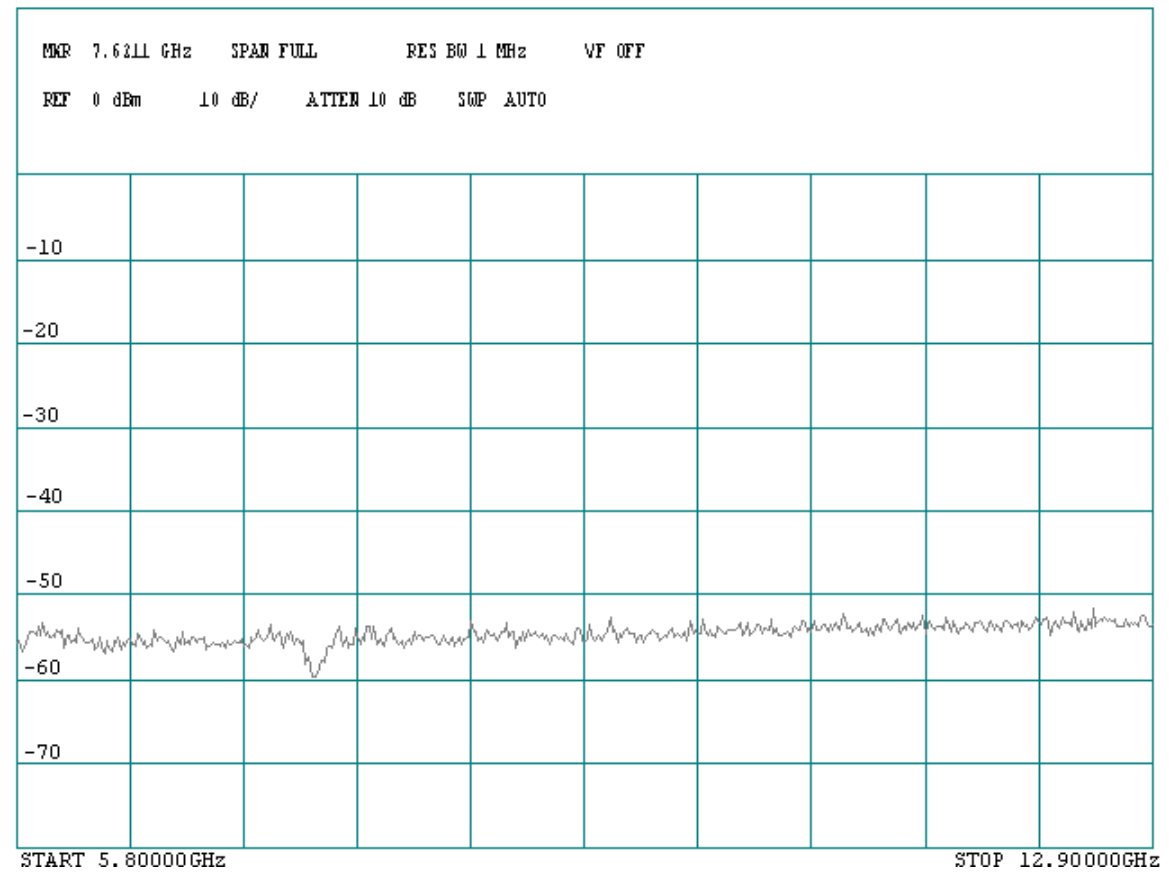
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



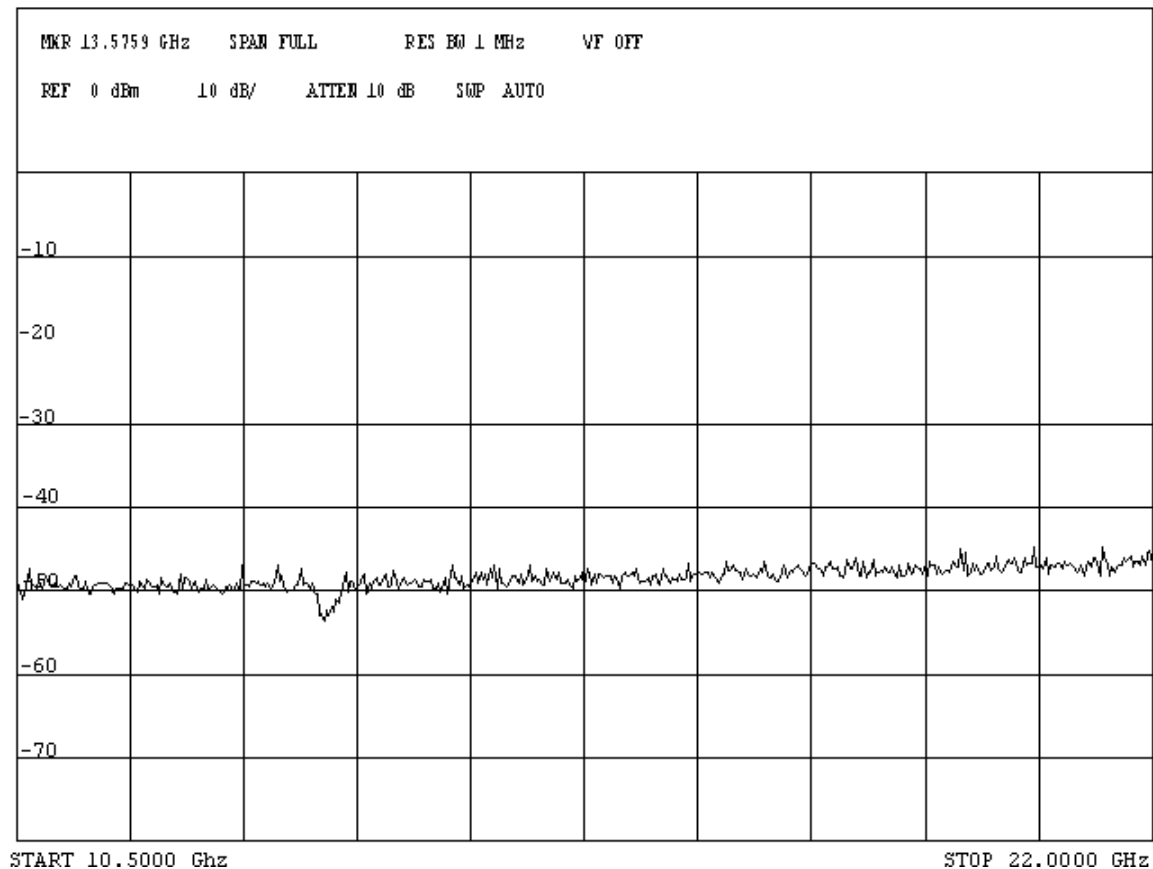
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

16:25:21 MAR 27, 2005

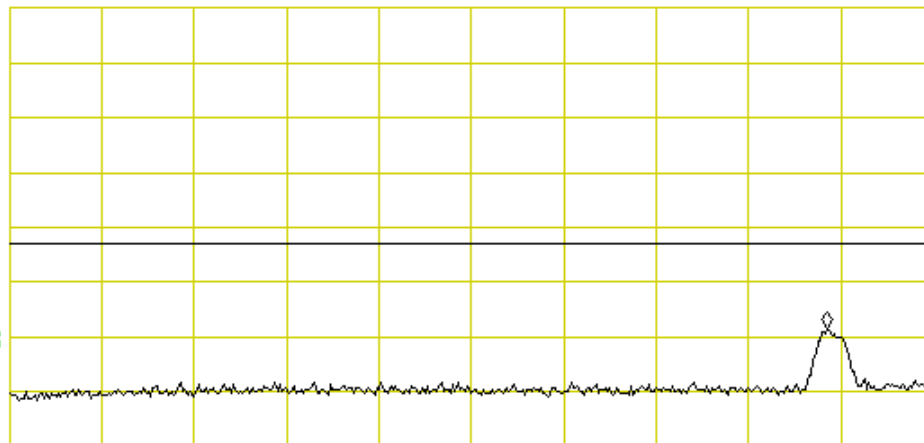
DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 887.3 MHz
-28.56 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

LOG
10
dB/
ATN
50 dB

DL
-13.0
dBm
VA SB
SC FC
CORR



START 20.0 MHz

#IF BW 100 kHz

#AVG BW 100 kHz

STOP 1.0000 GHz

SWP 294 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE

16:22:30 MAR 27, 2005

DISPLAY LINE
-13.0 dBm

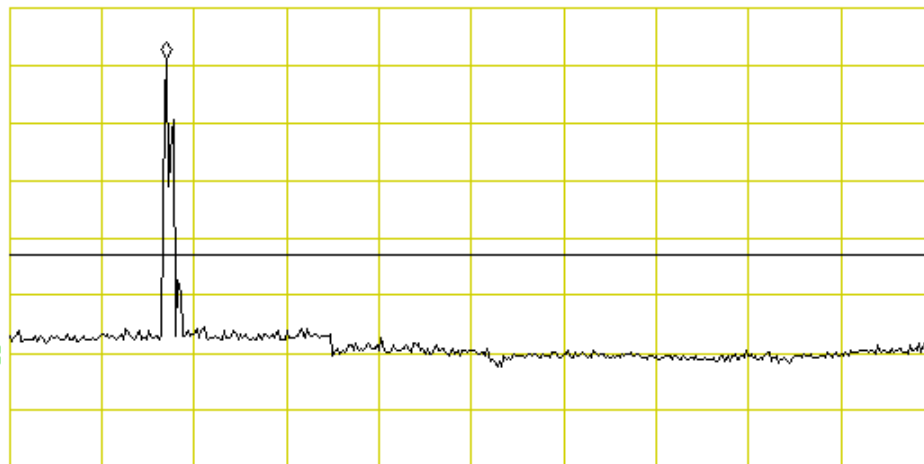
ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.940 GHz
21.33 dBm

REF OFFST 10.4 dB
REF 30.0 dBm

PREAMP ON

LOG
10
dB/
ATN
60 dB

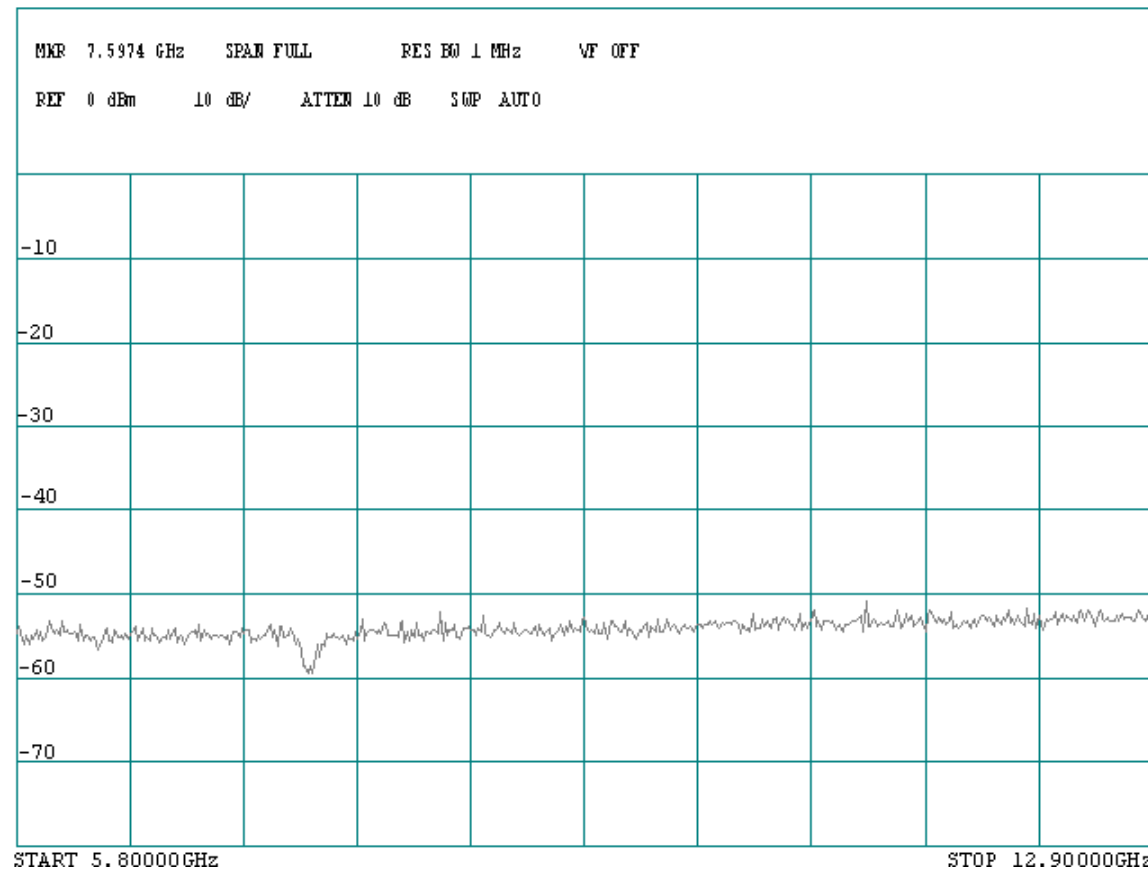
DL
-13.0
dBm
MA SB
SC FC
CORR



START 1.000 GHz STOP 6.500 GHz
#IF BW 1.0 MHz #AVG BW 1 MHz SWP 110 msec

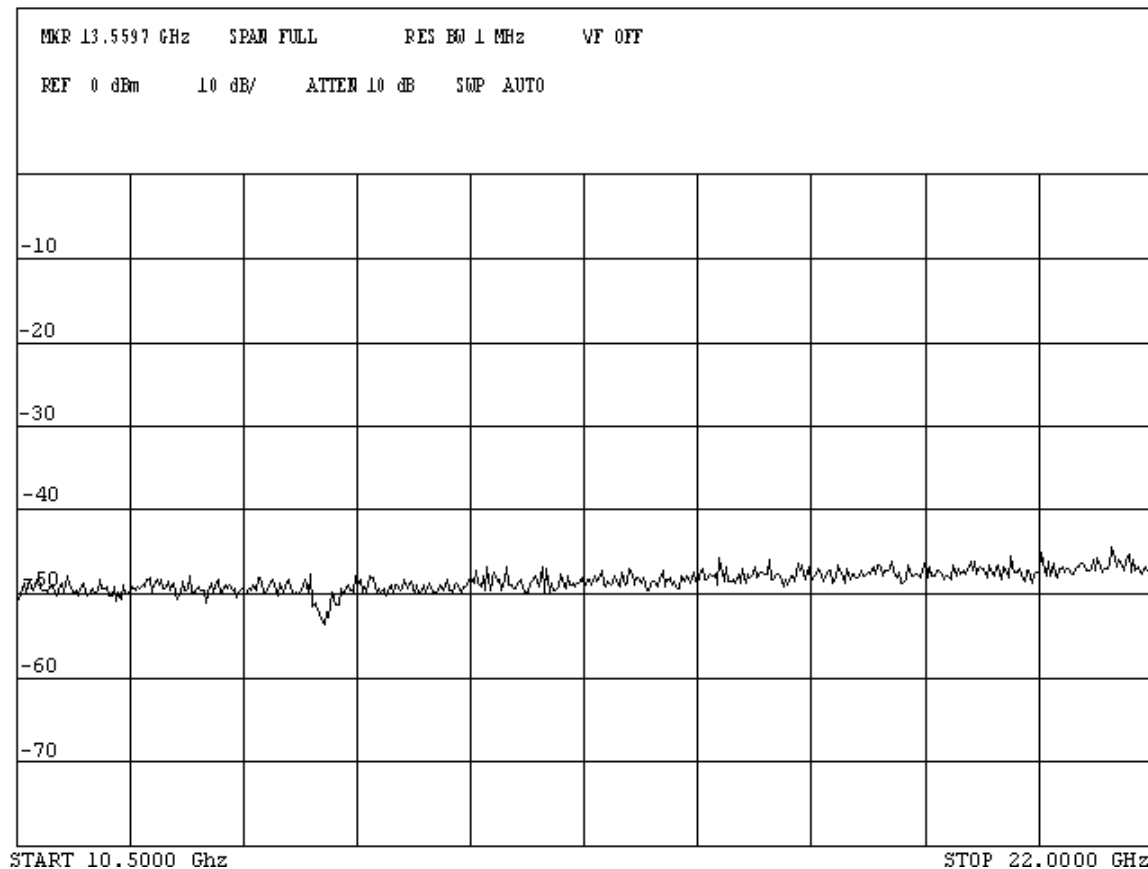
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



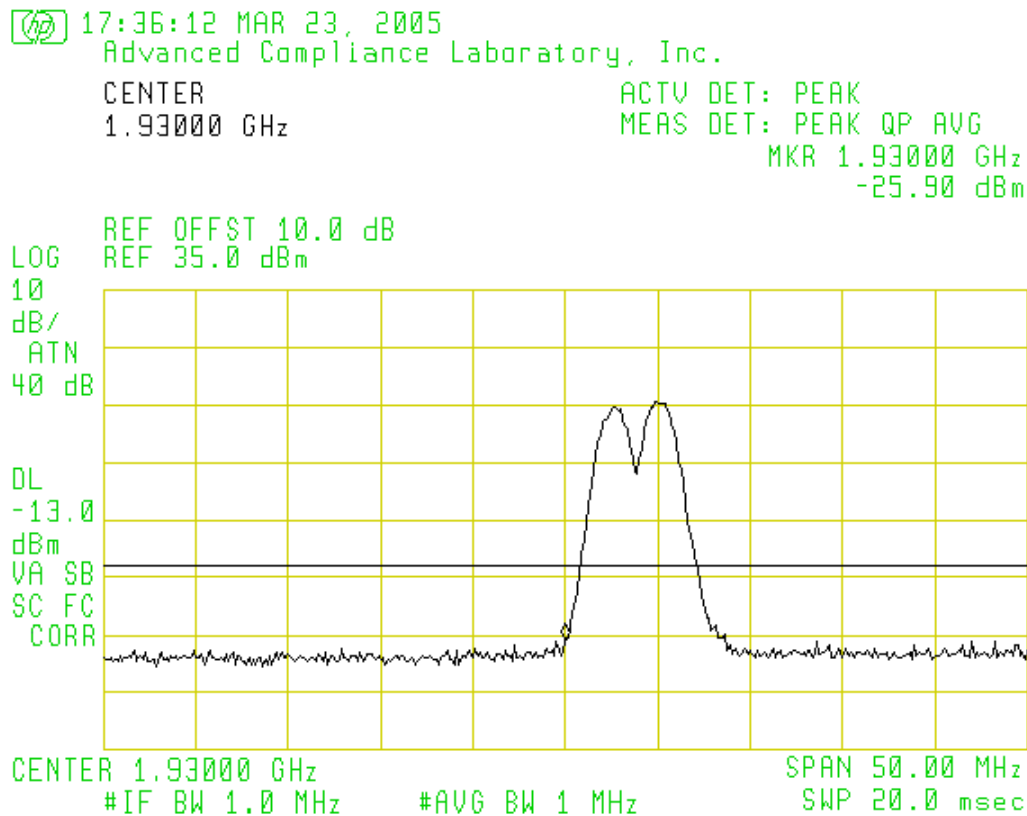
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



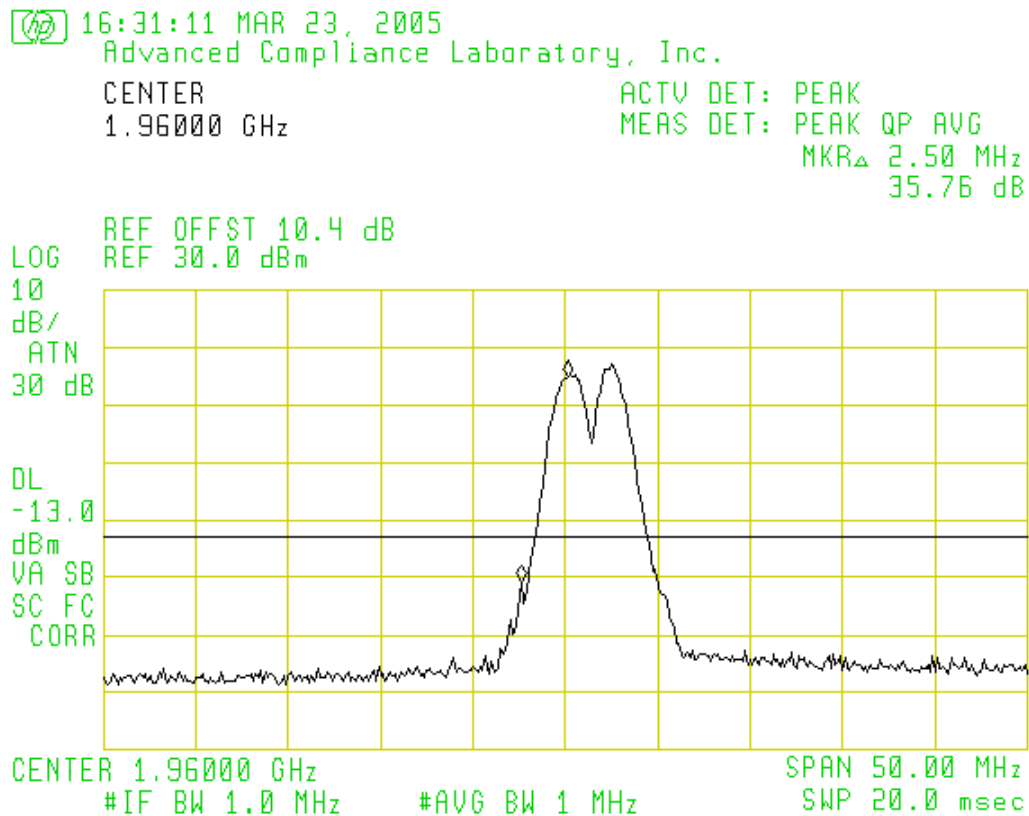
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	DL, Low-Chn, Intermodulation, Lower Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



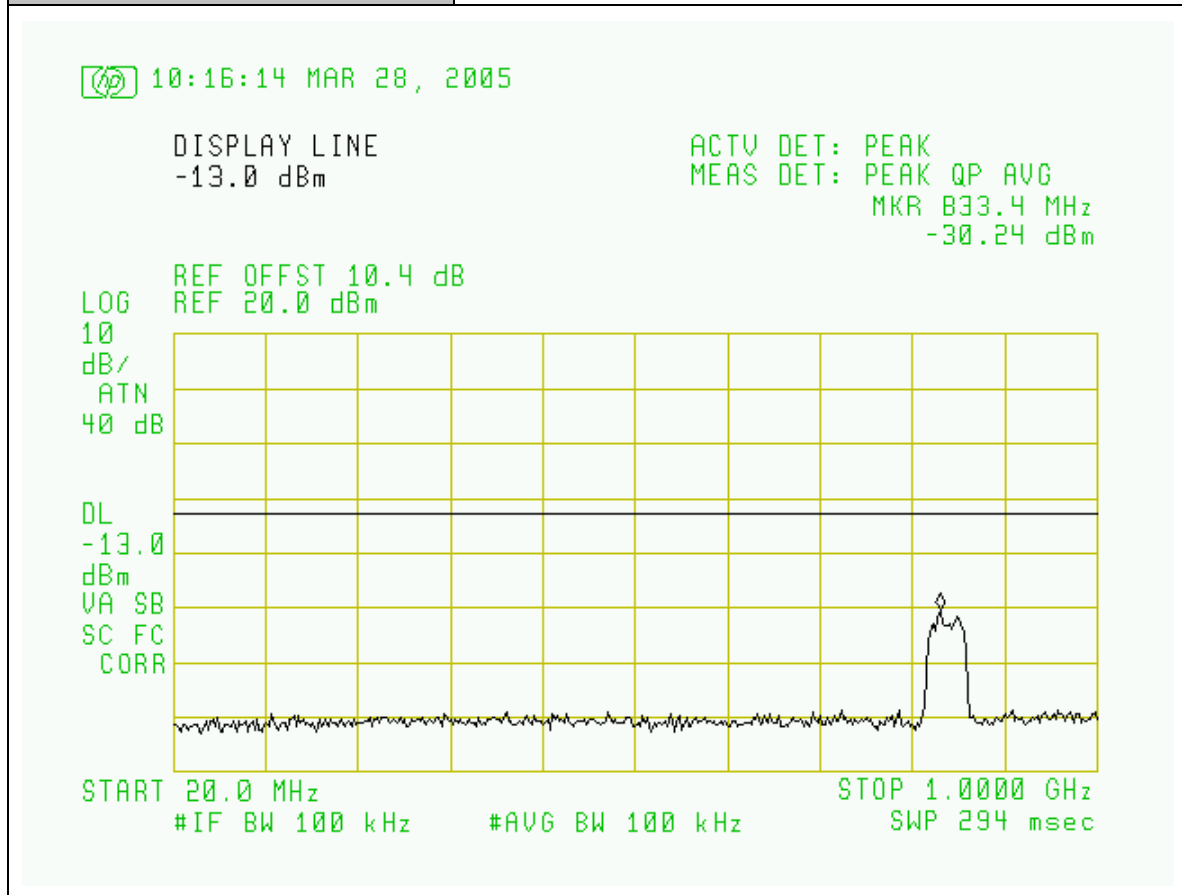
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / CDMA Modulation
Plot Name:	Downlink, Mid-Chn, Intermodulation
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



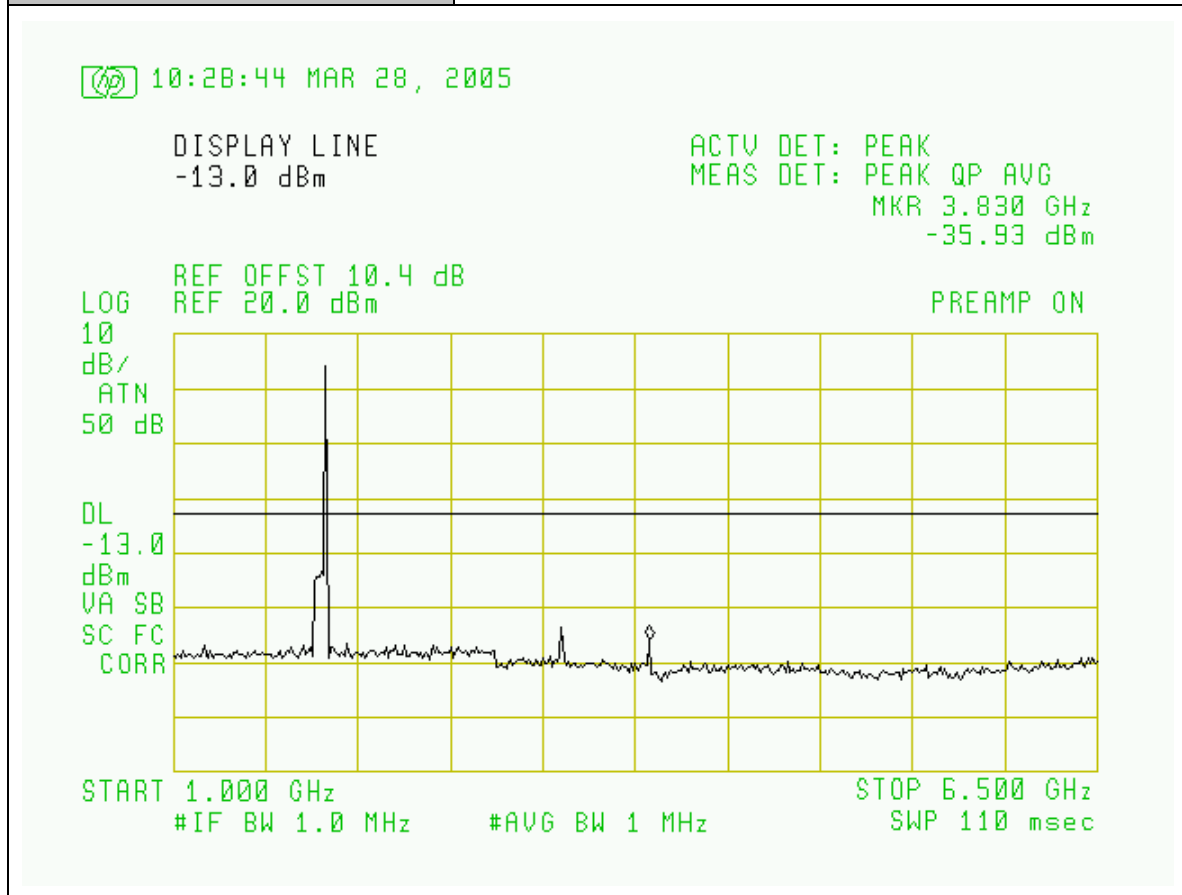
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



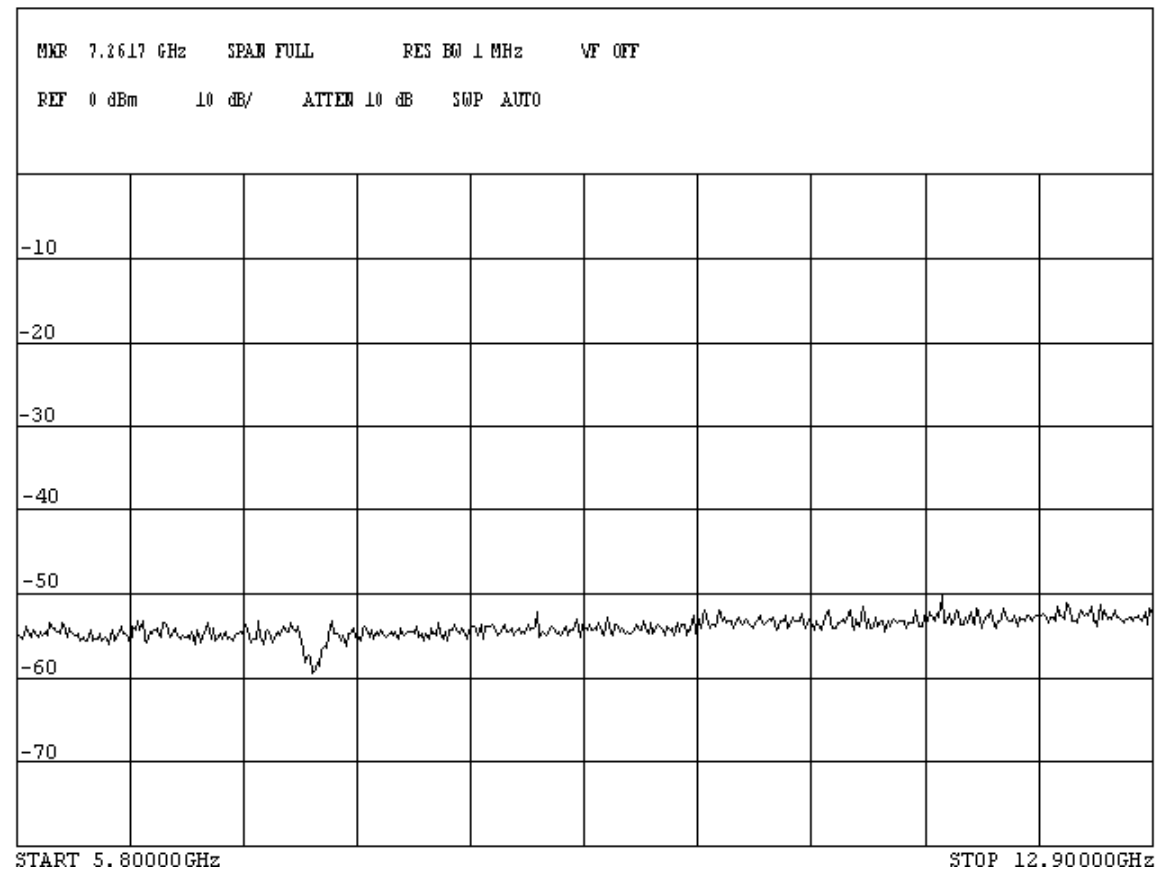
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



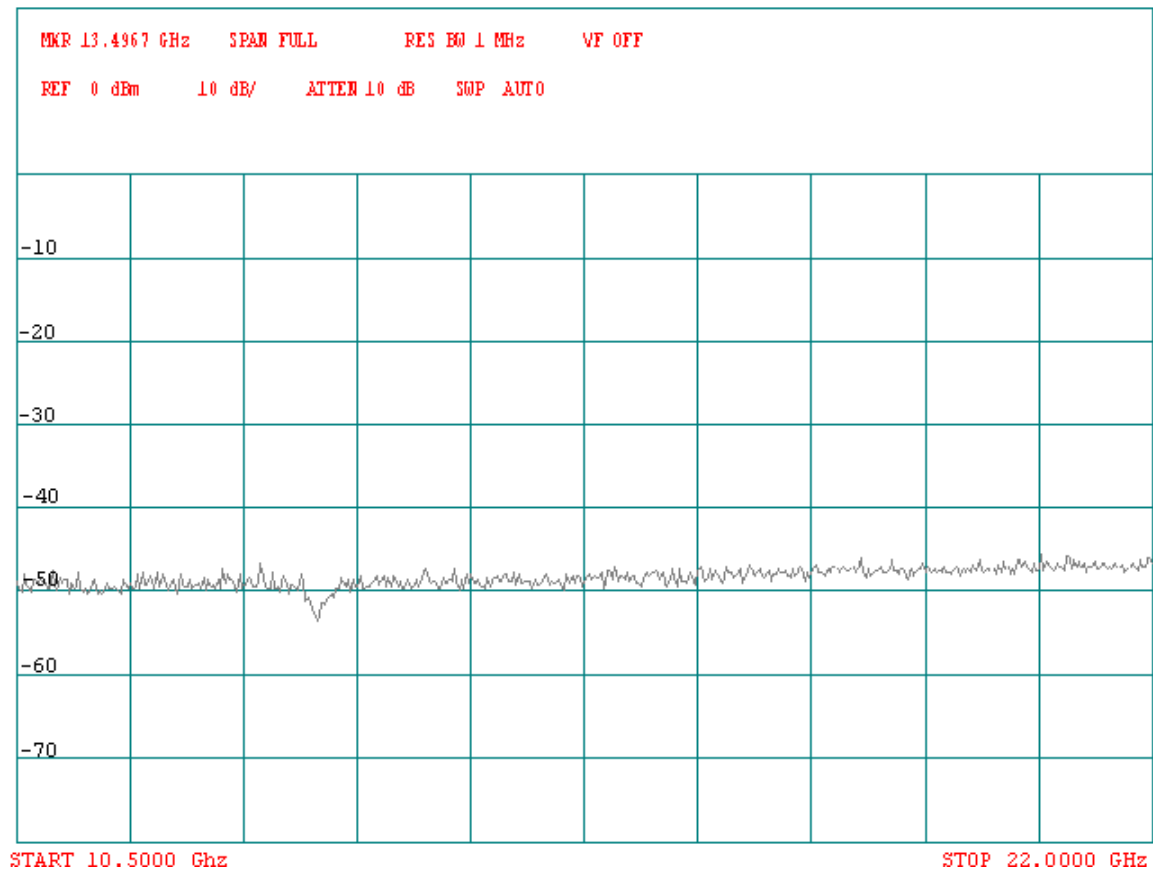
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

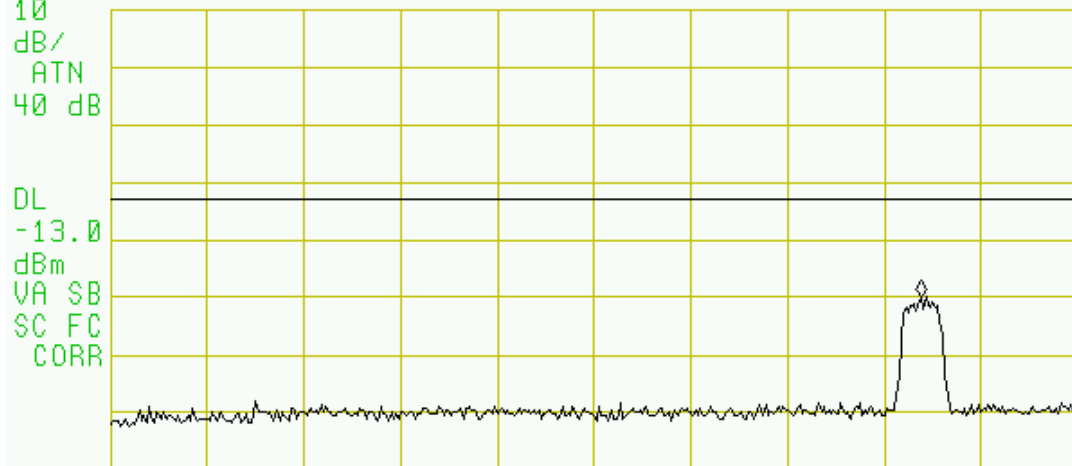
Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS

10:16:49 MAR 28, 2005

DISPLAY LINE
-13.0 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 840.8 MHz
-30.00 dBm

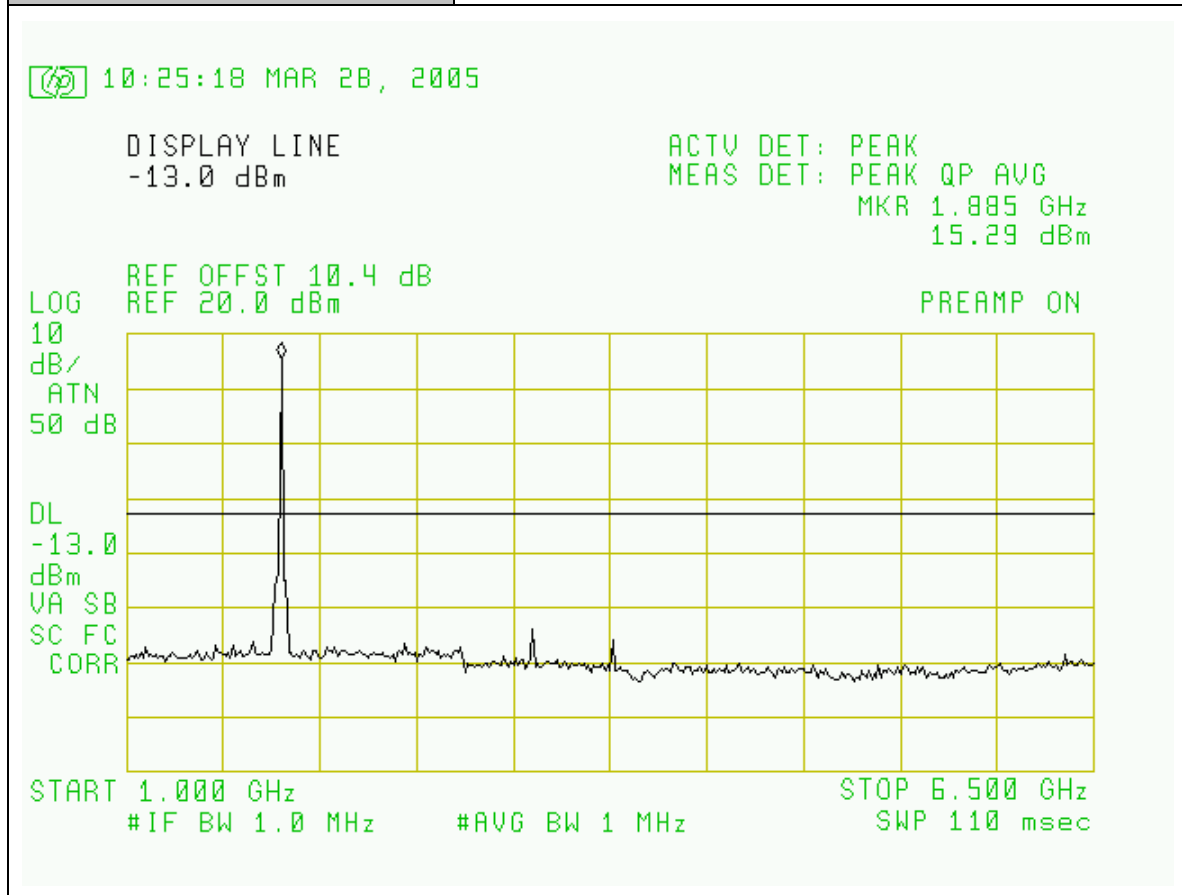
LOG REF OFFST 10.4 dB
10 REF 20.0 dBm
dB/
ATN
40 dB



START 20.0 MHz STOP 1.0000 GHz
#IF BW 100 kHz #AVG BW 100 kHz SWP 294 msec

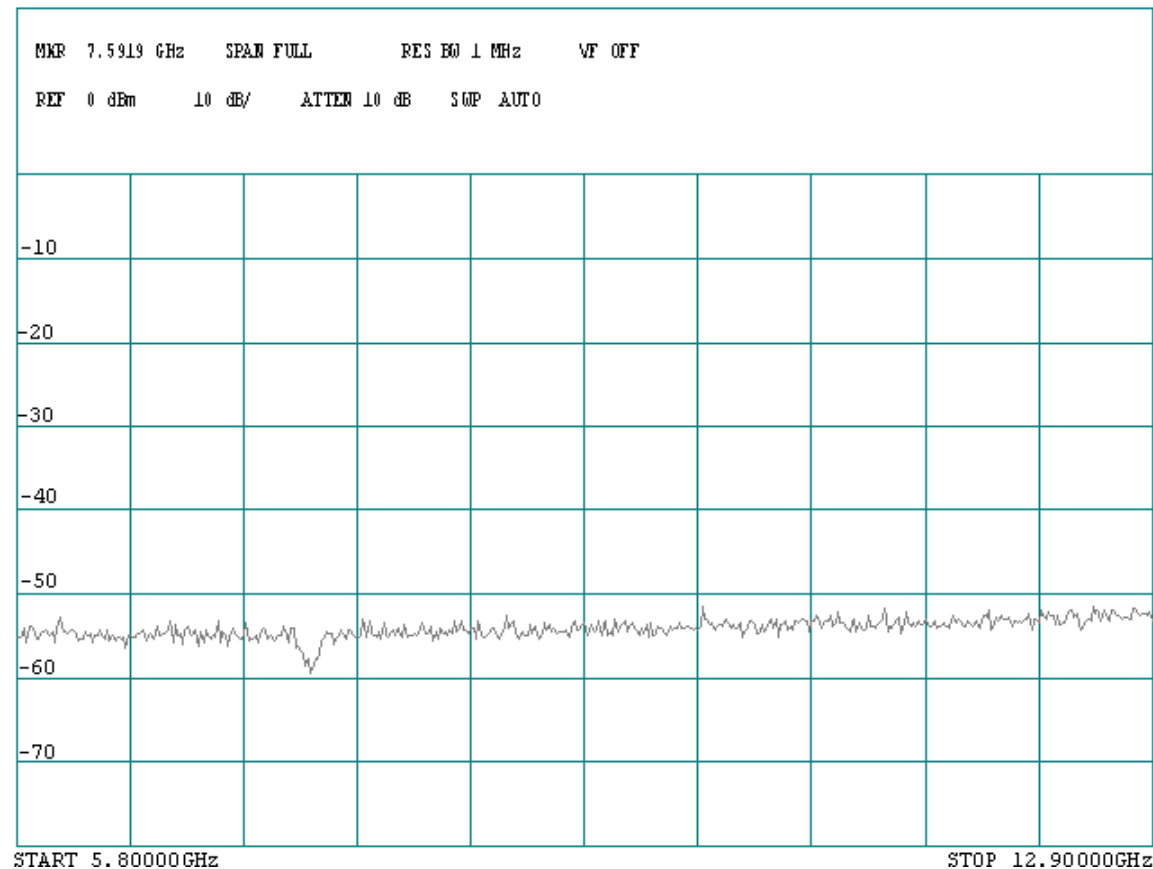
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



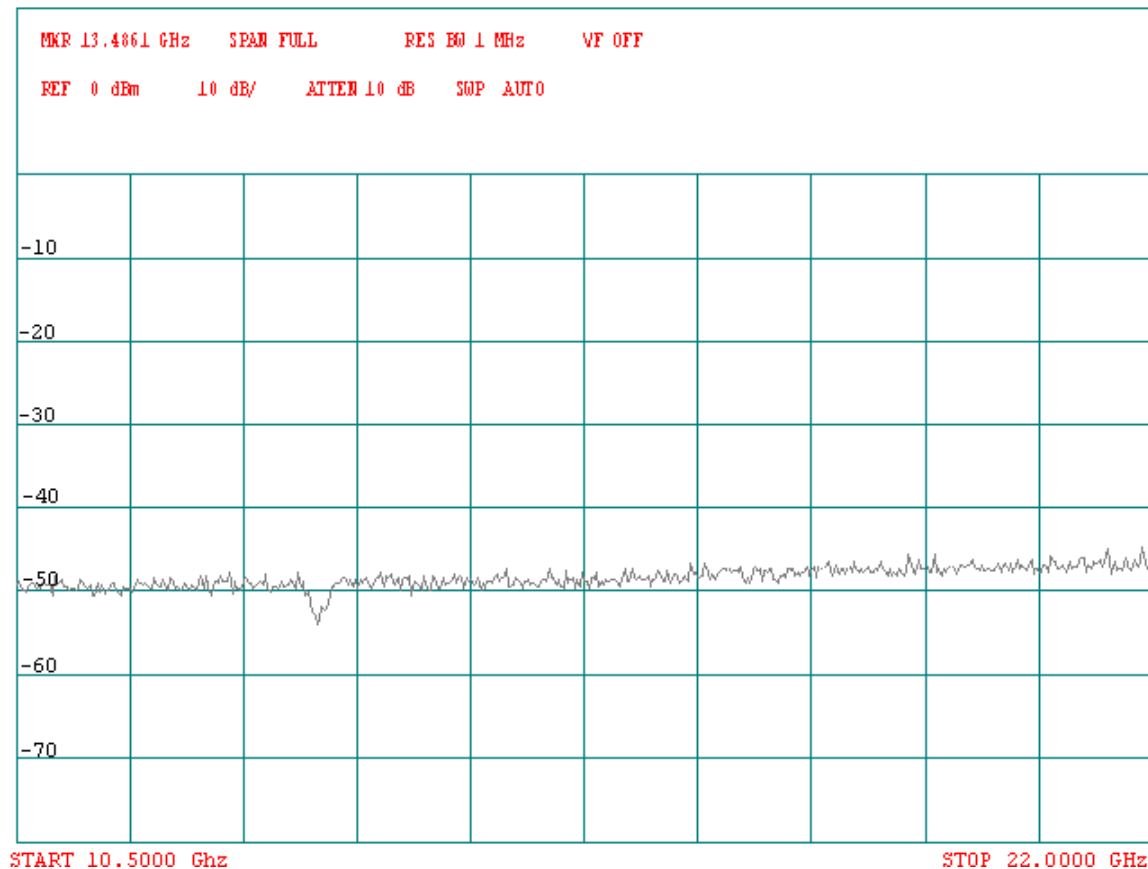
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



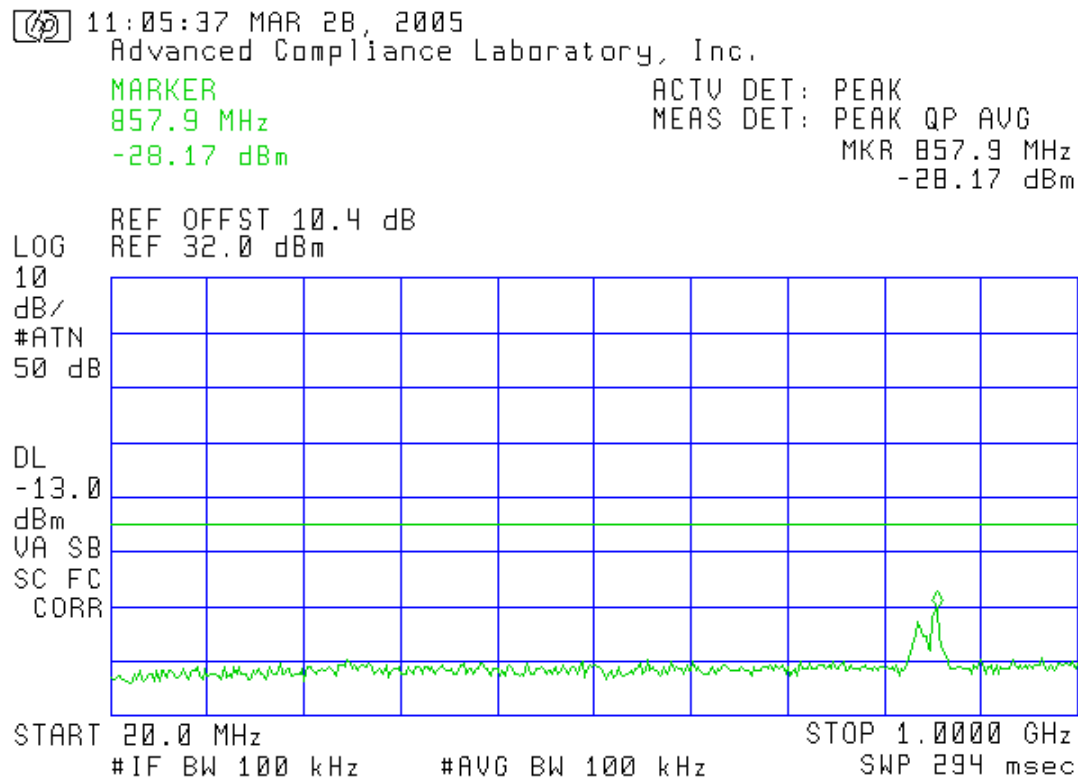
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



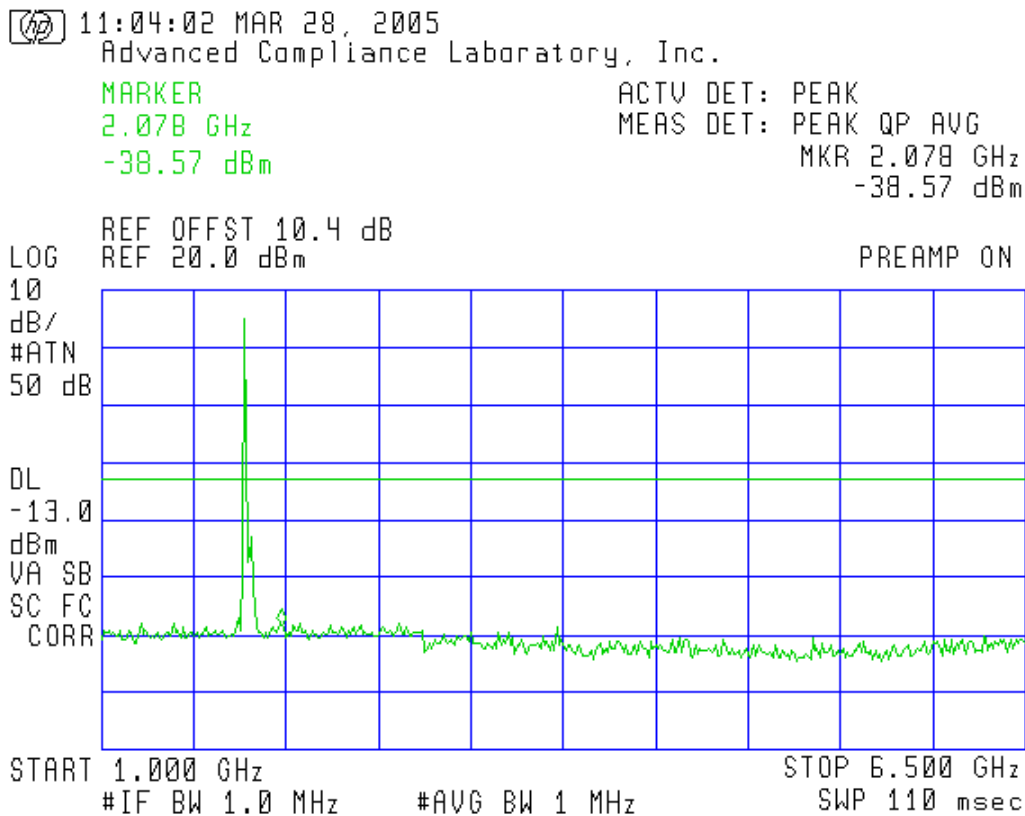
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



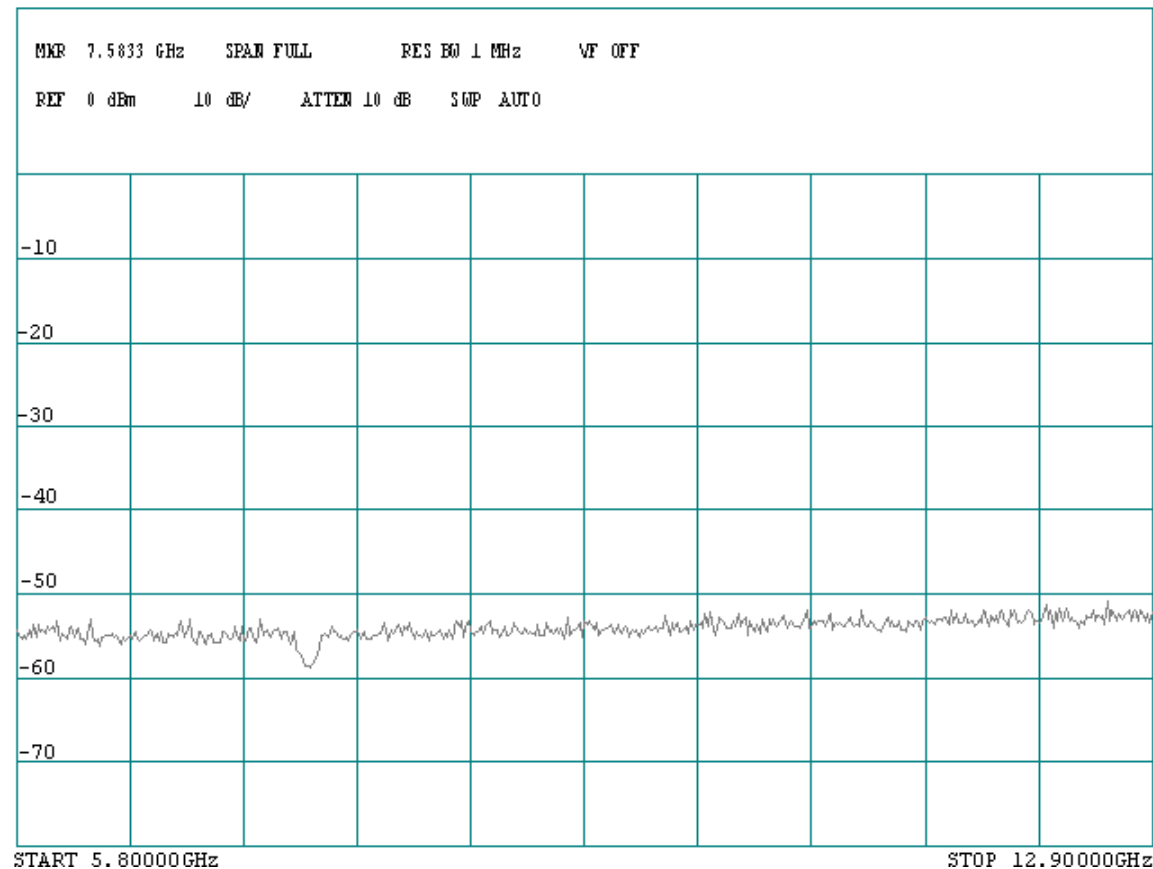
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



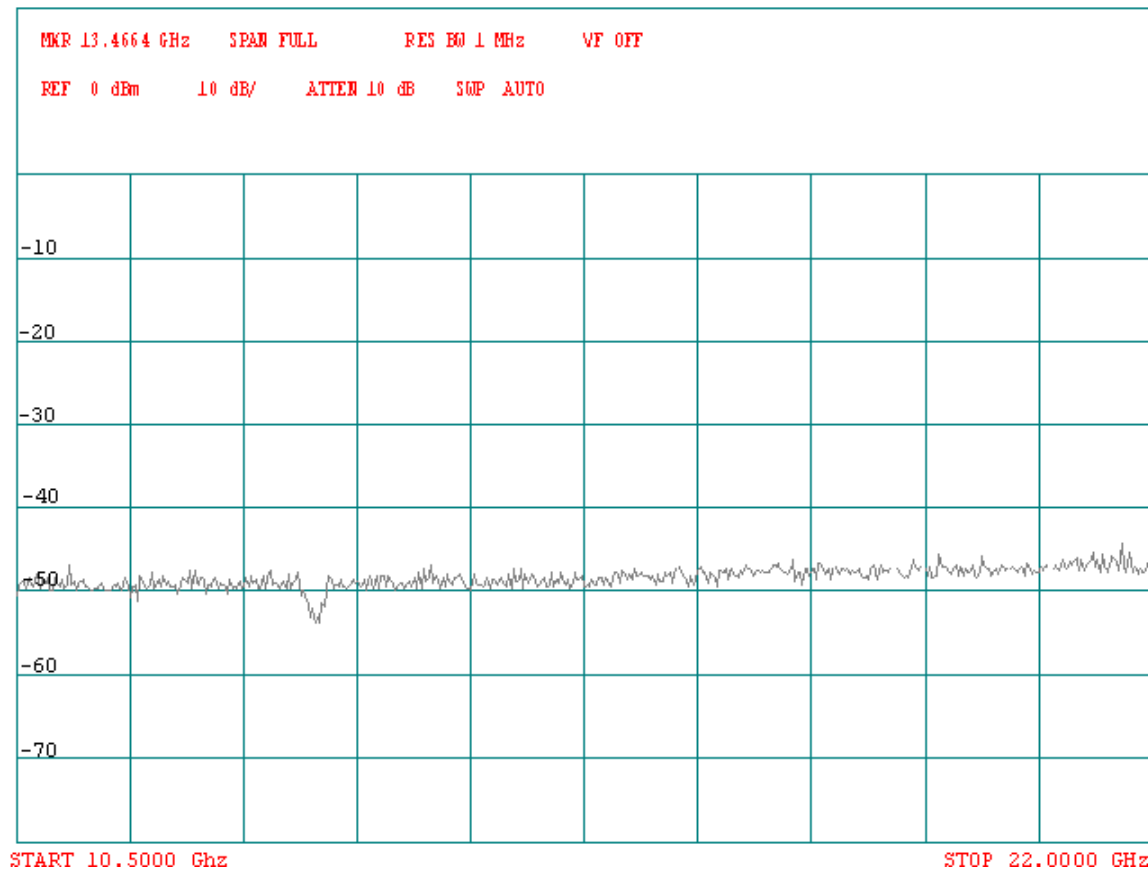
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



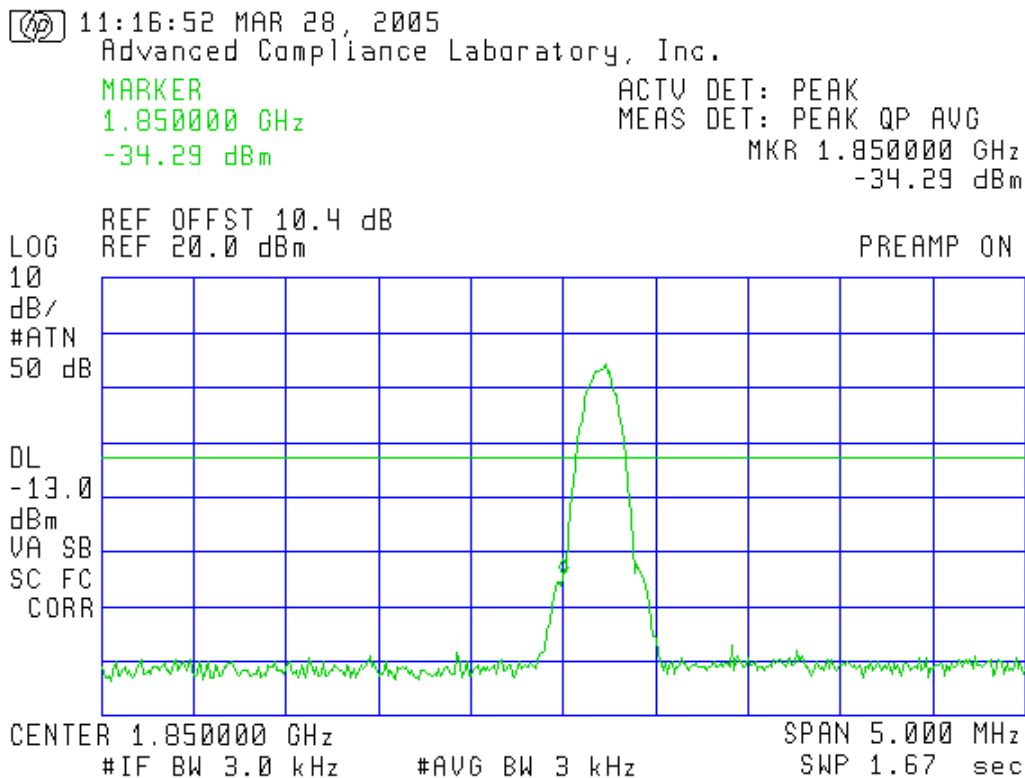
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Uplink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



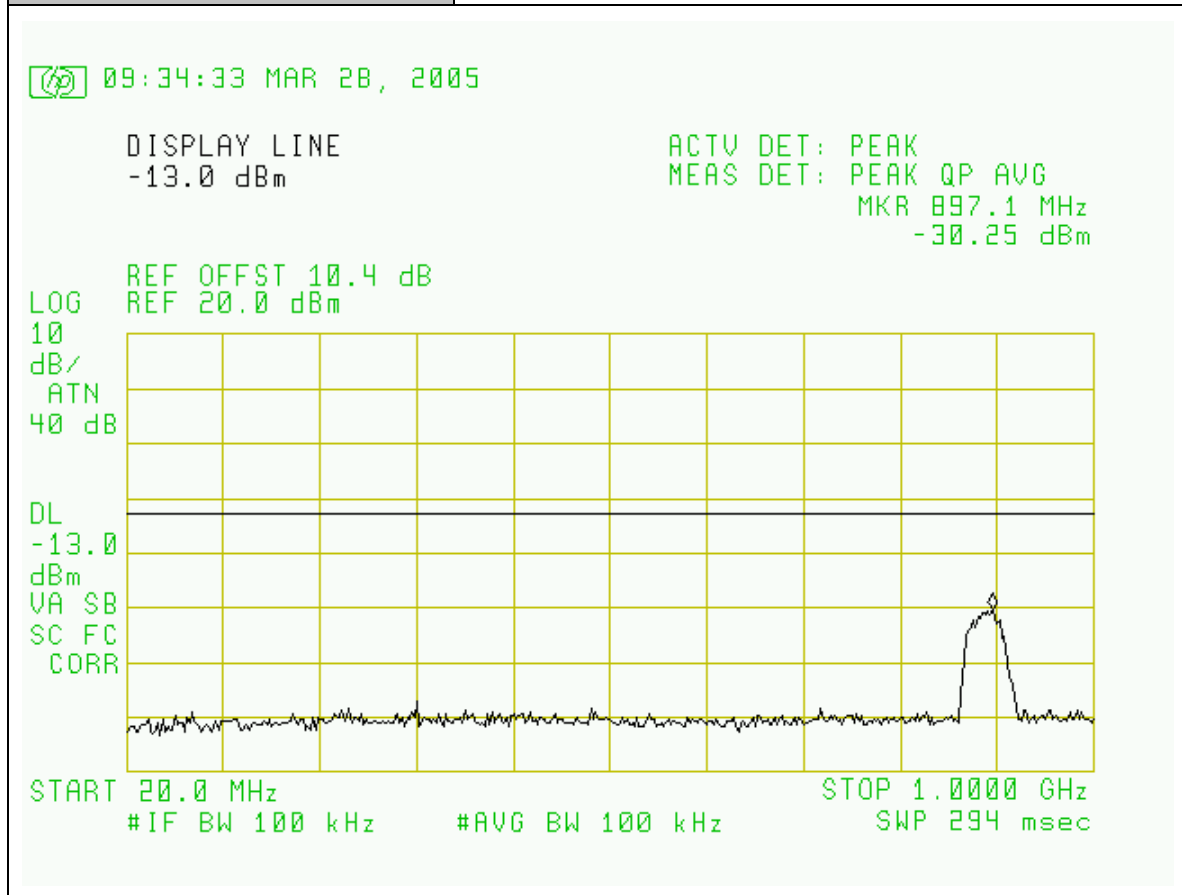
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	UL, Low-Chn, Lower Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT BTS



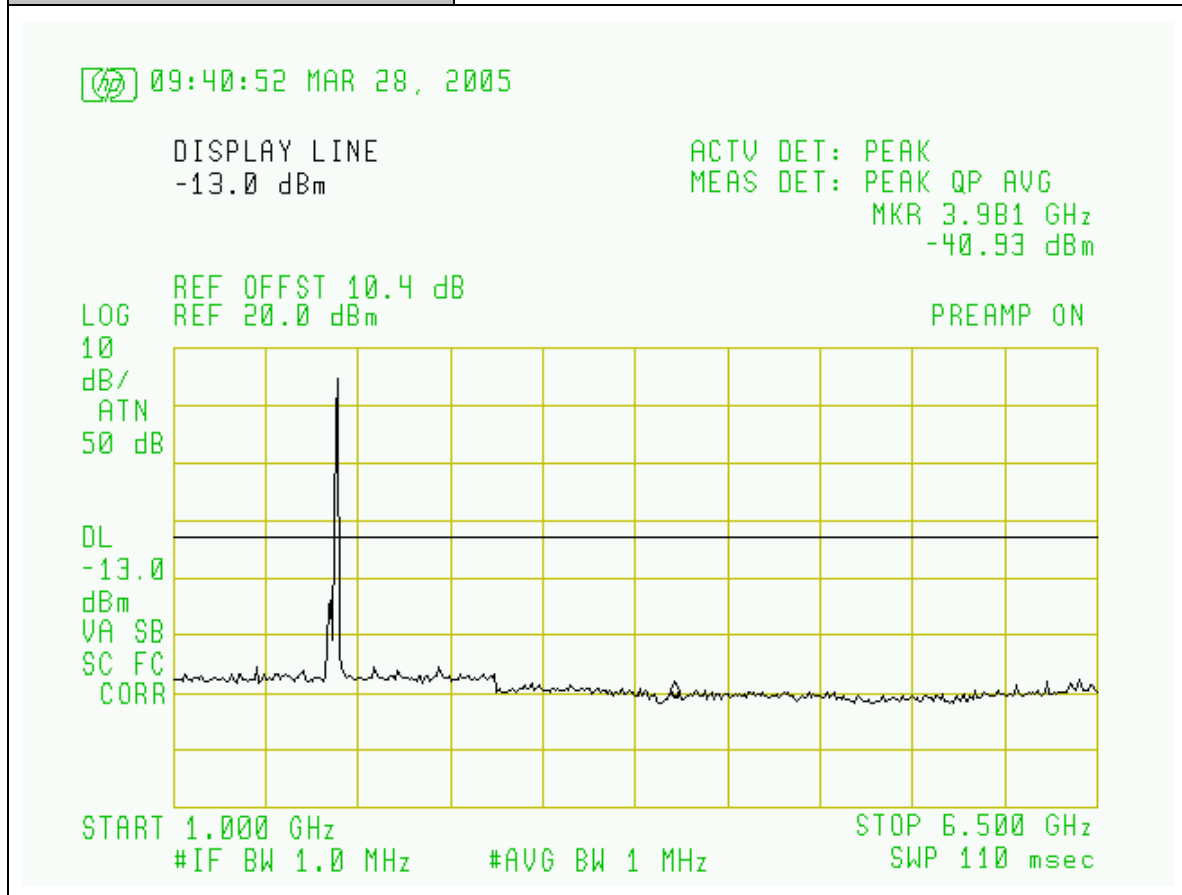
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



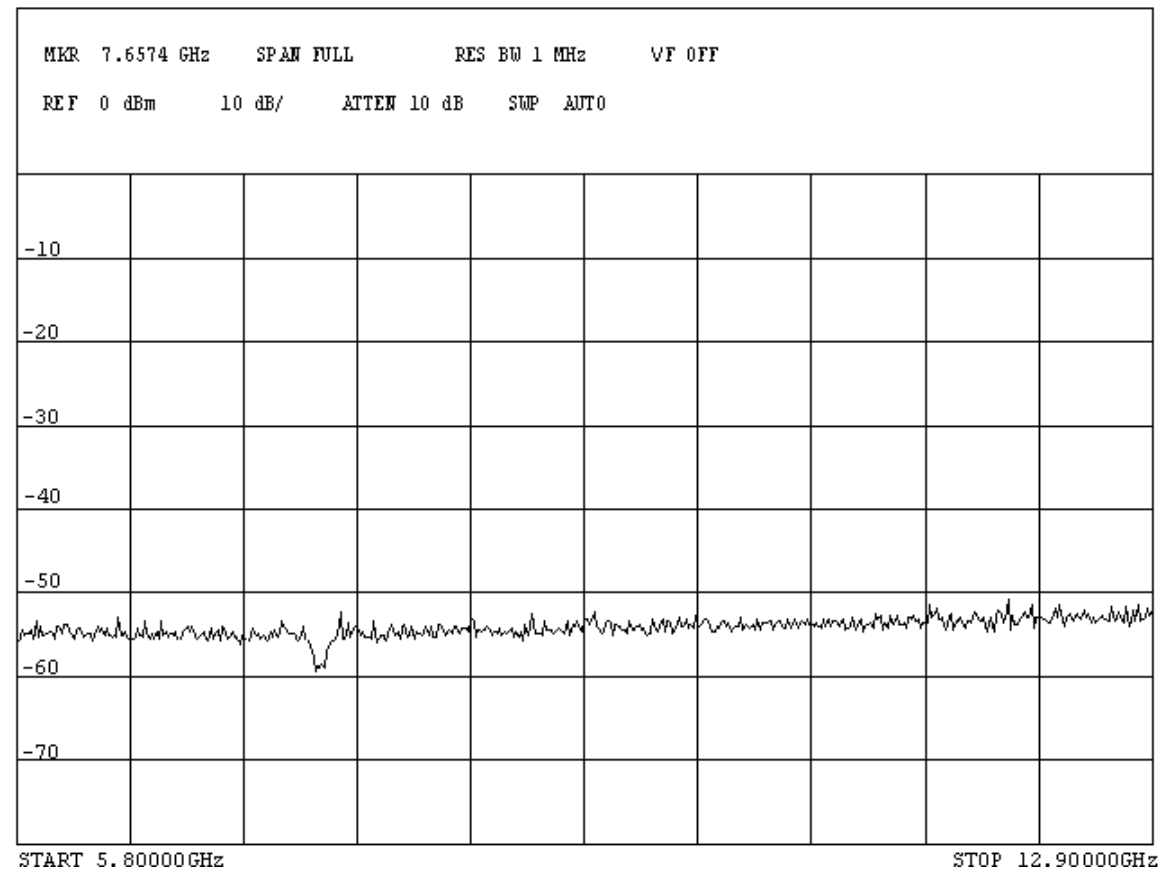
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



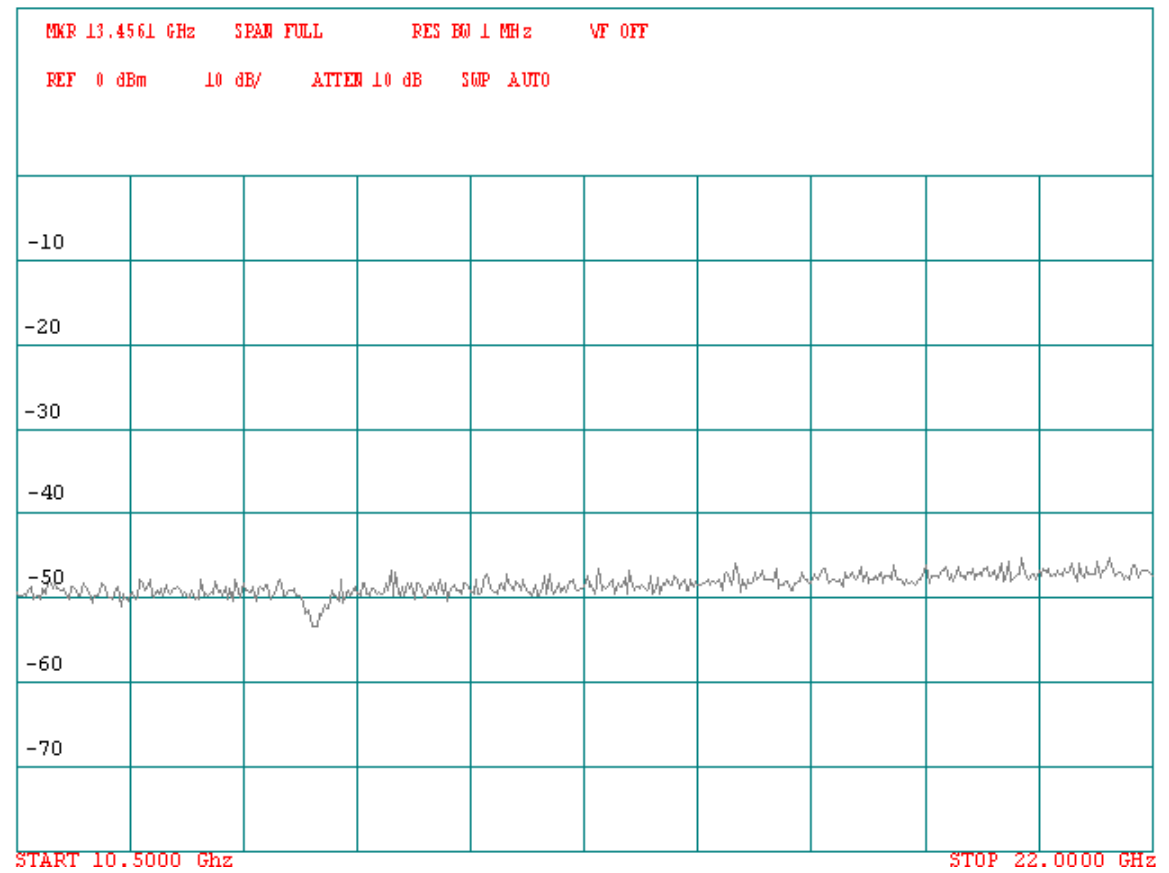
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



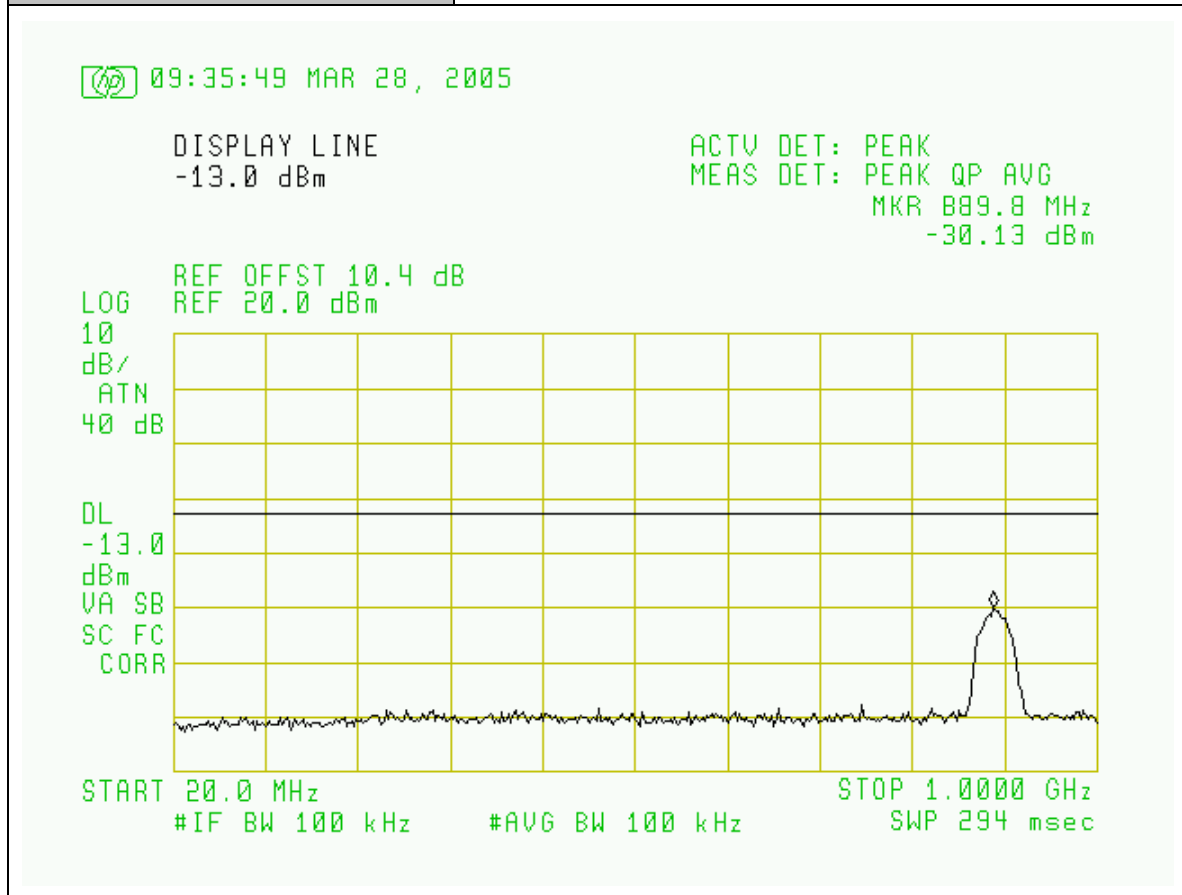
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EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Hi-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



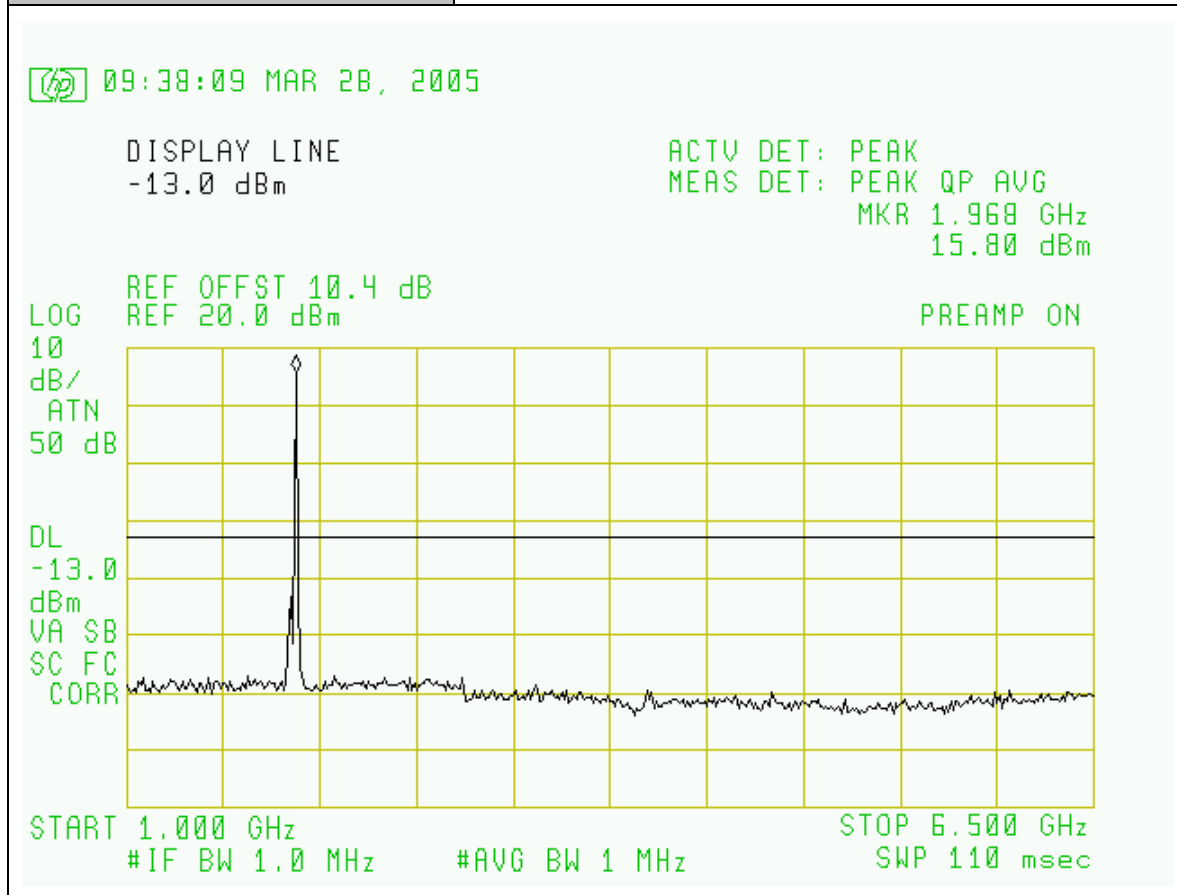
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EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



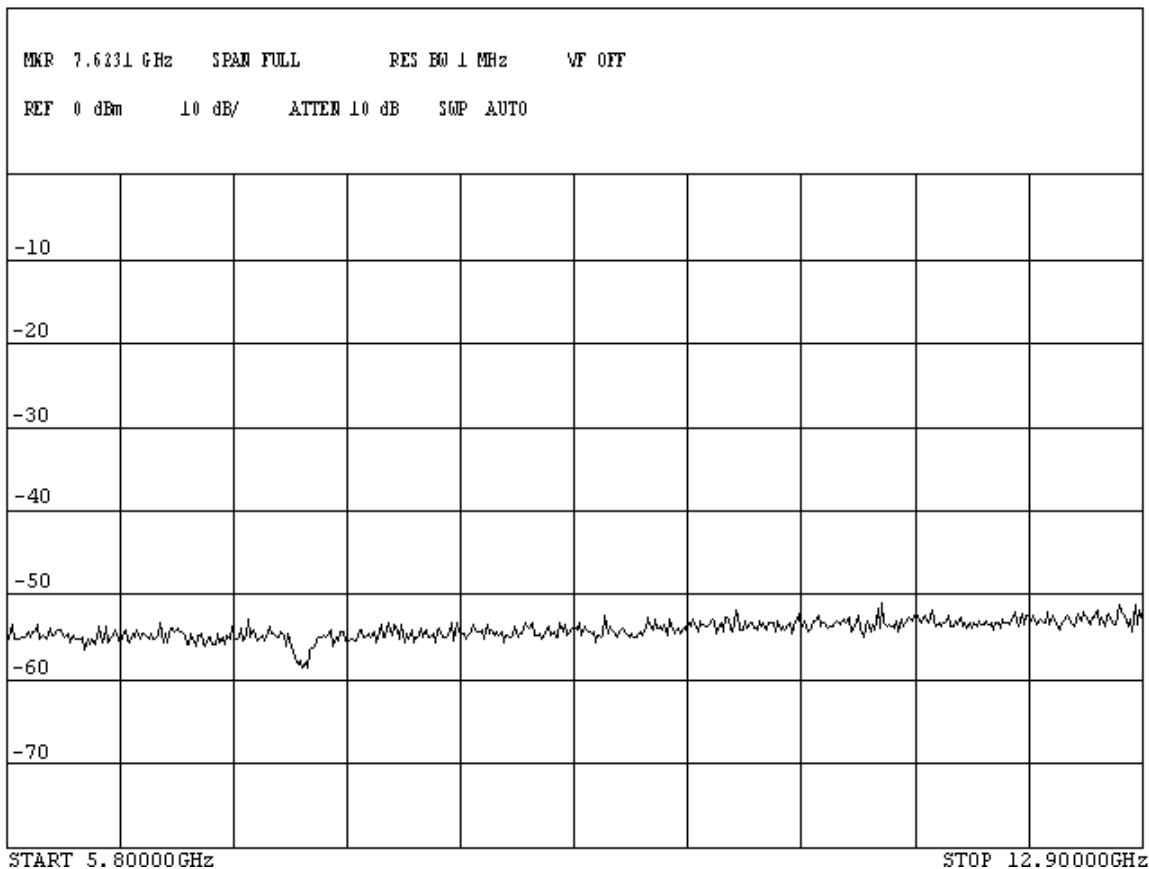
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EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



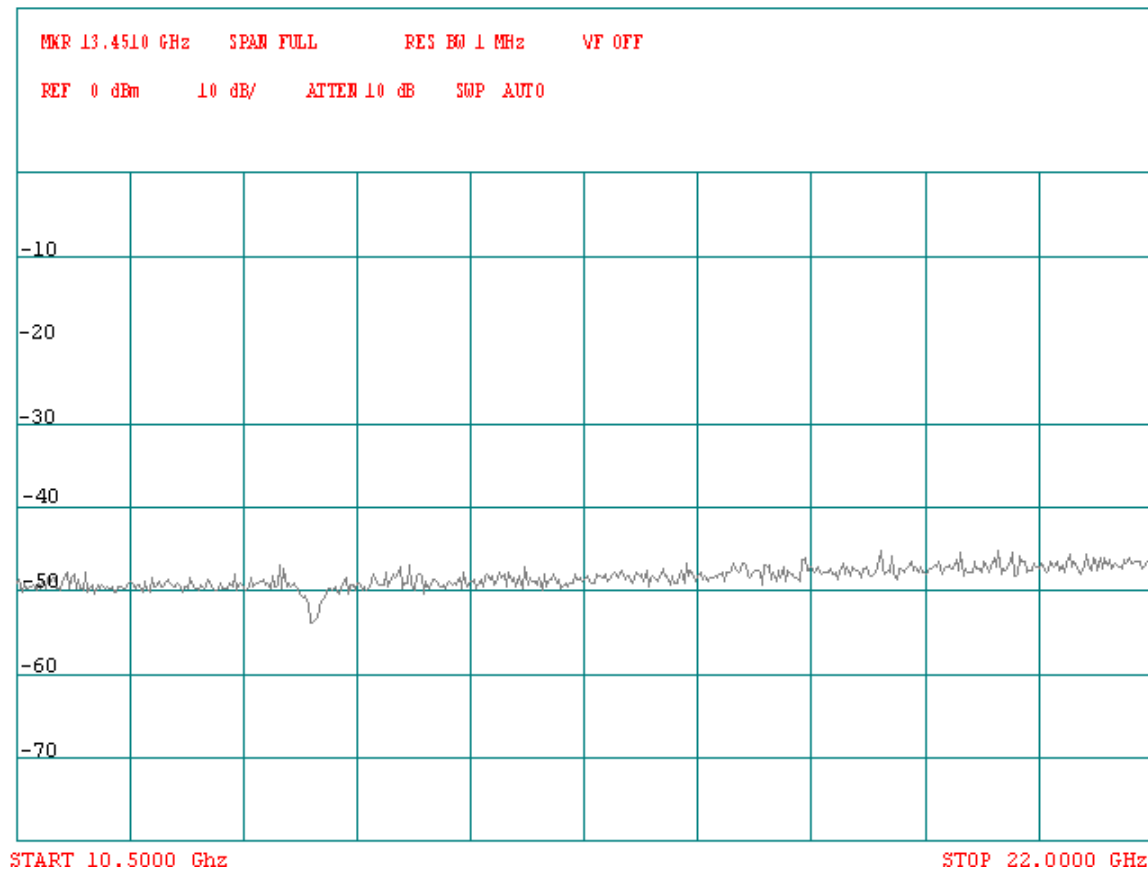
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



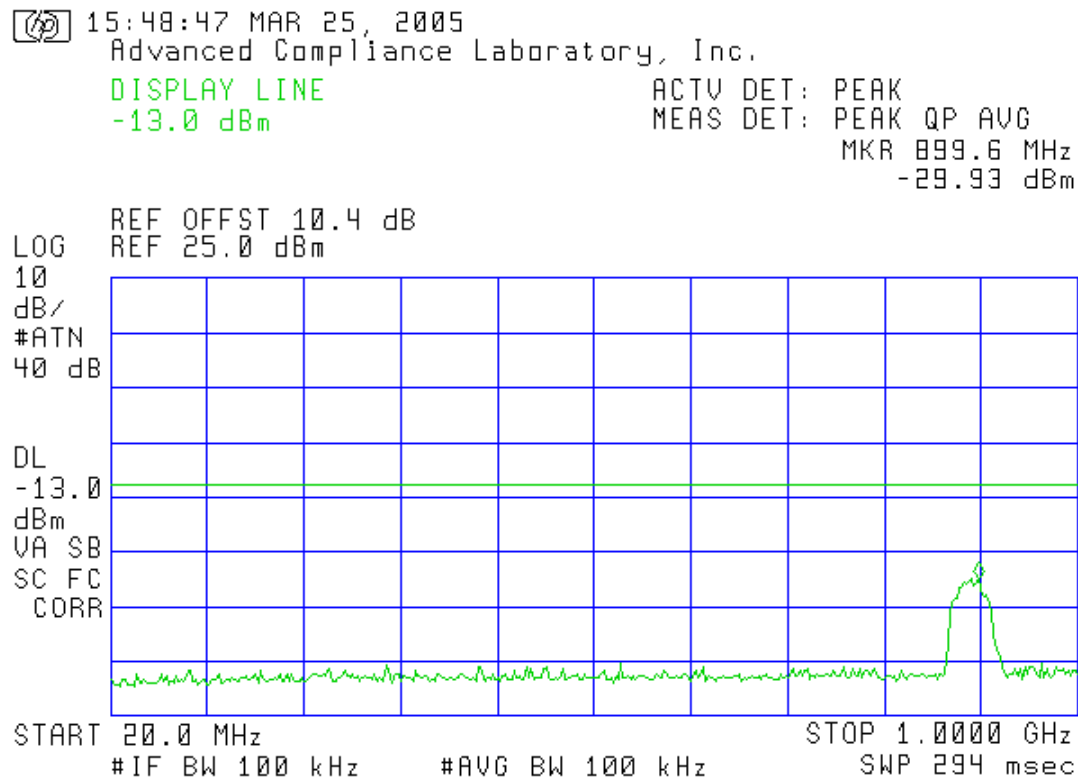
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Mid-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



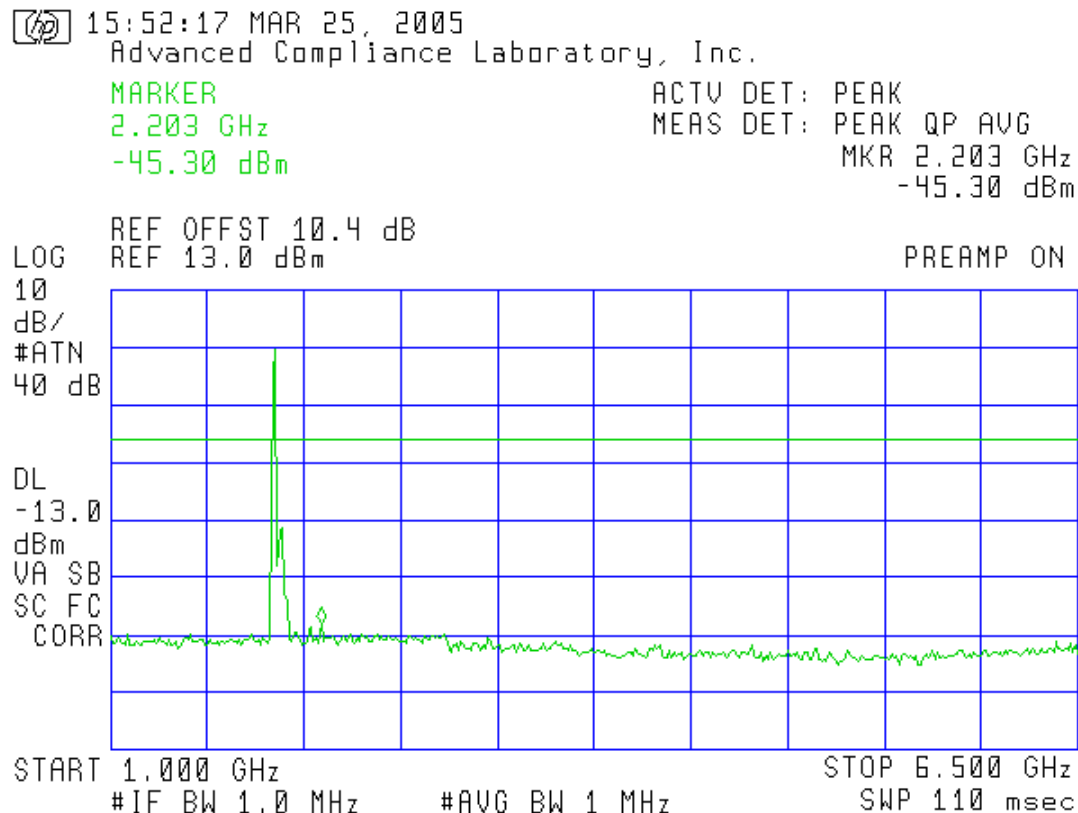
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EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



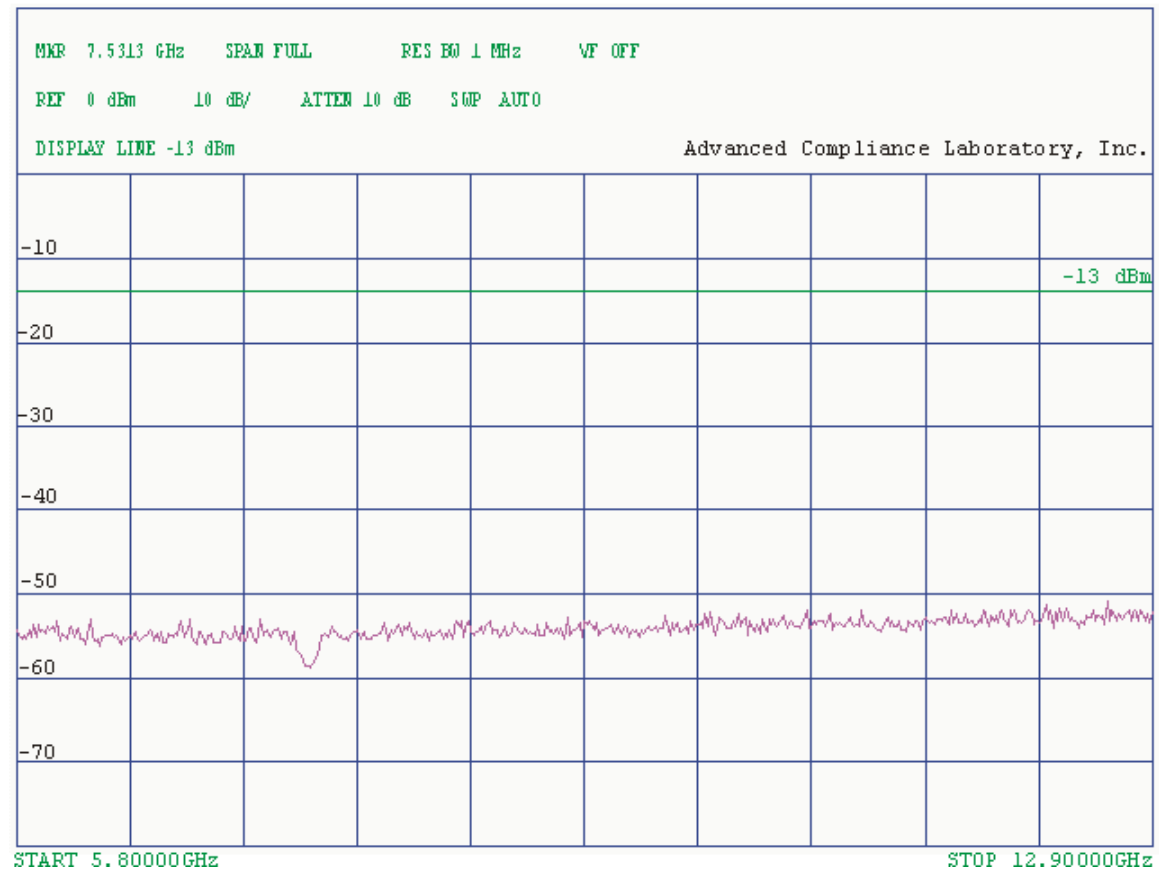
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



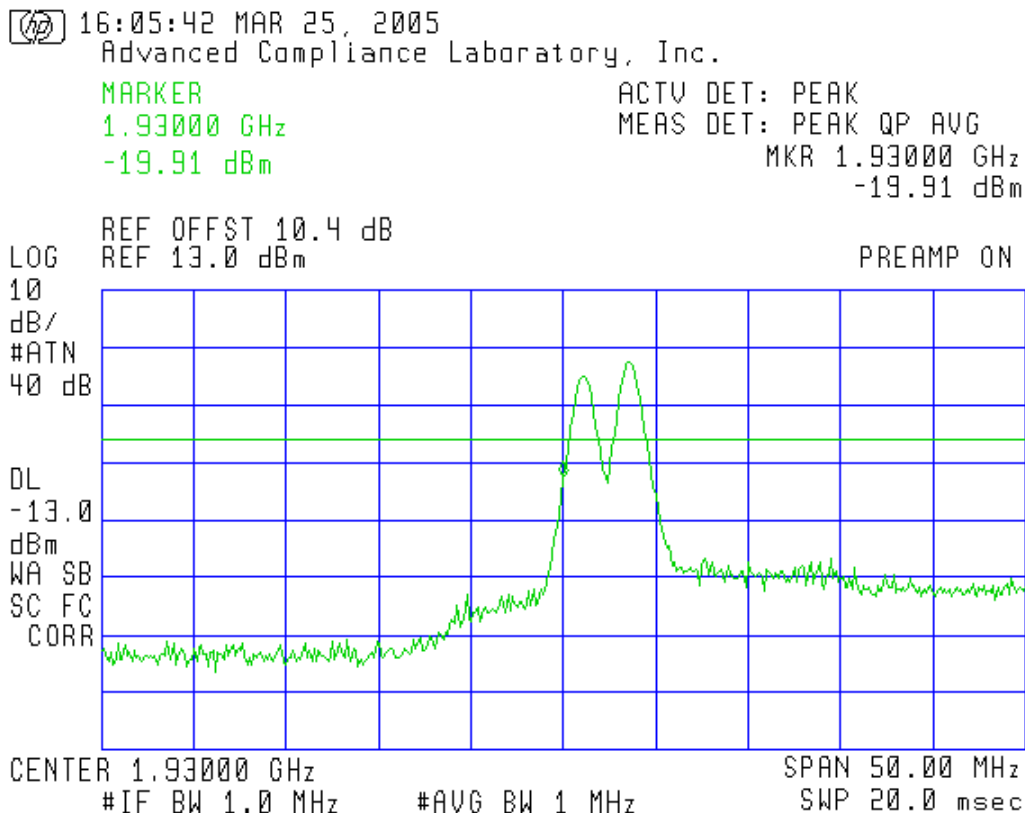
Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Low-Channel
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Tested By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Spurious Emissions at Antenna Terminals: PCS Bands / GSM Modulation
Plot Name:	Downlink, Low-Chn, Intermodulation, Lower Bandedge
Configuration:	SG Input: -50dBm, Output Port: EUT MOBILE



Section 6. Field Strength of Spurious

Name of Test:	<i>Field Strength of Spurious</i>	Test Standard:	<i>22.917</i> <i>24.238</i>
Tested By:	EDWARD LEE	Test Date:	03/28-04/01/2005

Minimum Standard: Para. No. 22.917(e). The mean power of emissions must be attenuated below the mean power of the unmodulated carrier on any frequency twice or more than twice the fundamental emission by at least $43 + 10 \log P$. This is equivalent to -13 dBm absolute power.
Para. No. 24.238(a). The magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under conditions specified in the instruction manual and/or alignment procedure, shall not less than $43 + 10 \log$ (mean output power in watts) dBc below the mean power output outside a licensee's frequency block (-13dBm).

Method of Measurement: TIA/EIA-603-1992, Section 2.2.12
The antenna substitution method was used to determine the equivalent radiated power at spurious frequencies. The spurious emissions were measured at a distance of 3 meters. The EUT was then replaced with a reference substitution antenna with a known gain referenced to a dipole. This antenna was fed with a signal at the spurious frequency. The level of the signal was adjusted to repeat the previously measured level. The resulting ERP is the signal level fed to the reference antenna corrected for gain referenced to a dipole.

Test Result:

Complies

Test Data:

See Attached Table(s)

Configuration	Cellular
Band	Downlink
Channel	Low

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	ERP (dBm)	Limit (dBm)	Margin (dB)
1738.4	V	42.4	-75	1.2	7.0	-71.35	-13	-58.35
2607.6	V	41.9	-77	1.4	9.1	-71.45	-13	-58.45
3476.8	V	37.5	-81	1.7	9.1	-75.75	-13	-62.75
4346	V	38.8*	-80	1.9	10.0	-74.05	-13	-61.05
5215.2	V	40.1*	-80	2.1	10.0	-74.25	-13	-61.25
6084.4	V	41.1*	-79	2.4	11.0	-72.55	-13	-59.55
6953.6	V	41.3*	-79	2.5	10.5	-73.15	-13	-60.15
7822.8	V	41.4*	-79	2.8	10.0	-73.95	-13	-60.95
8692.0	V	41.7*	-78	2.9	10.9	-72.15	-13	-59.15

NOTE:

* Measured noise floor

SA: Spectrum Analyzer

SG: Signal Generator

CL: SMA cable loss (6ft)

Worse case: Vertical

H=horizontal and V=vertical

ERP = SG reading - CL + Gain (dBi)-2.15

Margin = ERP - Limit

Configuration	Cellular
Band	Downlink
Channel	Mid

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	ERP (dBm)	Limit (dBm)	Margin (dB)
1758.4	V	46.6	-70	1.2	7.1	-66.25	-13	-53.25
2637.6	V	40.0	-76	1.4	9.1	-70.45	-13	-57.45
3516.8	V	37.6	-81	1.7	9.2	-75.65	-13	-62.65
4396	V	37.0	-80	1.9	10.5	-73.55	-13	-60.55
5275.2	V	37.7	-79	2.1	10.2	-73.05	-13	-60.05
6154.4	V	40.1	-79	2.4	11.1	-72.45	-13	-59.45
7033.6	V	40.9	-79	2.5	10.6	-73.05	-13	-60.05
7912.8	V	41.5	-79	2.8	10.1	-73.85	-13	-60.85
8792.0	V	41.8	-78	2.9	10.9	-72.15	-13	-59.15

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****ERP** = SG reading - CL + Gain (dBi)-2.15**Margin** = ERP - Limit

Configuration	Cellular
Band	Downlink
Channel	High

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	ERP (dBm)	Limit (dBm)	Margin (dB)
1782.6	V	41.4	-75	1.2	7.3	-71.05	-13	-58.05
2673.9	V	40.1	-76	1.4	9.2	-70.35	-13	-57.35
3565.2	V	36.5	-82	1.7	9.6	-76.25	-13	-63.25
4456.5	V	36.7	-82	1.9	10.5	-75.55	-13	-62.55
5347.8	V	37.5	-81	2.1	10.1	-75.15	-13	-62.15
6239.1	V	40.1	-79	2.4	11.2	-72.35	-13	-59.35
7130.4	V	40.3	-79	2.5	10.7	-72.95	-13	-59.95
8021.7	V	41.3	-79	2.8	10.0	-73.95	-13	-60.95
8913.0	V	41.5	-79	2.9	10.8	-73.25	-13	-60.25

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****ERP** = SG reading - CL + Gain (dBi)-2.15**Margin** = ERP - Limit

Configuration	Cellular
Band	Uplink
Channel	Low

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	ERP (dBm)	Limit (dBm)	Margin (dB)
1648.4	V	38.9	-80	1.2	7.0	-76.35	-13	-63.35
2472.6	V	38.9	-80	1.3	9.0	-74.45	-13	-61.45
3296.8	V	37.3	-81	1.6	9.5	-75.25	-13	-62.25
4121	V	38.6	-81	1.8	9.7	-75.25	-13	-62.25
4945.2	V	38.5	-81	2.0	9.7	-75.45	-13	-62.45
5769.4	V	40.2	-79	2.3	10.5	-72.95	-13	-59.95
6593.6	V	40.4	-79	2.4	11.4	-72.15	-13	-59.15
7417.8	V	40.5	-79	2.7	11.2	-72.65	-13	-59.65
8242.0	V	40.5	-79	2.8	10.0	-73.95	-13	-60.95

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****ERP** = SG reading - CL + Gain (dBi)-2.15**Margin** = ERP - Limit

Configuration	Cellular
Band	Uplink
Channel	Mid

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	ERP (dBm)	Limit (dBm)	Margin (dB)
1668.4	V	40.1	-79	1.2	7.0	-75.35	-13	-62.35
2502.6	V	41.0	-79	1.3	9.0	-73.45	-13	-60.45
3336.8	V	38.9	-80	1.6	9.5	-74.25	-13	-61.25
4171	V	39.0	-80	1.8	9.7	-74.25	-13	-61.25
5005.2	V	40.1	-79	2.0	9.7	-73.45	-13	-60.45
5839.4	V	41.0	-79	2.3	10.5	-72.95	-13	-59.95
6673.6	V	40.9	-79	2.4	11.4	-72.15	-13	-59.15
7507.8	V	41.4	-78	2.7	11.2	-71.65	-13	-58.65
8342.0	V	41.5	-78	2.8	10.0	-72.95	-13	-59.95

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****ERP** = SG reading - CL + Gain (dBi)-2.15**Margin** = ERP - Limit

Configuration	Cellular
Band	Uplink
Channel	High

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	ERP (dBm)	Limit (dBm)	Margin (dB)
1692.6	V	40.8	-79	1.2	7.1	-75.25	-13	-62.25
2538.9	V	41.2	-78	1.3	9.1	-72.35	-13	-59.35
3385.2	V	39.0	-80	1.6	9.6	-74.15	-13	-61.15
4231.5	V	39.4	-80	1.8	9.7	-74.25	-13	-61.25
5077.8	V	40.5	-79	2.0	9.8	-73.35	-13	-60.35
5924.1	V	41.2	-79	2.3	10.6	-72.85	-13	-59.85
6770.4	V	41.4	-79	2.4	11.5	-72.05	-13	-59.05
7616.7	V	41.5	-78	2.7	11.3	-71.55	-13	-58.55
8463.0	V	41.5	-78	2.8	10.1	-72.85	-13	-59.85

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****ERP** = SG reading - CL + Gain (dBi)-2.15**Margin** = ERP - Limit

Configuration	PCS
Band	Downlink
Channel	Low

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
3860.4	V	37.5	-80	1.8	9.6	-72.2	-13	-59.2
5790.6	V	40.7	-79	2.4	10.8	-70.6	-13	-57.6
7736.8	V	41.6*	-78	2.8	10.6	-70.2	-13	-57.2
9671.0	V	42.7*	-77	3.1	10.9	-69.2	-13	-56.2
11605.2	V	43.5*	-78	3.4	12.1	-69.3	-13	-56.3
13539.4	V	44.6*	-78	3.9	12.1	-69.8	-13	-56.8
15473.6	V	46.0*	-77	4.2	14.9	-66.3	-13	-53.3
17407.8	V	47.5*	-72	4.5	10.6	-65.9	-13	-52.9
19342.0	V	48.0*	-71	4.8	8	-67.8	-13	-54.8

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****EIRP** = SG reading - CL + Gain (dBi)**Margin** = EIRP - Limit

Configuration	PCS
Band	Downlink
Channel	Mid

Freq. (MHz)	H,V	SA Reading (dBUV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
3920	V	38.7	-79	1.8	9.6	-71.2	-13	-58.2
5880	V	40.9	-79	2.4	10.8	-70.6	-13	-57.6
7840	V	41.9	-78	2.8	10.6	-70.2	-13	-57.2
9800	V	43.0	-77	3.1	10.9	-69.2	-13	-56.2
11760	V	43.6	-78	3.4	12.1	-69.3	-13	-56.3
13720	V	44.2	-78	3.9	12.1	-69.8	-13	-56.8
15680	V	45.8	-77	4.2	14.9	-66.3	-13	-53.3
17640	V	47.8	-72	4.5	10.6	-65.9	-13	-52.9
19600	V	48.2	-71	4.8	8	-67.8	-13	-54.8

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****EIRP** = SG reading - CL + Gain (dBi)**Margin** = EIRP - Limit

Configuration	PCS
Band	Downlink
Channel	High

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
3979.6	V	39.0	-79	1.8	9.7	-71.1	-13	-58.1
5969.4	V	41.0	-79	2.4	10.9	-70.5	-13	-57.5
7959.2	V	41.8	-78	2.8	10.2	-70.6	-13	-57.6
9949.0	V	43.3	-77	3.1	10.9	-69.2	-13	-56.2
11938.8	V	43.8	-78	3.4	12.0	-69.4	-13	-56.4
13928.6	V	44.0	-78	3.9	11.8	-70.1	-13	-57.1
15918.4	V	46.0	-77	4.2	15.5	-65.7	-13	-52.7
17908.2	V	47.5	-72	4.5	9.8	-66.7	-13	-53.7
19898.0	V	48.0	-71	4.8	7.8	-68	-13	-55

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****EIRP** = SG reading - CL + Gain (dBi)**Margin** = EIRP - Limit

Configuration	PCS
Band	Uplink
Channel	Low

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
3700.4	V	38.0	-80	1.7	9.6	-72.1	-13	-59.1
5550.6	V	40.5	-80	2.3	10.6	-71.7	-13	-58.7
7400.8	V	41.0	-78	2.8	11.3	-69.5	-13	-56.5
9251.0	V	42.0	-78	3.0	11.2	-69.8	-13	-56.8
11101.2	V	43.7	-78	3.3	12.0	-69.3	-13	-56.3
12951.4	V	44.5	-78	3.8	11.9	-69.9	-13	-56.9
14801.6	V	46.2	-78	4.1	12.2	-69.9	-13	-56.9
16651.8	V	47.3	-77	4.4	15.2	-66.2	-13	-53.2
18502.0	V	47.0	-72	4.7	9.0	-67.7	-13	-54.7

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****EIRP** = SG reading - CL + Gain (dBi)**Margin** = EIRP - Limit

Configuration	PCS
Band	Uplink
Channel	Mid

Freq. (MHz)	H,V	SA Reading (dBuV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
3760.0	V	38.2	-80	1.7	9.6	-72.1	-13	-59.1
5640.0	V	40.7	-80	2.3	10.6	-71.7	-13	-58.7
7520.0	V	41.2	-78	2.8	11.4	-69.4	-13	-56.4
9400.0	V	42.5	-78	3.0	11.2	-69.8	-13	-56.8
11280.0	V	43.9	-78	3.3	11.9	-69.4	-13	-56.4
13160.0	V	44.8	-78	3.8	12.0	-69.8	-13	-56.8
15040.0	V	46.5	-77	4.1	12.4	-68.7	-13	-55.7
16920.0	V	47.5	-76	4.4	14.0	-66.4	-13	-53.4
18800.0	V	47.7	-71	4.7	8.7	-67	-13	-54

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****EIRP** = SG reading - CL + Gain (dBi)**Margin** = EIRP - Limit

Configuration	PCS
Band	Uplink
Channel	High

Freq. (MHz)	H,V	SA Reading (dBUV)	SG Reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)
3819.6	V	39.0	-79	1.7	9.6	-71.1	-13	-58.1
5729.4	V	41.0	-79	2.3	10.7	-70.6	-13	-57.6
7639.2	V	41.5	-78	2.8	11.2	-69.6	-13	-56.6
9549.0	V	42.7	-78	3.0	11.2	-69.8	-13	-56.8
11458.8	V	44.0	-78	3.3	11.8	-69.5	-13	-56.5
13368.6	V	45.2	-78	3.8	12.0	-69.8	-13	-56.8
15278.4	V	46.5	-77	4.1	13.1	-68	-13	-55
17188.2	V	47.3	-76	4.4	13.2	-67.2	-13	-54.2
19098.0	V	47.9	-70	4.7	8.0	-66.7	-13	-53.7

NOTE:* **Measured noise floor****SA:** Spectrum Analyzer**SG:** Signal Generator**CL:** SMA cable loss (6ft)**Worse case: Vertical****H=horizontal and V=vertical****EIRP** = SG reading - CL + Gain (dBi)**Margin** = EIRP - Limit

Section 7. Frequency Stability

Name of Test:	<i>Frequency Stability</i>	Test Standard:	<i>2.1055 22.355&24.235</i>
Tested By:	WEI LI	Test Date:	03/28-04/05/2005

Minimum Standard: Para. No. 22.355. The transmitter carrier frequency shall remain within the tolerances given in Table C-1.

TABLE C-1.—FREQUENCY TOLERANCE FOR TRANSMITTERS IN THE PUBLIC MOBILE SERVICES

Frequency range (MHz)	Base, fixed (ppm)	Mobile ≤3 watts (ppm)	Mobile ≤3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929	5.0	n/a	n/a
929 to 960	1.5	n/a	n/a
2110 to 2220	10.0	n/a	n/a

Para No. 24.235. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Method of Measurement: Frequency Stability With Voltage Variation:
The E.U.T. is placed in an environmental chamber and allowed to stabilize at +20 degrees Celsius for at least 15 minutes. Set SA resolution bandwidth low enough (30Hz) to obtain the desired frequency resolution. (Using frequency counter method: The frequency counter and signal generator are phase locked with the same 10 MHz reference frequency by connecting the 10 MHz ref. out of the counter to the 10MHz ref, in of the signal generator). With the voltage input to the E.U.T. set to 85% S.T.V., the frequency is measured in 30 second intervals for a period of 5 minutes. This procedure is repeated at 100% S.T.V. and 115% S.T.V.

Frequency Stability With Temperature Variation:
The input voltage to the E.U.T. is set to S.T.V. and the temperature of the environmental chamber is varied in 10 degree steps from -30 degrees C to +50 degrees C. The E.U.T. is allowed to stabilize at each temperature and the frequency is measured in 30 second intervals for a period of 5 minutes.

Test Result:

Complies

Test Data:

See Attached Table(s)

Cellular Bands

Frequency Stability versus Environmental Temperature

Reference Frequency @ 115V & +20°C: Uplink: <u>834.398820</u> MHz, Downlink: <u>879.398756</u> MHz		
Temperature & Direction (°C)	Frequency (MHz)	Deviation (Hz)
-30 Up Link	-	
-30 Down Link	-	
-20 Up Link	-	
-20 Down Link	_*	
-10 Up Link	834.398746	-74
-10 Down Link	879.398669	-87
0 Up Link	834.398769	-51
0 Down Link	879.398701	-55
+10 Up Link	834.398794	-36
+10 Down Link	879.398727	-29
+20 Up Link	834.398820	0
+20 Down Link	879.398756	0
+30 Up Link	834.398836	+16
+30 Down Link	879.398775	+19
+40 Up Link	834.398850	+30
+40 Down Link	879.398789	+33
+50 Up Link	834.398868	+48
+50 Down Link	879.398822	+66

Frequency Stability versus AC Voltage (EUT +20°C operating frequency as reference)

Reference Frequency @ 115VAC & +20°C: Uplink: <u>834.398820</u> MHz, Downlink: <u>879.398756</u> MHz		
Voltage & Direction (VAC)	Frequency (MHz)	Deviation (Hz)
95Up Link	834.398797	-23
95Down Link	879.398732	-24
133Up Link	834.398801	-19
133Down Link	879.398740	-16

* EUT operation frequency range is -5°C ~55°C declared by manufacturer.

PCS BandsFrequency Stability versus Environmental Temperature

Reference Frequency @ 115V & +20°C: Uplink: <u>1.859997381</u> GHz, Downlink: <u>1.939997128</u> GHz		
Temperature & Direction (°C)	Frequency (GHz)	Deviation (Hz)
-30 Up Link	-	
-30 Down Link	-	
-20 Up Link	-	
-20 Down Link	_*	
-10 Up Link	1.859997137	-245
-10 Down Link	1.939996900	-228
0 Up Link	1.859997177	-204
0 Down Link	1.939996937	-191
+10 Up Link	1.859997282	-99
+10 Down Link	1.939997045	-83
+20 Up Link	1.859997381	0
+20 Down Link	1.939997128	0
+30 Up Link	1.859997472	+91
+30 Down Link	1.939997193	+65
+40 Up Link	1.859997573	+192
+40 Down Link	1.939997295	+167
+50 Up Link	1.859997593	+212
+50 Down Link	1.939997358	+230

Frequency Stability versus AC Voltage (EUT +20°C operating frequency as reference)

Reference Frequency @ 115VAC & +20°C: Uplink: <u>1.859997381</u> GHz, Downlink: <u>1.939997128</u> GHz		
Voltage & Direction (VAC)	Frequency (GHz)	Deviation (Hz)
95Up Link	1.859997296	-85
95Down Link	1.939997146	+18
133Up Link	1.859997317	-64
133Down Link	1.939997154	+26

* EUT operation frequency range is -5°C ~55°C declared by manufacturer.

Section 8. Out of Band Rejection

Name of Test:	<i>Out of Band Rejection</i>	Test Standard:	
Tested By:	Edward Lee	Test Date:	03/28-04/06/2005

Minimum Standard: The passband gain shall not exceed the nominal gain by more than 1.0 dB. The 20 dB bandwidth shall not exceed the nominal bandwidth that is stated by the manufacturer. Outside of the 20 dB bandwidth, the gain shall not exceed the gain at the 20 dB point.

Method of Measurement: Adjust the internal gain control of the equipment under test to the nominal gain for which equipment certification is sought. With the aid of a signal generator and spectrum analyzer, measure the 20 dB bandwidth of the amplifier (i.e. at the point where the gain has fallen by 20 dB). Measure the gain-versus-frequency response of the amplifier from the midband frequency f_0 of the passband up to at least $f_0 \pm 250\%$ of the 20 dB bandwidth.

Test Result: **Complies**

Test Data: See Attached Table(s)

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	800 Cellular Uplink Lower Band-5MHz Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm

18:16:55 APR 06, 2005

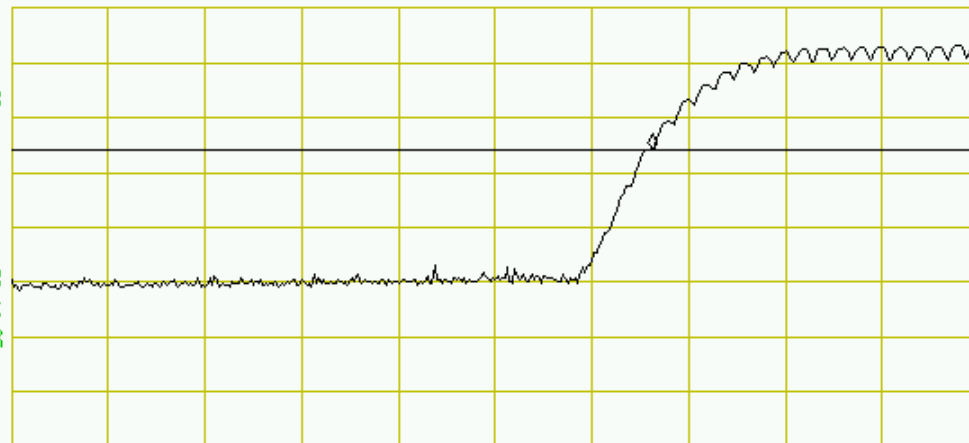
MARKER
823.313 MHz
-16.12 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 823.313 MHz
-16.12 dBm

REF OFFST 10.0 dB
REF 10.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-16.1
dBm
MA SB
SC FC
CORR



START 820.000 MHz

#IF BW 100 kHz

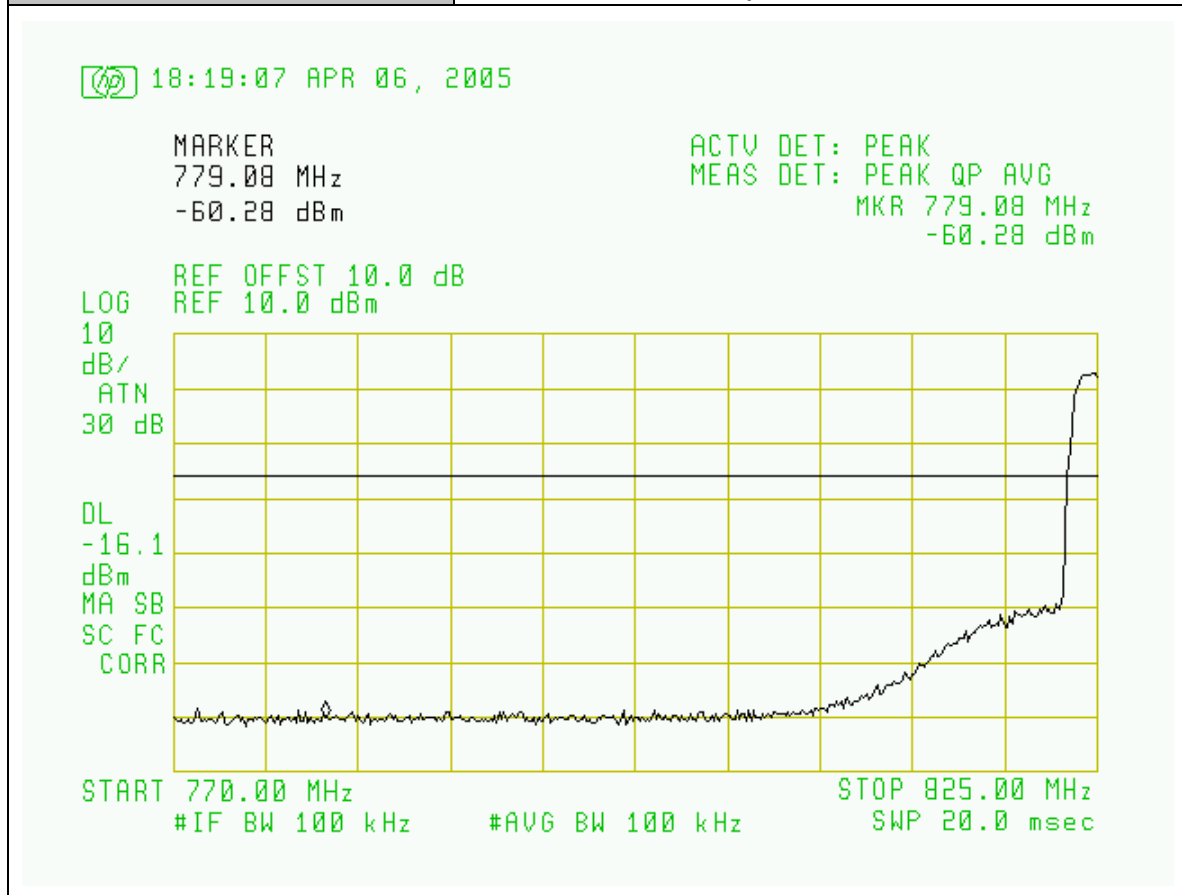
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STOP 825.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	800 Cellular Uplink Lower Band-250% Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	800 Cellular Downlink Lower Band-5MHz Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm

17:23:21 APR 06, 2005

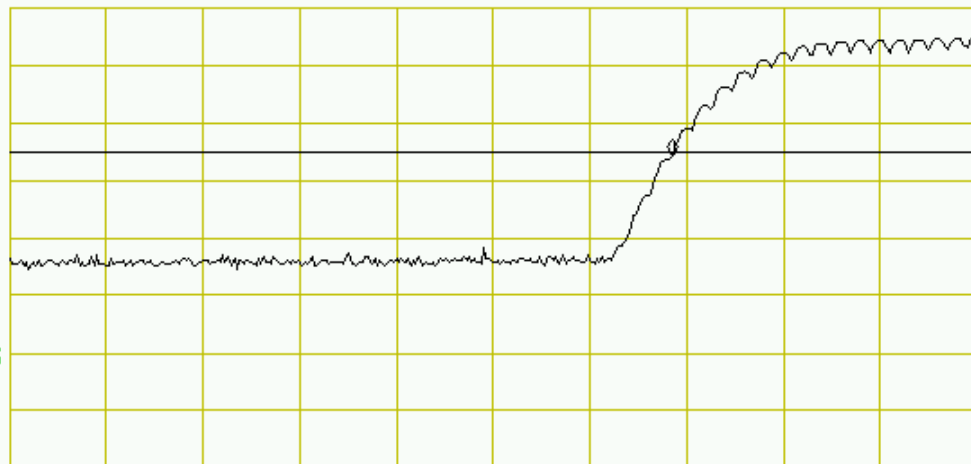
MARKER
868.425 MHz
-15.62 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 868.425 MHz
-15.62 dBm

REF OFFST 10.0 dB
REF 10.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-15.1
dBm
VA SB
SC FC
CORR



START 865.000 MHz

#IF BW 100 kHz

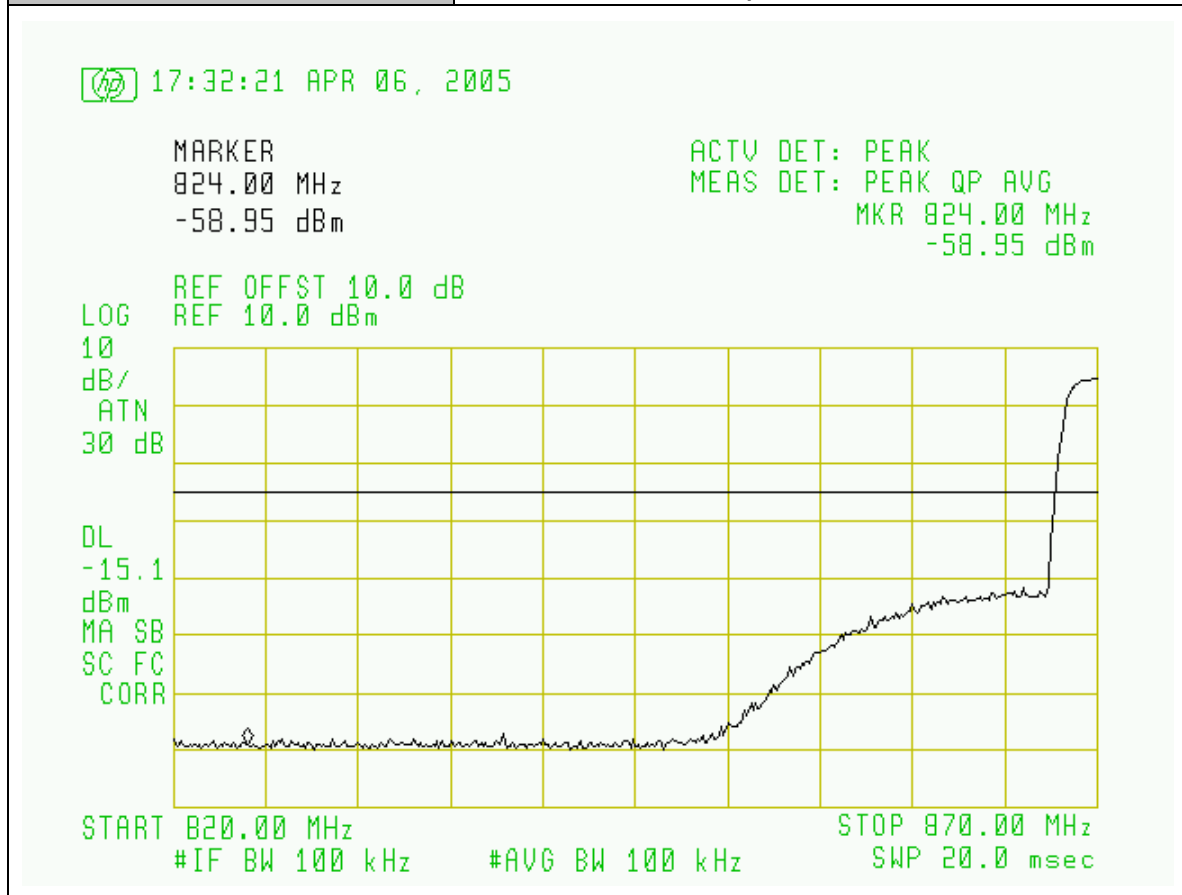
#AVG BW 100 kHz

STOP 870.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	800 Cellular Downlink Lower Band-250% Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70°F
Humidity:	30%

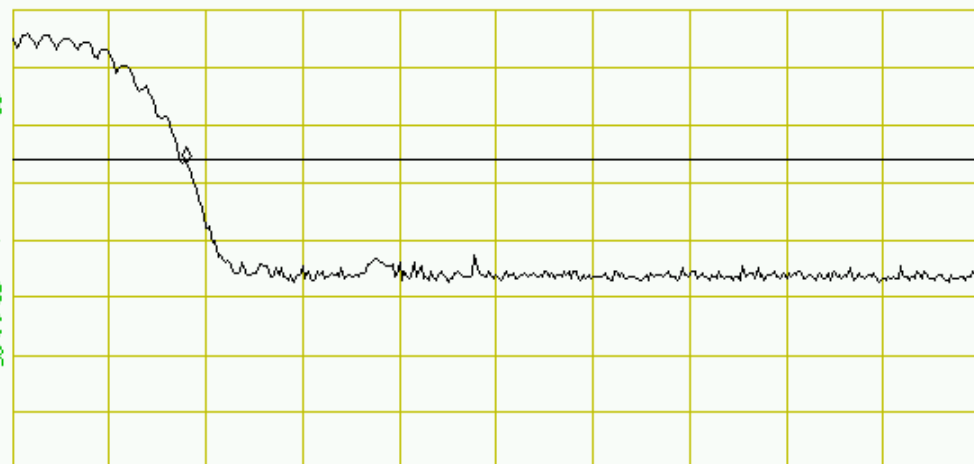
Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	800 Cellular Uplink Upper Band-5MHz Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm

18:22:09 APR 06, 2005

MARKER
846.900 MHz
-16.76 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 846.900 MHz
-16.76 dBm

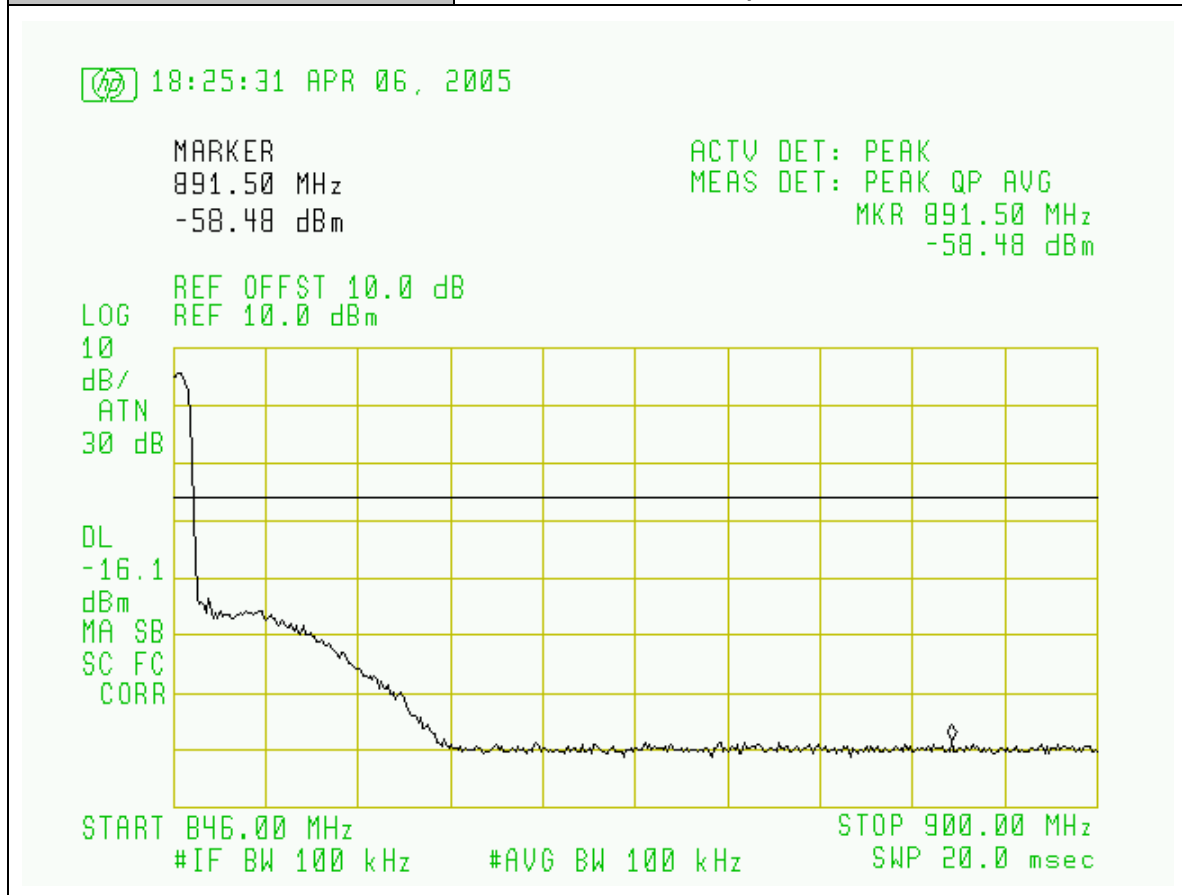
LOG
10
dB/
ATN
30 dB
DL
-16.1
dBm
MA SB
SC FC
CORR



START 846.000 MHz STOP 851.000 MHz
#IF BW 100 kHz #AVG BW 100 kHz SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	800 Cellular Uplink Upper Band-250% Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	800 Cellular Downlink Upper Band-5MHz Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm

17:37:28 APR 06, 2005

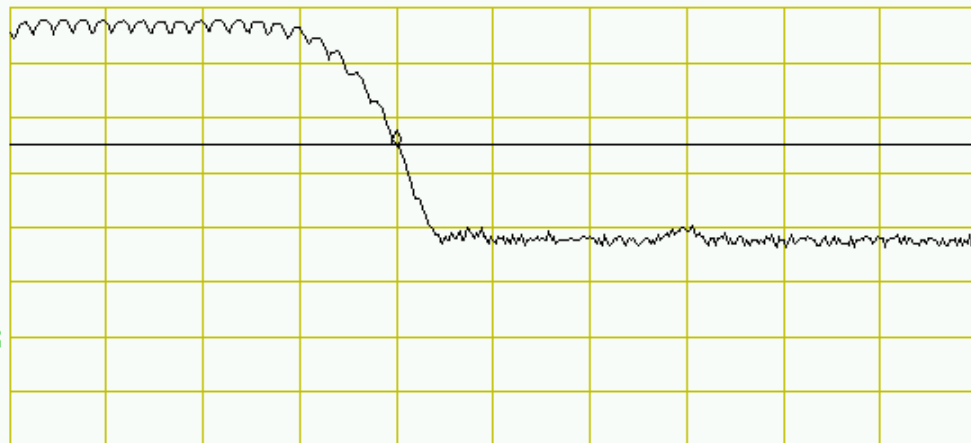
MARKER
892.000 MHz
-15.20 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 892.000 MHz
-15.20 dBm

REF OFFST 10.0 dB
REF 10.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-15.1
dBm
MA SB
SC FC
CORR



START 890.000 MHz

#IF BW 100 kHz

#AVG BW 100 kHz

STOP 895.000 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	800 Cellular Downlink Upper Band-250% Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm

17:40:09 APR 06, 2005

MARKER
936.57 MHz
-60.74 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 936.57 MHz
-60.74 dBm

REF OFFST 10.0 dB
REF 10.0 dBm

LOG
10
dB/
ATN
30 dB

DL
-15.1
dBm
MA SB
SC FC
CORR



START 891.00 MHz

#IF BW 100 kHz

#AVG BW 100 kHz

STOP 940.00 MHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	1900 PCS Uplink Lower Band-5MHz Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm

18:09:56 APR 06, 2005

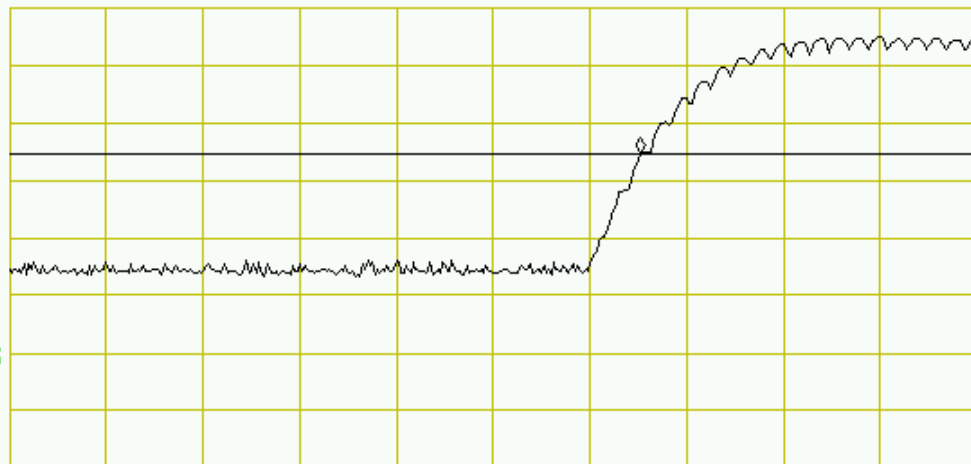
MARKER
1.849263 GHz
-15.47 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.849263 GHz
-15.47 dBm

REF OFFST 10.4 dB
REF 10.0 dBm

LOG
10
dB/
ATN
10 dB

DL
-15.5
dBm
MA SB
SC FC
CORR



START 1.846000 GHz

#IF BW 100 kHz

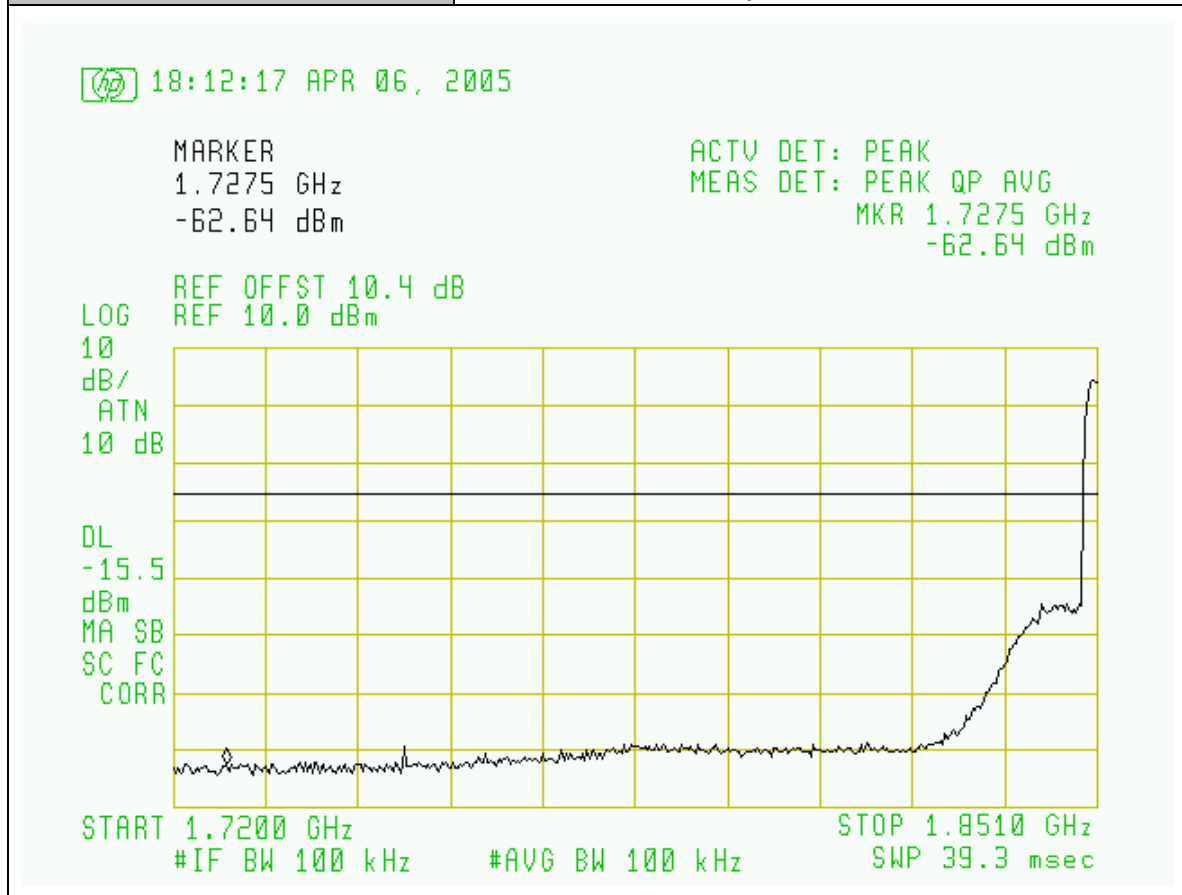
#AVG BW 100 kHz

STOP 1.851000 GHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70°F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	1900 PCS Uplink Lower Band-250% Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm



Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	1900 PCS Downlink Lower Band-5MHz Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm

17:55:20 APR 06, 2005

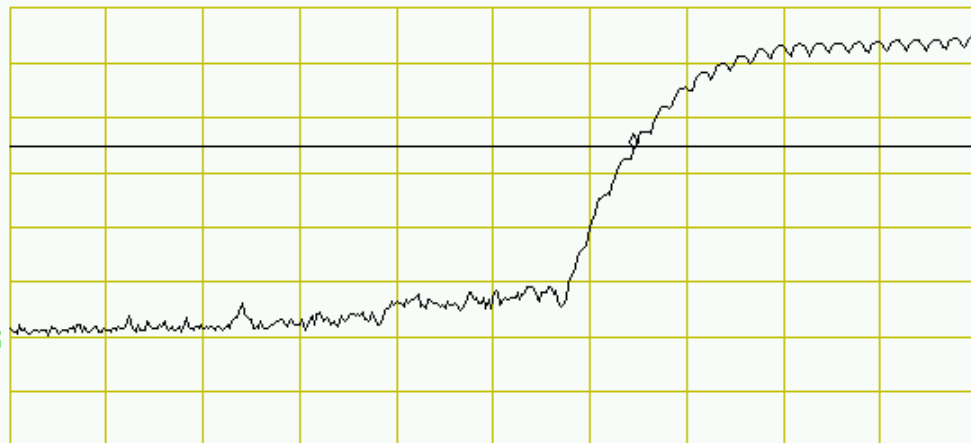
MARKER
1.929225 GHz
-16.14 dBm

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 1.929225 GHz
-16.14 dBm

REF OFFST 10.4 dB
REF 10.0 dBm

LOG
10
dB/
ATN
10 dB

DL
-15.3
dBm
VA SB
SC FC
CORR



START 1.926000 GHz

#IF BW 100 kHz

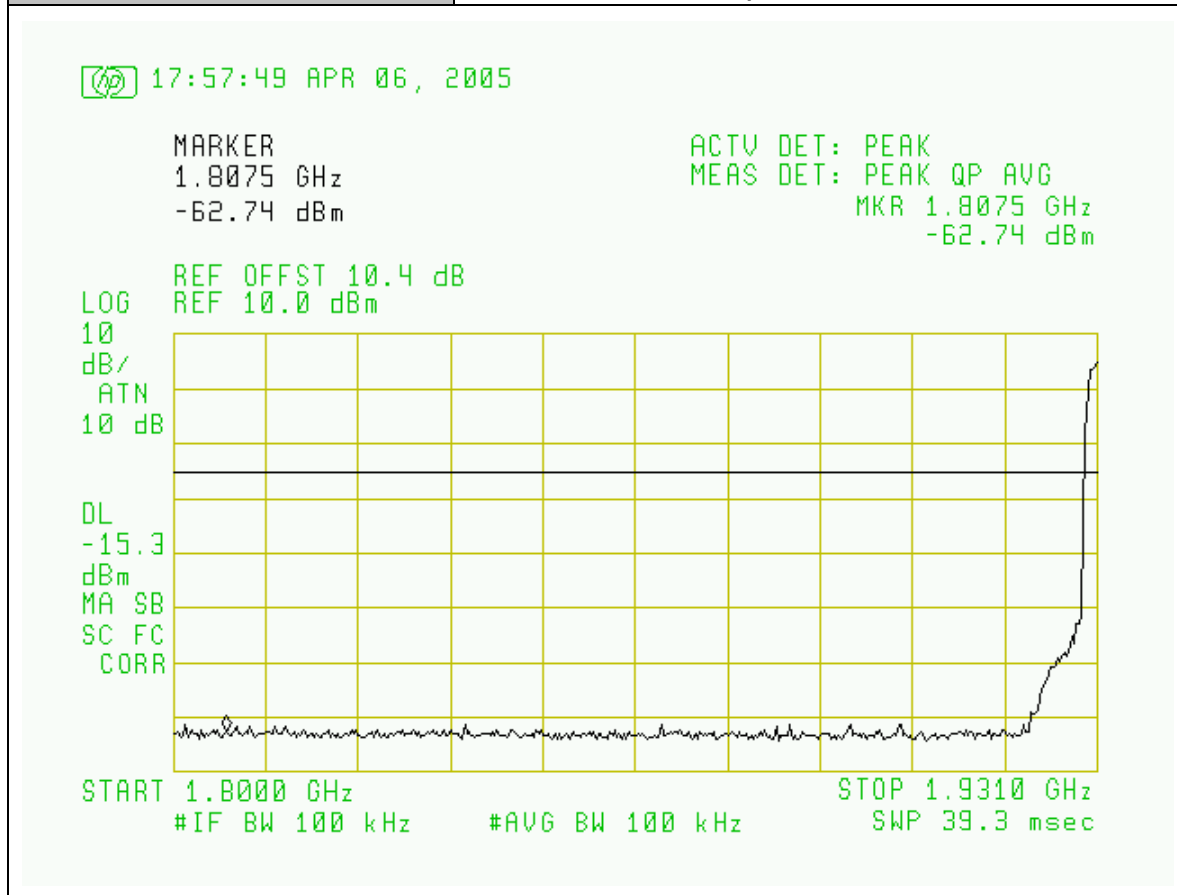
#AVG BW 100 kHz

STOP 1.931000 GHz

SWP 20.0 msec

Project Number:	0048-050318-01
EUT:	Shyam Dual Band Repeater IRD55FB-30-70
SN:	D4RGCDE001
Test By:	Edward Lee
Temperature:	70° F
Humidity:	30%

Section:	Pass Band Gain & 20dB Bandwidth
Plot Name:	1900 PCS Downlink Lower Band-250% Span
Configuration:	Server Antenna Connector was connected to SG. Input: -65dBm



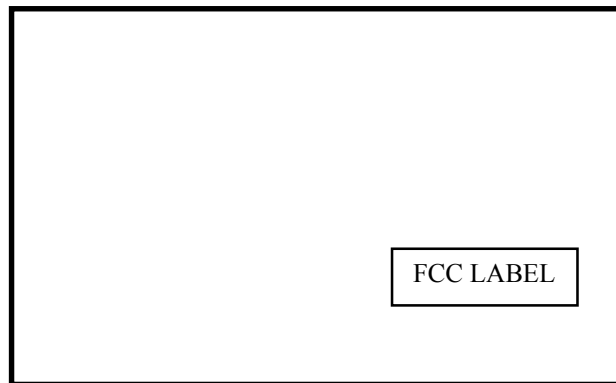
Section 9. Test Equipment List

Manufacture	Model	Serial No.	Description	Last Cal dd/mm/ yy	Cal Due dd/mm/ yy
HP	HP8546A	3448A00290	EMI Receiver	12/01/05	12/01/06
HP	E4432B	US38220355	250K-3GHz Signal Generator	17/09/03	17/09/05
EMCO	3104C	9307-4396	20-300MHz Biconical Antenna	12/02/05	12/02/06
EMCO	3146	9008-2860	200-1000MHz Log-Periodic Antenna	09/02/05	09/02/06
Fischer Custom	LISN-2	900-4-0008	Line Impedance Stabilization Networks	23/08/04	23/08/05
Fischer Custom	LISN-2	900-4-0009	Line Impedance Stabilization Networks	23/08/04	23/08/05
EMCO	6502	2665	10KHz-30MHz Active Loop Antenna	27/02/05	27/02/06
EMCO	3115	4945	Double Ridge Guide Horn Antenna	11/08/04	11/08/05
HP	8569B	2607A02802	1GHz-22GHz Spectrum Analyzer	10/02/05	10/02/06
Advantest	R3271	5003583	100Hz-26.5GHz Spectrum Analyzer	27/04/04	27/05/05
Delta Design	5900C	0-67-26	Temperature Chamber	24/03/05	24/03/06
HP	E8254A	US42110367	Signal Generator	23/03/05	23/03/06
Electro-Metrics	RGA-50	8-95	Double Ridge Guide Horn Antenna	10/02/05	10/02/06
EMCO	3116	4943	Double Ridge Guide Horn Antenna	11/01/05	11/01/06
Scientific-Atlanta	12A-18	441	Wave Guide Horn Antenna	04/08/04	04/08/05

Section 10. FCC ID Labeling**FCC ID: S3CIRD55FB-30-70**

This device complies with Part 2, 15, 22 & 24 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference. and
- (2) this device must accept any interference received, including interference that may cause undesired

FCC ID Label**Location of Label on Lower Side Wall**

Section 11. Maximum Permissible Exposure**MPE estimate is given per 2.1091 of FCC Rules:****Calculation Equation:**

$$d = 0.282 \times \frac{10^{\frac{P+G}{20}}}{\sqrt{S}}$$

Where, P=27.72 dBm, G=7 dBi (Server Antenna), G=12 dBi (Donor Antenna), and from §1.1310 Table 1 (B), S = 0.55 mW/cm²

Plug all three items into the equation, and yields,

Power Density MPE Limit (mW/ cm ²)	Output Power (dBm)	Server Antenna Gain (dBi)	Donor Antenna Gain (dBi)	Server MPE Distance (cm)	Donor MPE Distance (cm)
0.55	27.72/26.07	7	12	20.70	36.82

NOTE:

For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.