Advanced
Compliance Laboratory

210 Cougar Court
Hillsborough, NJ 08844
Tel: (908) 927 9288
Fax: (908) 927 0728

Electromagnetic Emission Compliance Test Report

Equipment Under Test (EUT)	**Fiber to Antenna System/ Booster**
Model No.	**FTA DL 2.0 3A**
Applicant	CellGain Wireless
In Accordance With	FCC Part 90 (/Part 2)
Test by	Advanced Compliance Laboratory, Inc. 210 Cougar Court Hillsborough, New Jersey 08844
Authorized by	Wei Li Lab Manager
Signature	
Date	April 4, 2025
AC Lab Report Number	0048-250311-01

Certificate No. AT-3288

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

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Section 1. Summary of Test Results

Manufacturer:	CellGain Wireless
Product Name:	Fiber to Antenna System/ Booster FTA DL 2.0
Model No.:	3A
Sample No.:	PT001

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 2& Part 90.

☒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"

The test site and conducted measurement facility used to collect the radiated and conducted emissions data are located in Hillsborough, New Jersey. This site is accepted by FCC to perform measurements with Registration # 185968 & MRA designation No. US3288. It is also designated by IC as " site IC 3130A". The ANAB Certificate Number for ISO/IEC 17025 accreditation is AT-3288 (expiry date: 2/27/2026).

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Summary of Test Data

The measurement methodology shall compliance with the requirements in *ANSI C63.26-2015 & FCC KDB 935210 D05 Industrial Booster Basic Measurement v01r04 (2020).*

FCC Requirements	FCC Rule Part	Result
AGC Threshold	935210 D05, Sec. 3.2	Complies
Out of-Band Rejection	935210 D05, Sec. 3.3	Complies
Input-versus-output signal comparison	935210 D05, Sec. 3.4	Complies
Input/output power and amplifier/booster gain	935210 D05, Sec. 3.5	Complies
Band Noise	935210 D05, Sec. 3.6	Complies
Measuring out-of-band/out-of-block and Spurious Emissions	935210 D05, Sec. 3.7 Part 90.210	Complies
Frequency Stability Measurements	935210 D05, Sec. 3.8 Part 90.219	Complies
Field Strength of Spurious	935210 D05, Sec. 3.9 Part 2.1053	Complies

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 4, 2025

Section 2. General Equipment Specification

<table>
<tr><td>Supply Voltage</td><td colspan="6">Nominal +48Vdc</td></tr>
<tr><td>Frequency Range</td><td colspan="6">Pass Band I: 150.00 ~176.00MHz
Pass Band II: 450.00~495.00MHz
Pass Band III: 850.00~880.00MHz

Applicable FCC Part 90 Frequency List for certification

For Pass Band I. | For Pass Band II | For Pass Band III

151.115-156.2475 MHz | 450-454 MHz | 851-880 MHz
157.1875-161.575 MHz | 456-462.5375 MHz
161.775-161.9625 MHz | 462.7375-467.5375 MHz
162.0375-173.4 MHz | 467.7375-495 MHz</td></tr>
<tr><td>Modulations</td><td>Per KDB 935210 D05, Sec. 4.4 Table1</td><td>Analog FM (16K0F3E) ☒</td><td>Analog FM (11K3F3E) ☒</td><td>Analog FM (4K00F3E) ☒</td><td>CW ☐</td><td></td></tr>
<tr><td>Rated Operational Power</td><td colspan="6">20dBm
(Tolerance ±3dB)</td></tr>
<tr><td>Output Impedance</td><td colspan="6">50ohm</td></tr>
<tr><td rowspan="2">Frequency Translation</td><td rowspan="2">All Bands</td><td>F1-F1 ☒</td><td>F1-F2 ☐</td><td colspan="2">N/A ☐</td></tr>
<tr><td>Software ☐</td><td>Duplexer Change ☐</td><td colspan="2">Full Band Coverage ☒</td></tr>
</table>

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

The input supply to the RF Circuitry was set as followings: 48Vdc, 310mA

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

There are no user accessible adjustments or tuning in this Transmitter. 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.

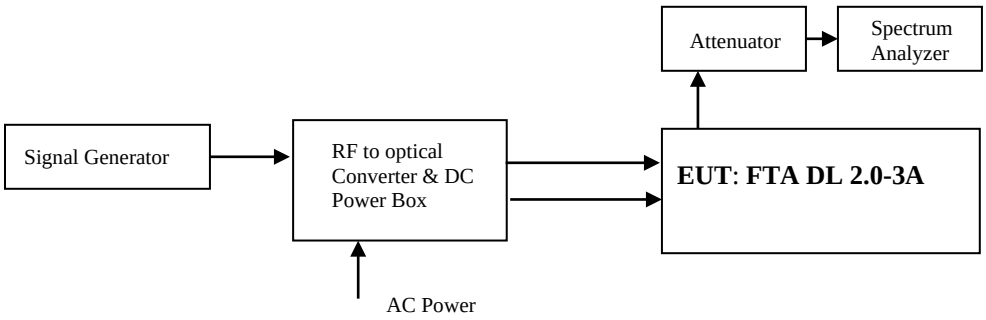
Description of Operation

A signal generator was connected to the RF In of the RF to Fiber Optic converter (support equipment, which also provides DC power to the EUT). This RF signal was converted internally to a fiber optic interface and the fiber optic cable was connected to the Fiber Optical In port of the EUT. The RF output port of the EUT was connected to the spectrum analyzer.

System Diagram

See Attachment.

General EUT Setup



System Configurations

Device	Reference	Description	Mfr. P/N
FTA System	EUT	Fiber to Antenna System/Booster	FTA DL 2.0 3A
Power Box & Converter	Accessory	RF to Fiber Optical Converter	NA

Cable List

Reference	Port Name	Start	End	Cable Length(m)	w/ Ferrite	Shielded
1	DC Input	EUT	48 V DC supply from Power Box	>3	No	No
2	Coaxial Cable	EUT	Test Equipment	Depends on test	No	Coax
3	Fiber optic cable	EUT	RF-Optical Converter	>3	No	No
4	Coaxial Cable	Sig Gen (test equipment)	RF-Optical Converter	Depends on test	No	Coax

Section 3. AGC Threshold

Name of Test:	*AGC Threshold*	Test Standard:	***KDB 935210 D05***
Tested By:	WEI LI	**Test Date:**	3/11/2025-4/4/2025

Minimum Standard: per KDB 935210 D05 Indus Booster Basic Meas v01r04, Section 4.2

Method of Measurement:

The AGC threshold was determined as follows
a) Connect a signal generator to the input of the EUT (i.e. the RF input of support equipment).
b) Connect a spectrum analyzer or power meter to the output of the EUT using appropriate attenuation as necessary.
c) The signal generator was configured to produce a CW signal.
d) Set the signal generator frequency to the center frequency of the EUT operating band.
e) While monitoring the output power of the EUT, increase the input level until a 1 dB increase in the input signal power no longer causes a 1 dB increase in the output signal power.
f) Record this level as the AGC threshold level.
g) Repeat the procedure with the remaining test signal.

Test Result: **Complies***

Test Data:

* AGC function shall be provided by external device which will limit the EUT input up to AGC Threshold level.

Frequency, MHz	Gain (dB)	AGC Threshold Level
163.0	30.1	-10.1 dBm
472.5	29.9	-9.9 dBm
865.0	29.9	-9.9 dBm

Section 4. Out of-Band Rejection

Name of Test:	*Out of-Band Rejection*	Test Standard:	***KDB 935210 D05***
Tested By:	WEI LI	**Test Date:**	3/11/2025-4/4/2025

Minimum Standard: per KDB 935210 D05 Indus Booster Basic Meas v01r04, Section 4.3

Method of Measurement: Adjust the internal gain control of the EUT to the maximum gain for which equipment certification is sought.

a) Connect a signal generator (network analyzer output) to the input of the EUT.

b) Configure a swept CW signal with the following parameters:

1) Frequency range = ± 250 % of the manufacturer's specified pass band.

2) The CW amplitude shall be 3 dB below the AGC threshold (see 4.2), and shall not activate the AGC threshold throughout the test.

3) Dwell time = approximately 10 ms.

4) Frequency step = 50 kHz.

c) Connect a spectrum analyzer to the output of the EUT using appropriate attenuation.

d) Set the RBW of the spectrum analyzer to between 1 % and 5 % of the manufacturer's rated passband, and VBW = 3 × RBW.

e) Set the detector to Peak and the trace to Max-Hold.

f) After the trace is completely filled, place a marker at the peak amplitude, which is designated as f0, and with two additional markers (use the marker-delta method) at the 20 dB bandwidth (i.e., at the points where the level has fallen by 20 dB).

g) Capture the frequency response plot for inclusion in the test report.

Test Result: **Complies**

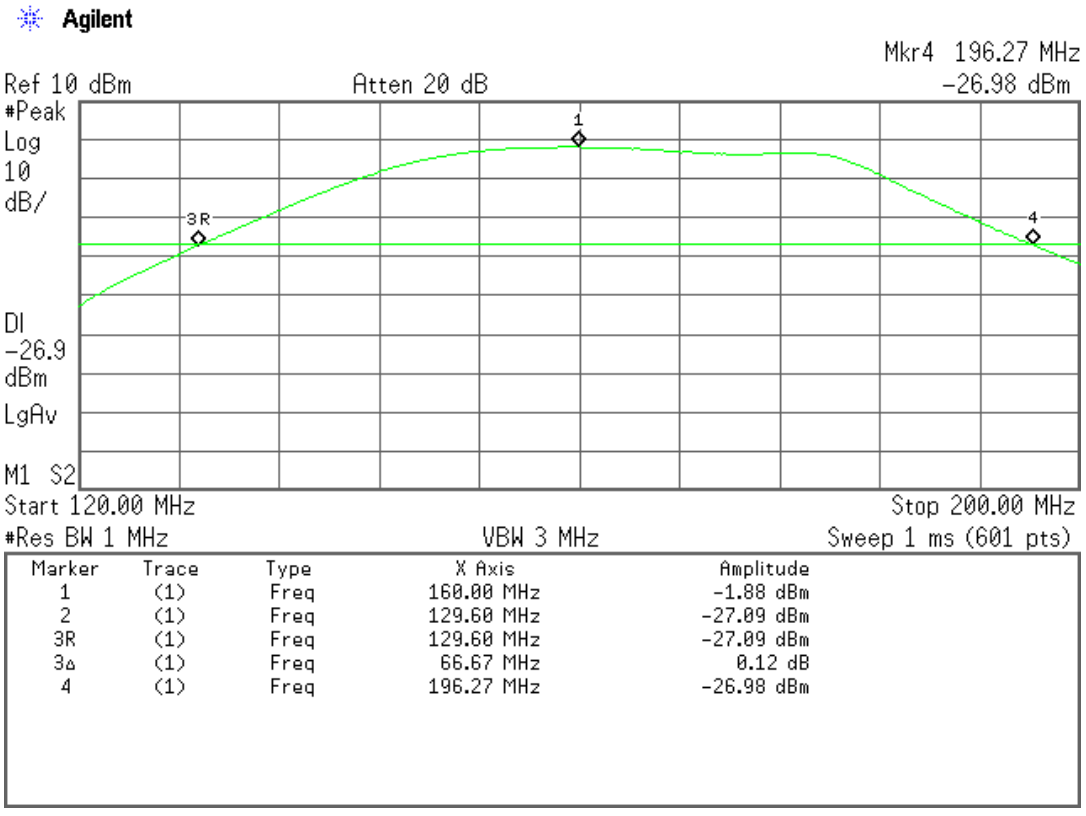
Test Data: Attached Plots

Frequency, MHz	F-low, MHz	F-high, MHz	-20dBBandwidth, MHz
163.0	141.33	182.72	41.38
472.5	435.75	503.25	67.50
865.0	839.00	892.50	53.50

* Signals for booster Band I shall be limited by external PLMRS licensed Station with its authorized service band.

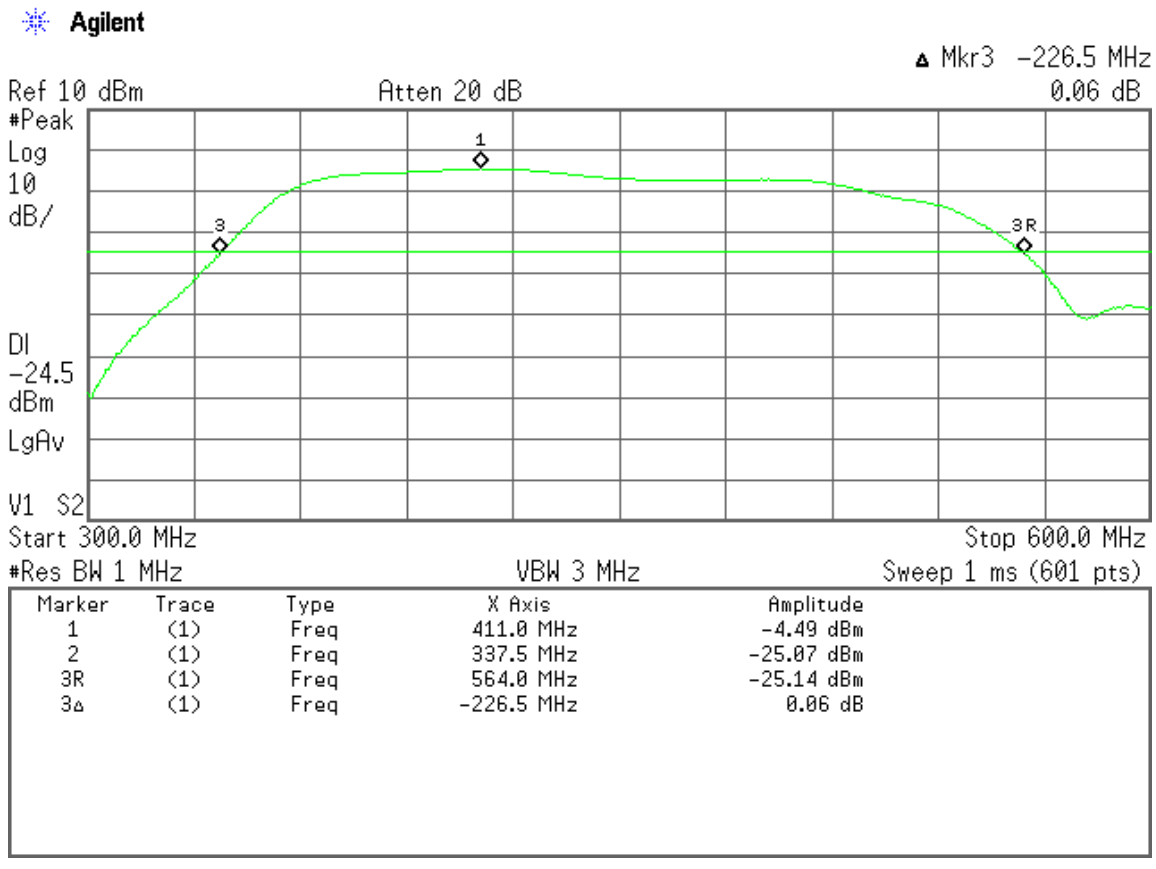
Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	**Pass Band I Out of-Band Rejection**
Plot Name:	**-20dB Bandwidth**
Configuration:	Input: CW. Output Port: EUT



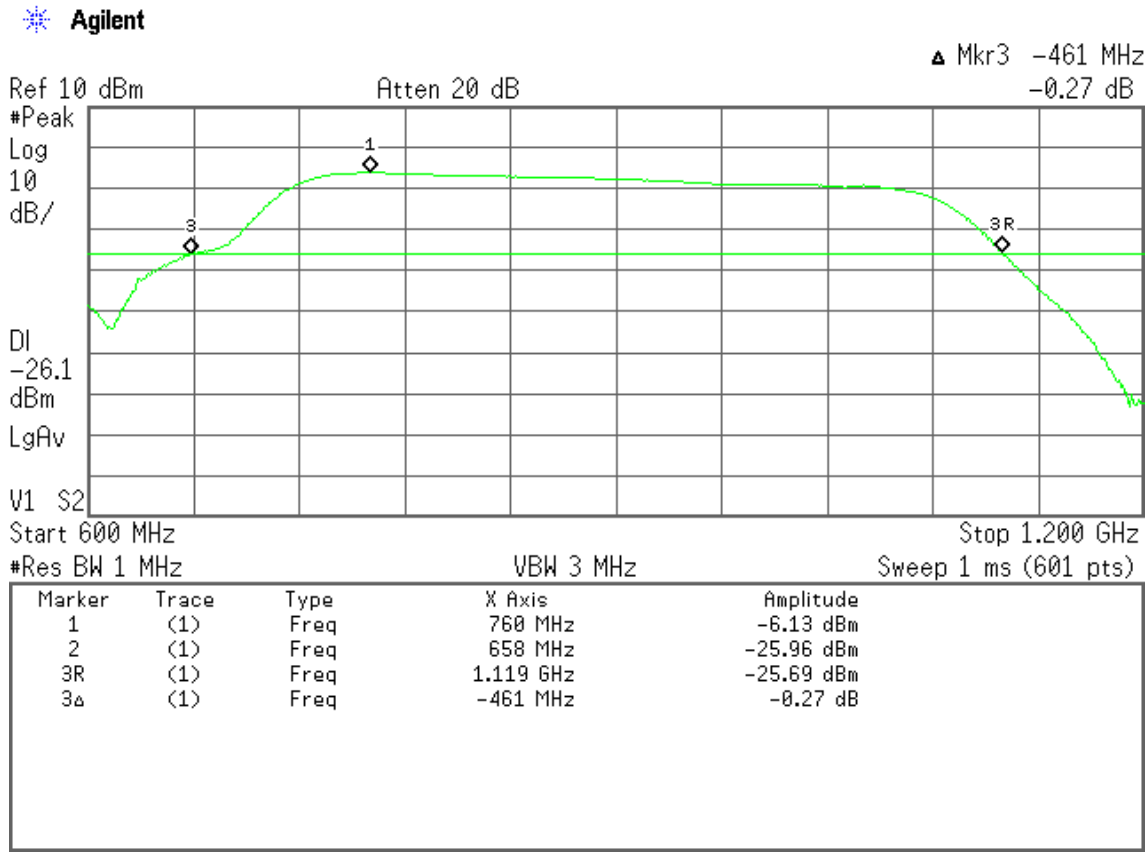
Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	**Pass Band II Out of-Band Rejection**
Plot Name:	**-20dB Bandwidth**
Configuration:	Input: CW. Output Port: EUT



Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	**Pass Band III Out of-Band Rejection**
Plot Name:	**-20dB Bandwidth**
Configuration:	Input: CW. Output Port: EUT



Section 5. Input-versus-output signal comparison

Name of Test:	*Input-versus-output signal comparison*	Test Standard:	***KDB 935210 D05***
Tested By:	WEI LI	**Test Date:**	3/11/2025-4/4/2025

Minimum Standard: per KDB 935210 D05 Indus Booster Basic Meas v01r04, Section 4.4

Method of Measurement: The signals were adjusted according to Table 1.

Table 1—Test signals for PLMRS devices

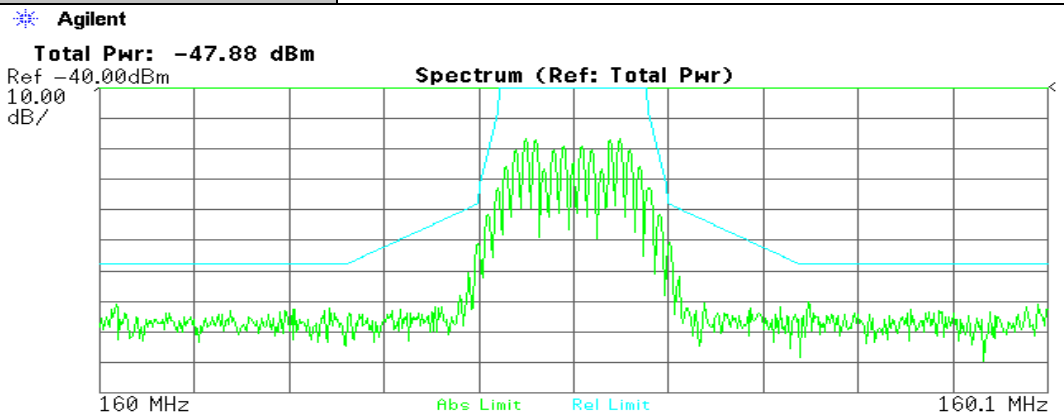
Emission Designator	Modulation	Occupied Bandwidth	Channel Bandwidth	Audio Frequency
16K0F3E	FM	16 kHz	25 kHz	1 kHz
11K3F3E	FM	11.3 kHz	12.5 kHz	1 kHz
4K00F1E	FM	4 kHz	6.25 kHz	1 kHz
N/A	CW	N/A	N/A	N/A

Test Result: **Complies**

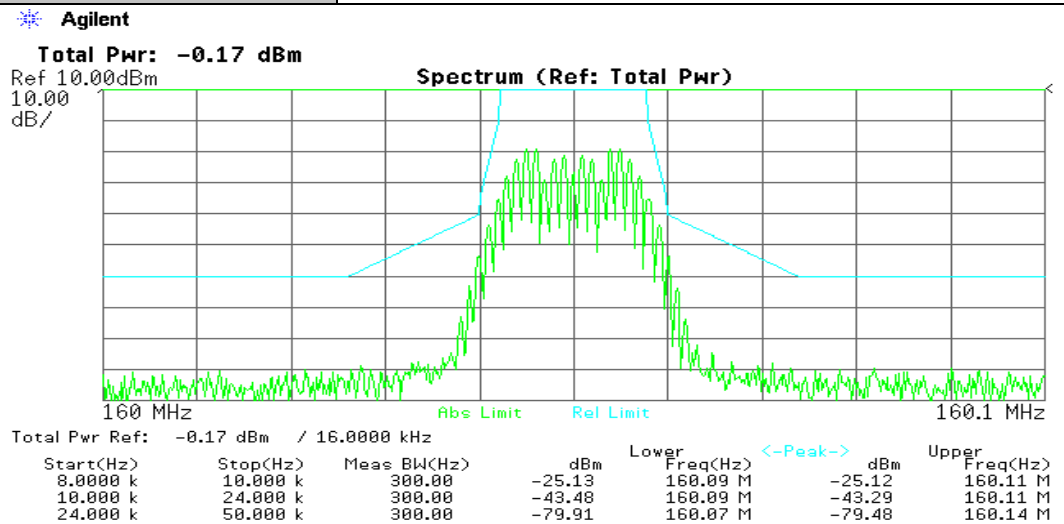
Test Data: Attached Plots

Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

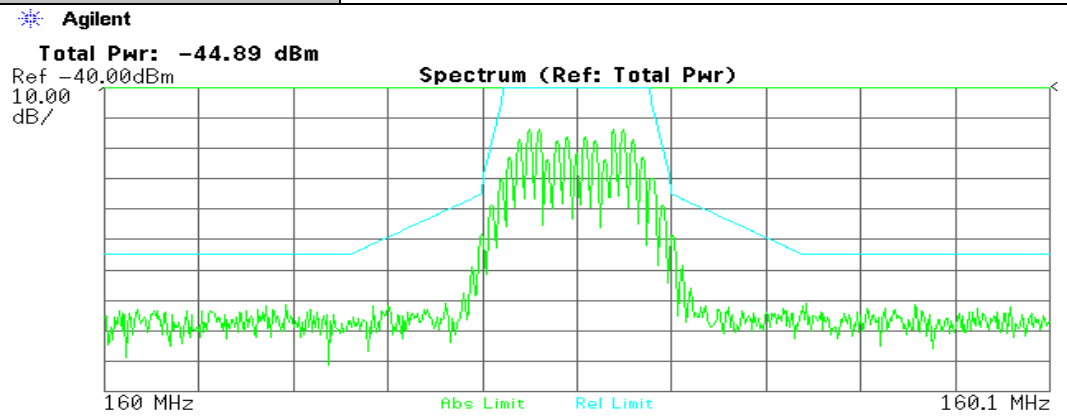
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 16K0F3E at AGC level
Configuration:	Input: 16K0F3E at AGC level



Configuration:	Output Port: EUT



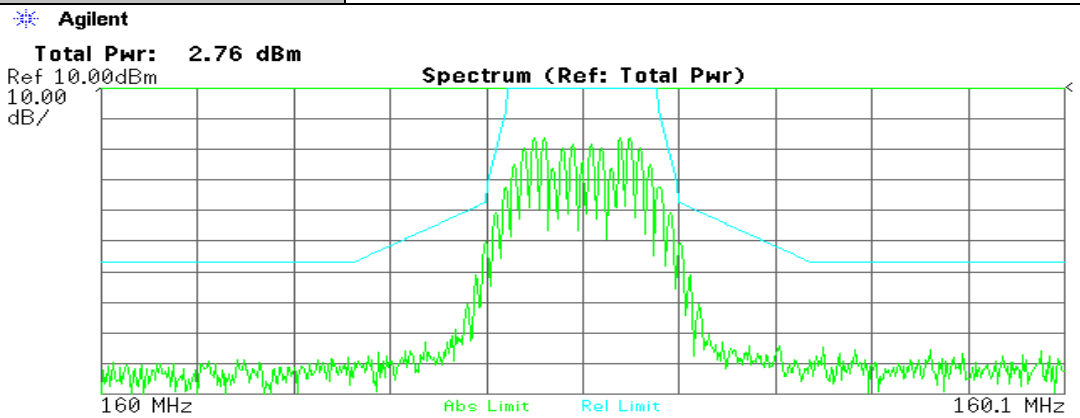
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 16K0F3E at AGC+3dB level
Configuration:	Input: 16K0F3E at AGC+3dB level



Total Pwr Ref: -44.89 dBm / 16.0000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
8.0000 k	10.000 k	300.00	-69.85	160.09 M	-69.88	160.11 M
10.000 k	24.000 k	300.00	-88.18	160.09 M	-88.39	160.11 M
24.000 k	50.000 k	300.00	-111.52	160.07 M	-111.10	160.12 M

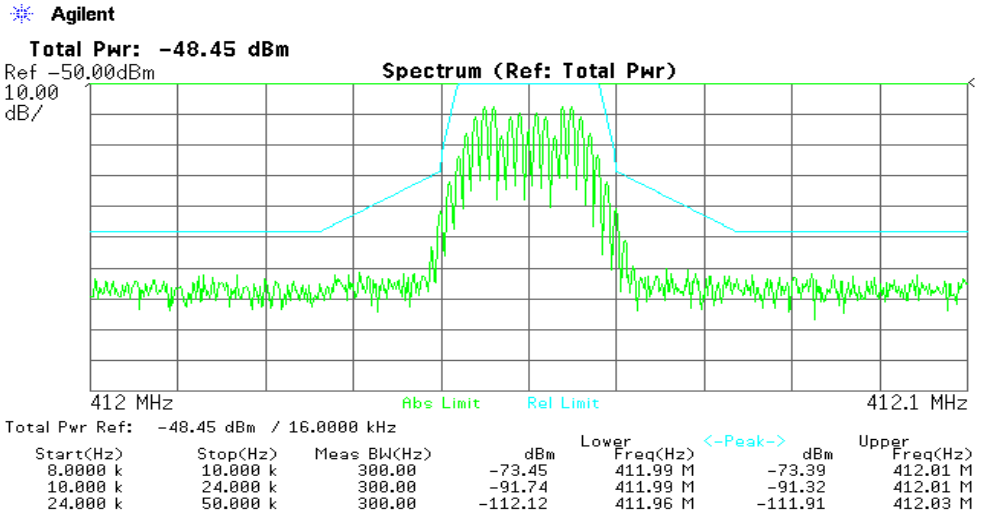
Configuration:	Output Port: EUT



Total Pwr Ref: 2.76 dBm / 16.0000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
8.0000 k	10.000 k	300.00	-22.19	160.09 M	-22.21	160.11 M
10.000 k	24.000 k	300.00	-40.41	160.09 M	-40.56	160.11 M
24.000 k	50.000 k	300.00	-78.17	160.08 M	-74.51	160.12 M

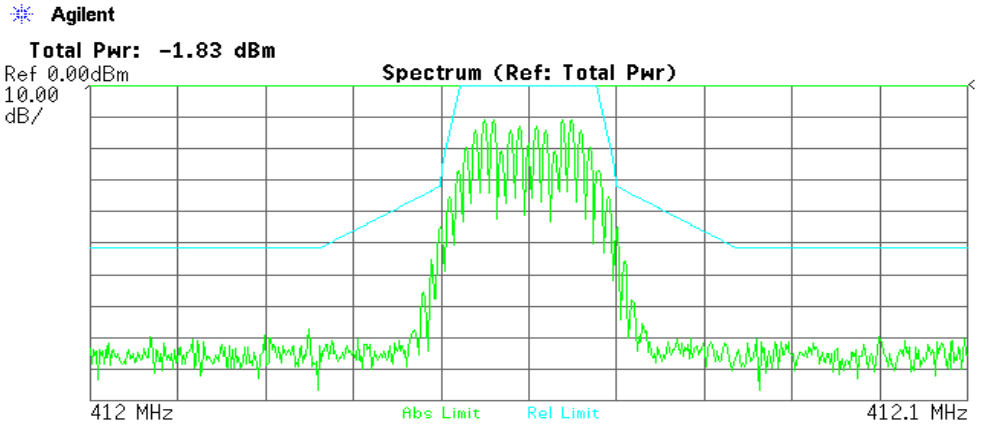
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 16K0F3E at AGC level
Configuration:	Input: 16K0F3E at AGC level



Total Pwr Ref: -48.45 dBm / 16.0000 kHz

			Lower		<-Peak->		Upper	
Start(Hz)	Stop(Hz)	Meas BW(Hz)	dBm	Freq(Hz)		dBm	Freq(Hz)	
8.0000 k	10.000 k	300.00	-73.45	411.99 M		-73.39	412.01 M	
10.000 k	24.000 k	300.00	-91.74	411.99 M		-91.32	412.01 M	
24.000 k	50.000 k	300.00	-112.12	411.96 M		-111.91	412.03 M	

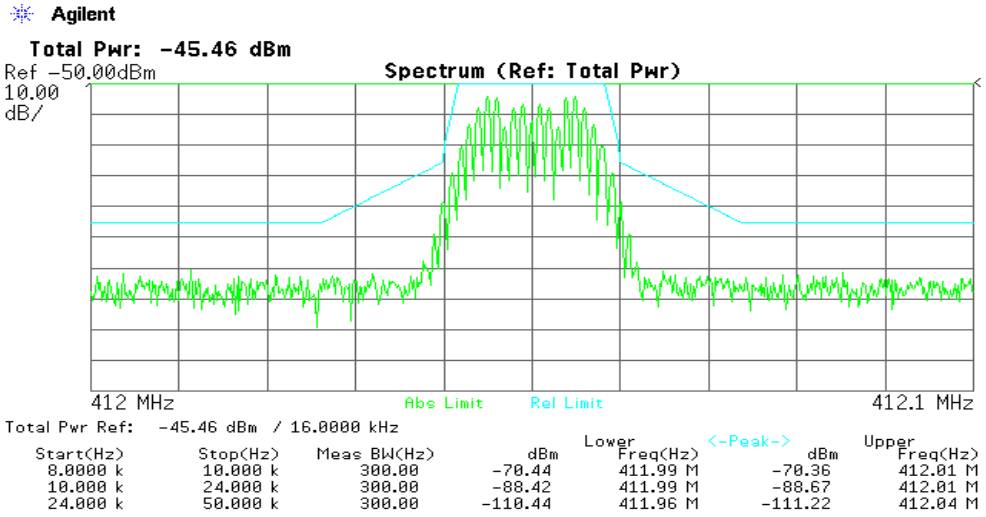
Configuration:	Output Port: EUT



Total Pwr Ref: -1.83 dBm / 25.0000 kHz

			Lower		<-Peak->		Upper	
Start(Hz)	Stop(Hz)	Meas BW(Hz)	dBm	Freq(Hz)		dBm	Freq(Hz)	
8.0000 k	10.000 k	300.00	-26.84	411.99 M		-26.82	412.01 M	
10.000 k	24.000 k	300.00	-45.16	411.99 M		-45.06	412.01 M	
24.000 k	50.000 k	300.00	-77.36	411.97 M		-79.63	412.04 M	

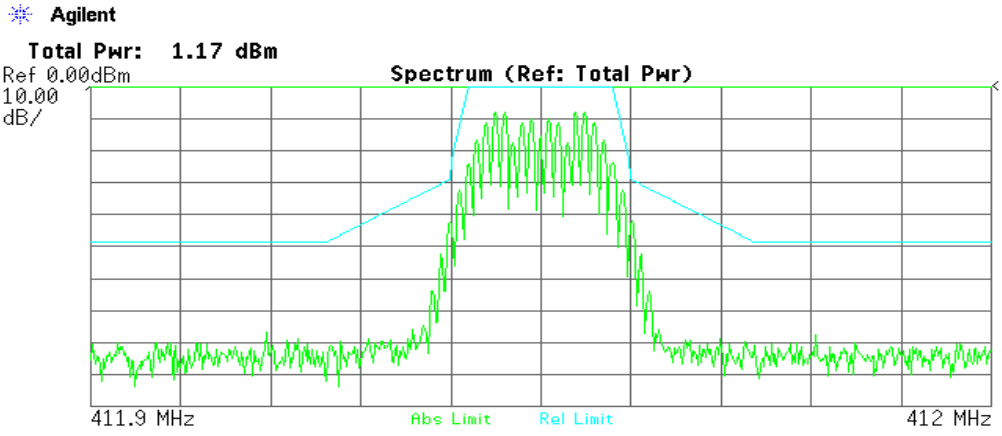
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 16K0F3E at AGC+3dB level
Configuration:	Input: 16K0F3E at AGC+3dB level



Total Pwr Ref: -45.46 dBm / 16.0000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
8.0000 k	10.000 k	300.00	-70.44	411.99 M	-70.36	412.01 M
10.000 k	24.000 k	300.00	-88.42	411.99 M	-88.67	412.01 M
24.000 k	50.000 k	300.00	-110.44	411.96 M	-111.22	412.04 M

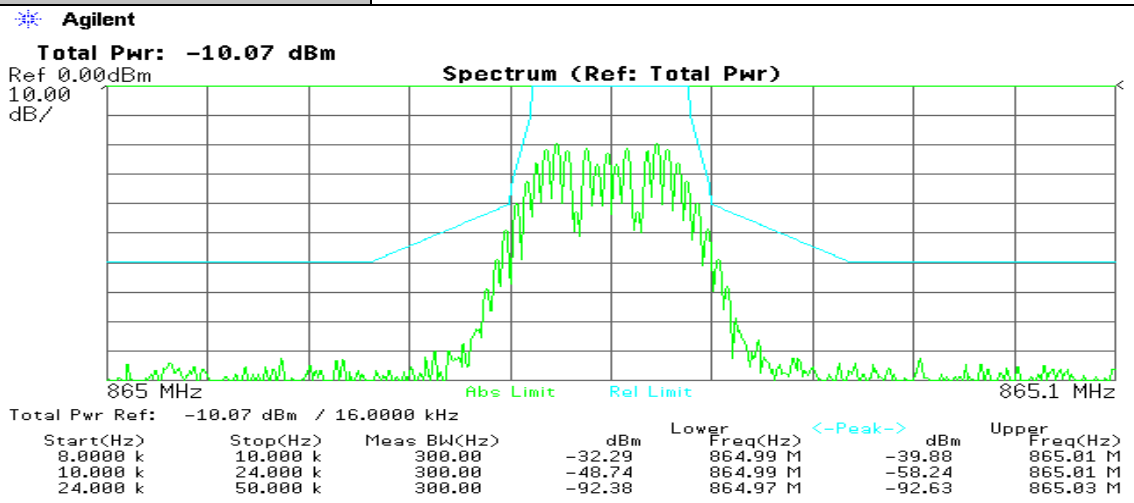
Configuration:	Output Port: EUT



Total Pwr Ref: 1.17 dBm / 25.0000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
8.0000 k	10.000 k	300.00	-23.86	411.99 M	-23.83	412.01 M
10.000 k	24.000 k	300.00	-42.16	411.99 M	-42.04	412.01 M
24.000 k	50.000 k	300.00	-76.58	411.97 M	-77.62	412.03 M

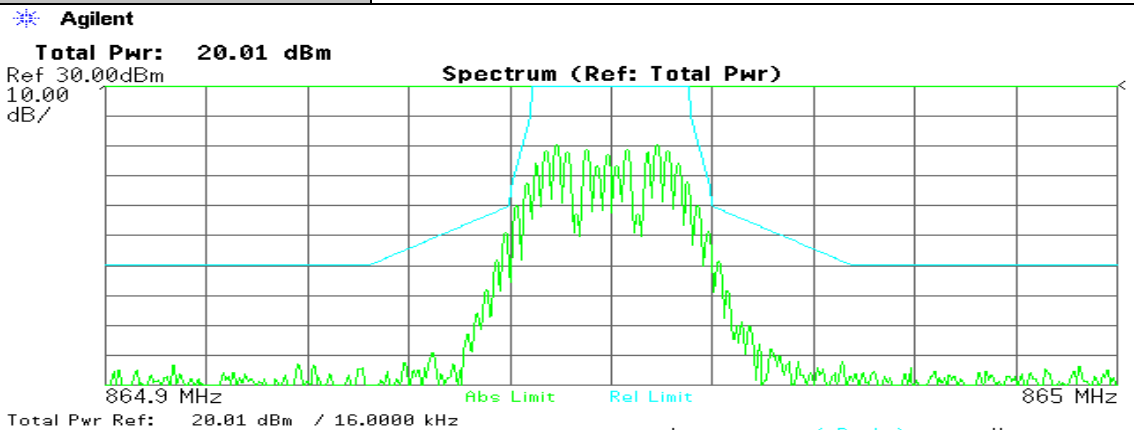
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 16K0F3E at AGC level
Configuration:	Input: 16K0F3E at AGC level



Total Pwr Ref: -10.07 dBm / 16.0000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
8.0000 k	10.000 k	300.00	-32.29	864.99 M	-39.88	865.01 M
10.000 k	24.000 k	300.00	-48.74	864.99 M	-58.24	865.01 M
24.000 k	50.000 k	300.00	-92.38	864.97 M	-92.63	865.03 M

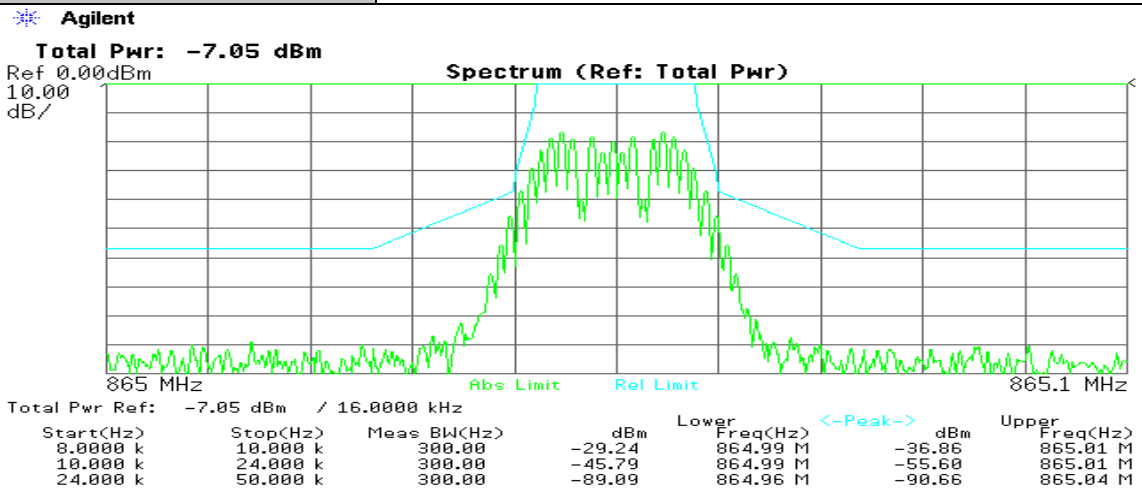
Configuration:	Output Port: EUT



Total Pwr Ref: 20.01 dBm / 16.0000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
8.0000 k	10.000 k	300.00	-2.17	864.99 M	-9.79	865.01 M
10.000 k	24.000 k	300.00	-18.70	864.99 M	-28.59	865.01 M
24.000 k	50.000 k	300.00	-62.84	864.97 M	-63.83	865.05 M

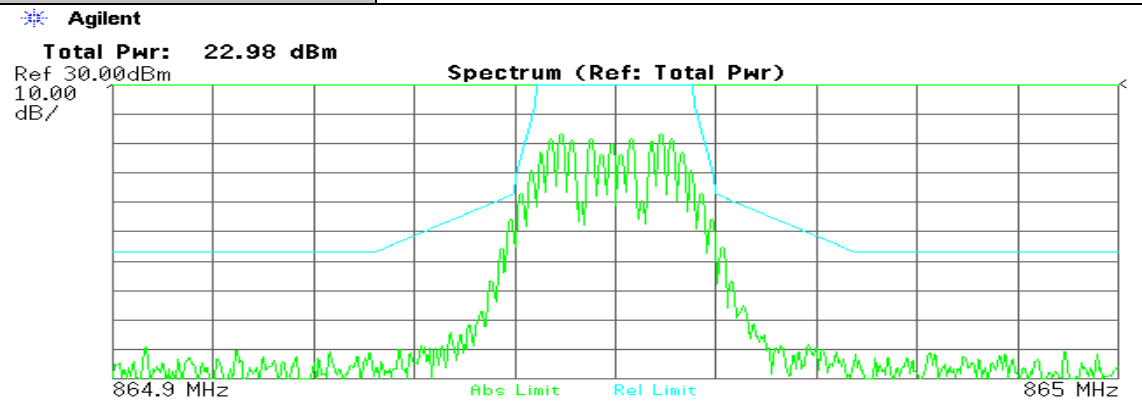
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 16K0F3E at AGC+3dB level
Configuration:	Input: 16K0F3E at AGC+3dB level



Total Pwr Ref: -7.05 dBm / 16.0000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
8.0000 k	10.000 k	300.00	-29.24	864.99 M	-36.86	865.01 M
10.000 k	24.000 k	300.00	-45.79	864.99 M	-55.60	865.01 M
24.000 k	50.000 k	300.00	-89.09	864.96 M	-90.66	865.04 M

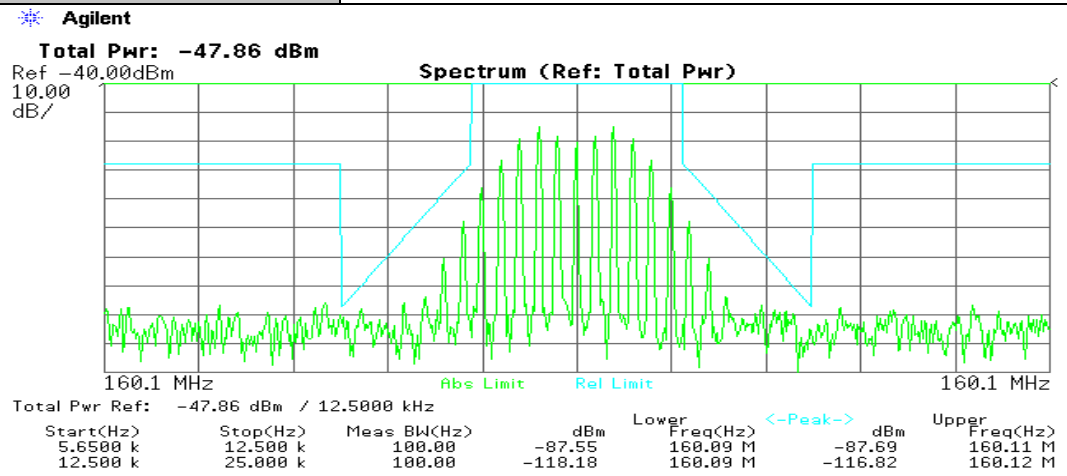
Configuration:	Output Port: EUT



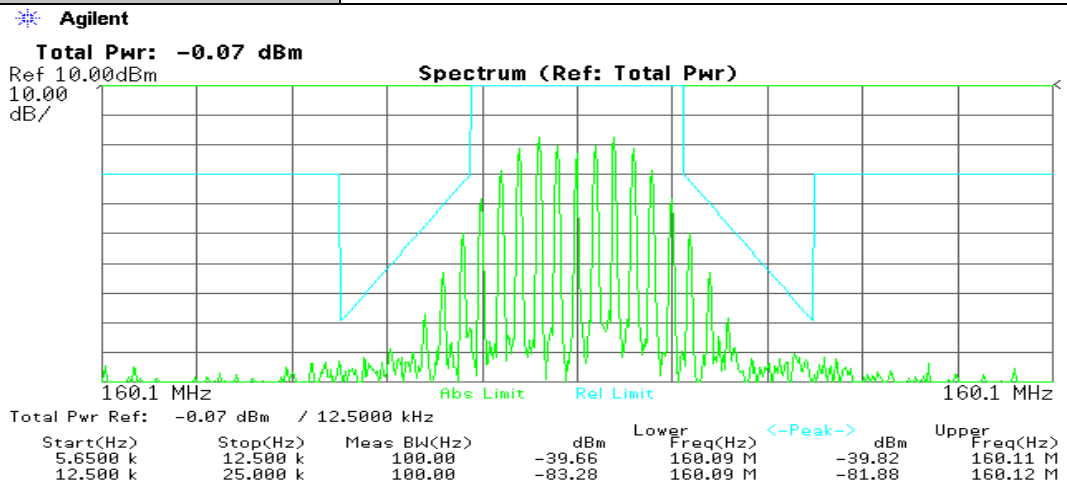
Total Pwr Ref: 22.98 dBm / 16.0000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
8.0000 k	10.000 k	300.00	0.81	864.99 M	-6.84	865.01 M
10.000 k	24.000 k	300.00	-15.73	864.99 M	-25.69	865.01 M
24.000 k	50.000 k	300.00	-59.01	864.95 M	-60.75	865.04 M

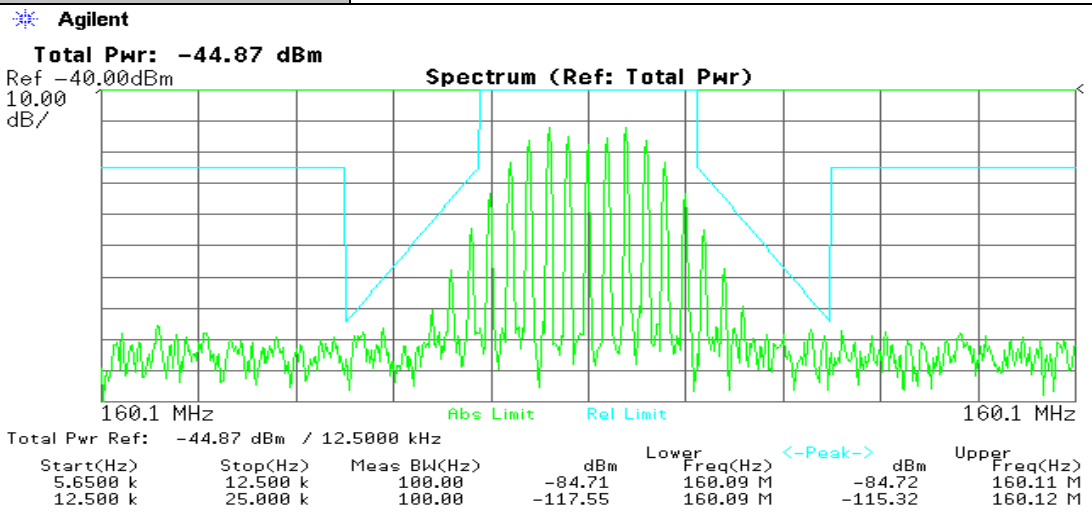
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 11K3F3E at AGC level
Configuration:	Input: 11K3F3E at AGC level



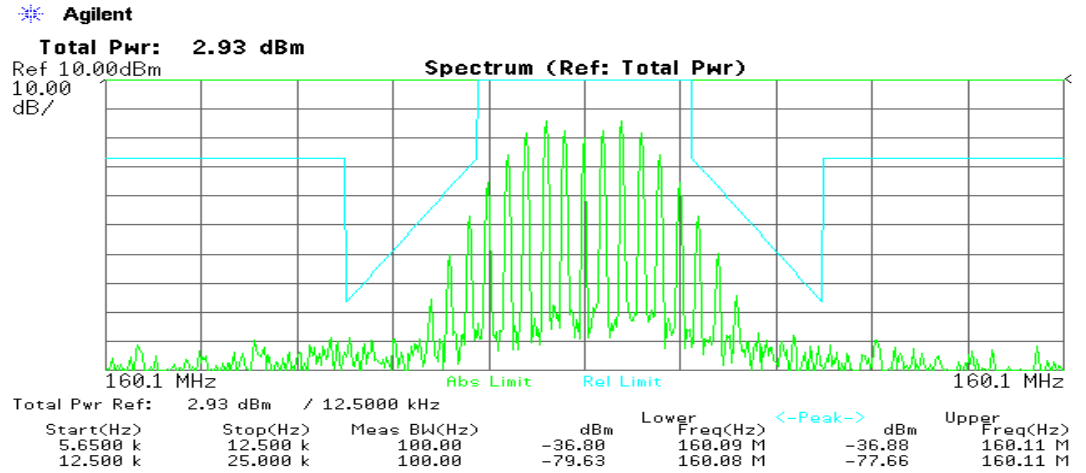
Configuration:	Output Port: EUT



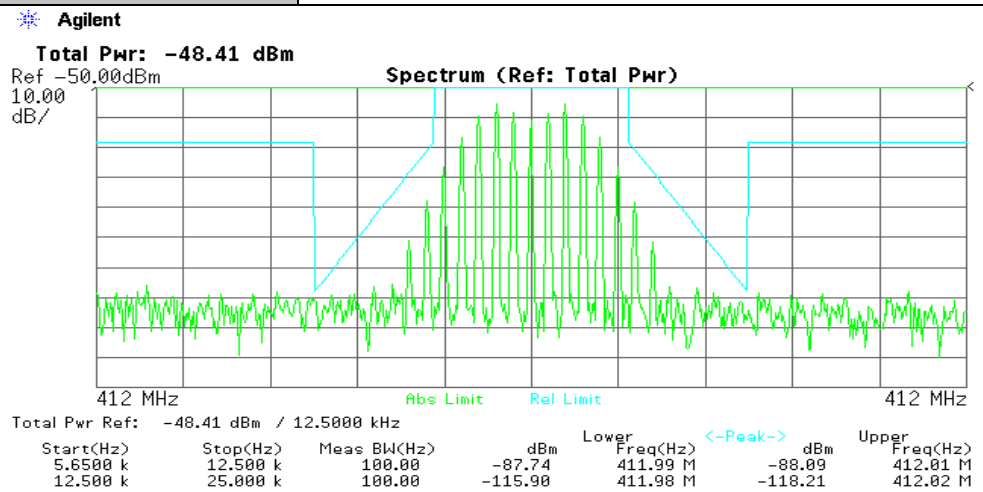
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 11K3F3E at AGC+3dB level
Configuration:	Input: 11K3F3E at AGC+3dB level



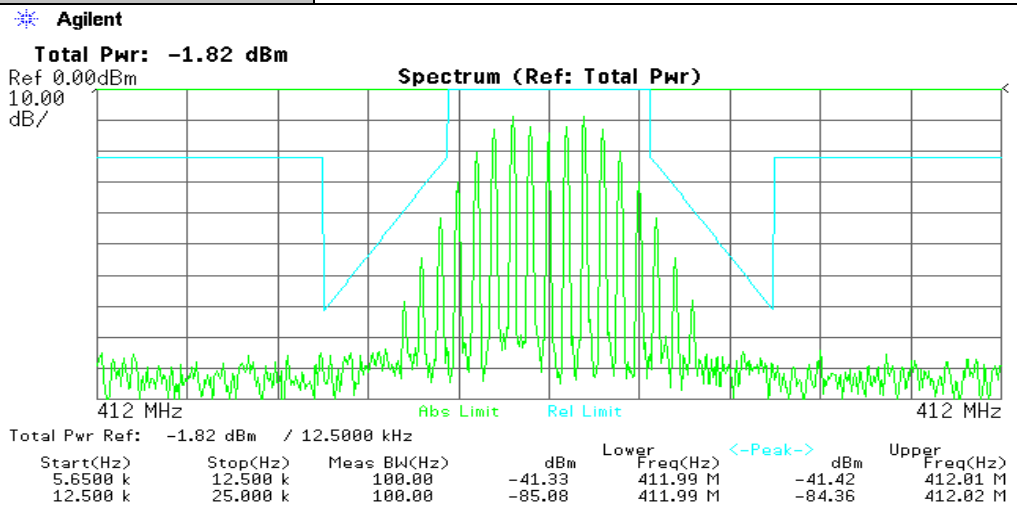
Configuration:	Output Port: EUT



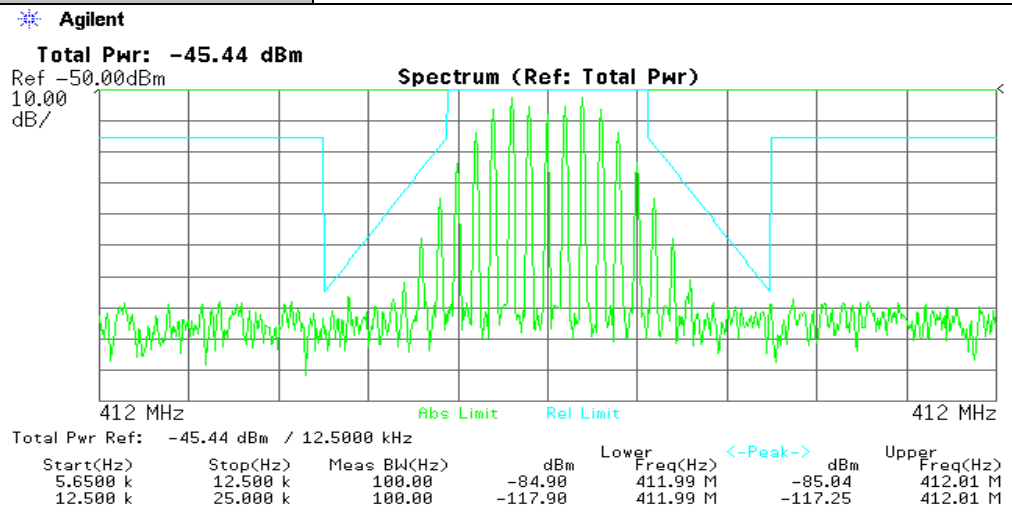
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 11K3F3E at AGC level
Configuration:	Input: 11K3F3E at AGC level



Configuration:	Output Port: EUT



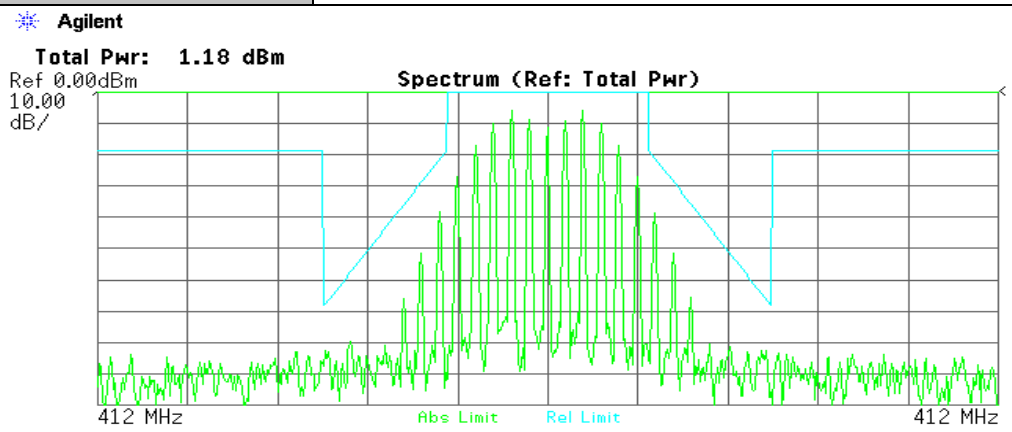
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 11K3F3E at AGC+3dB level
Configuration:	Input: 11K3F3E at AGC+3dB level



Total Pwr Ref: -45.44 dBm / 12.5000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
5.6500 k	12.500 k	100.00	-84.90	411.99 M	-85.04	412.01 M
12.500 k	25.000 k	100.00	-117.90	411.99 M	-117.25	412.01 M

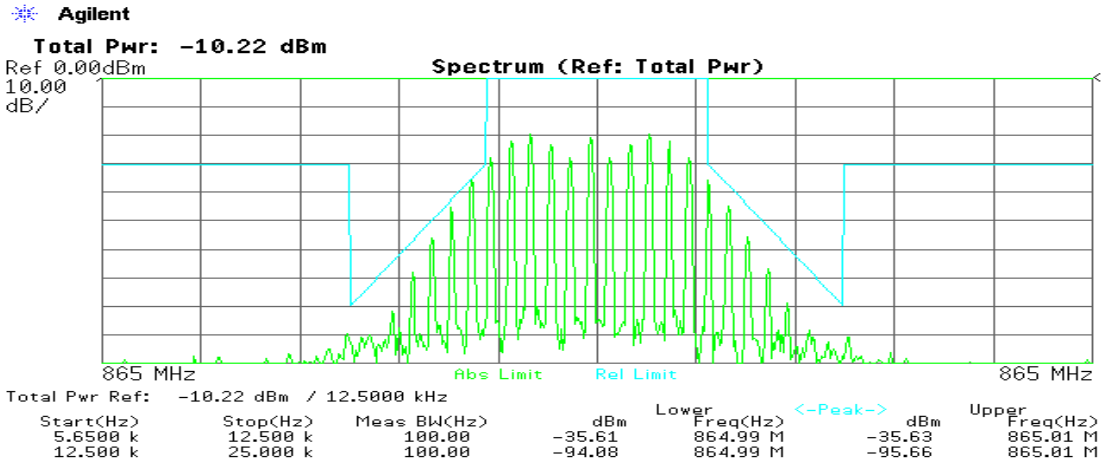
Configuration:	Output Port: EUT



Total Pwr Ref: 1.18 dBm / 12.5000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
5.6500 k	12.500 k	100.00	-38.32	411.99 M	-38.40	412.01 M
12.500 k	25.000 k	100.00	-83.75	411.99 M	-83.62	412.01 M

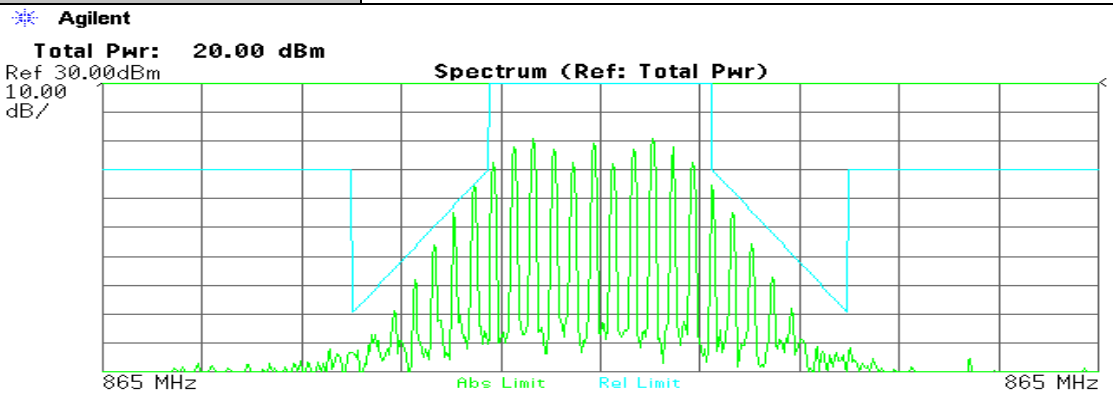
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 11K3F3E at AGC level
Configuration:	Input: 11K3F3E at AGC level



Total Pwr Ref: -10.22 dBm / 12.5000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
5.6500 k	12.500 k	100.00	-35.61	864.99 M	-35.63	865.01 M
12.500 k	25.000 k	100.00	-94.08	864.99 M	-95.66	865.01 M

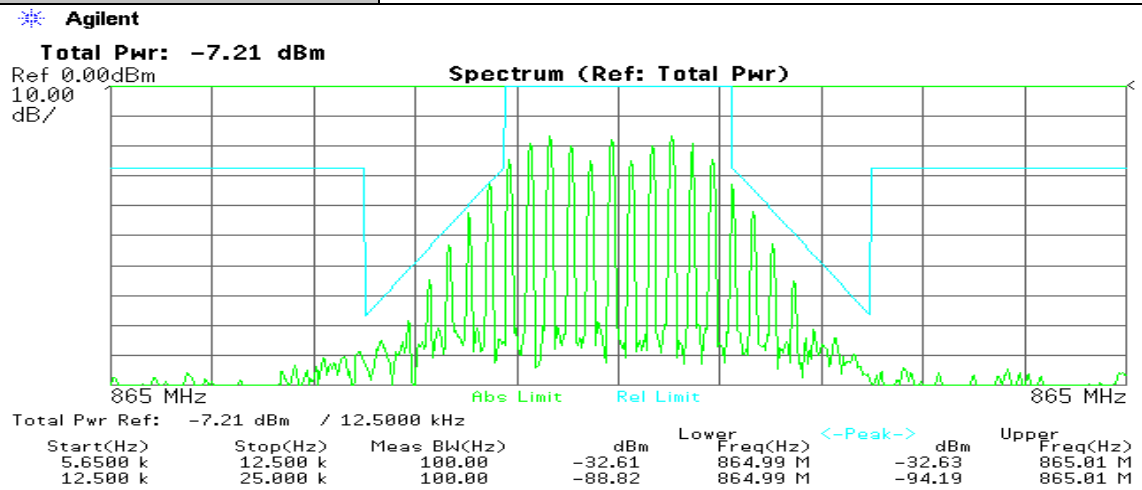
Configuration:	Output Port: EUT



Total Pwr Ref: 20.00 dBm / 12.5000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
5.6500 k	12.500 k	100.00	-5.42	864.99 M	-5.41	865.01 M
12.500 k	25.000 k	100.00	-63.28	864.99 M	-67.40	865.01 M

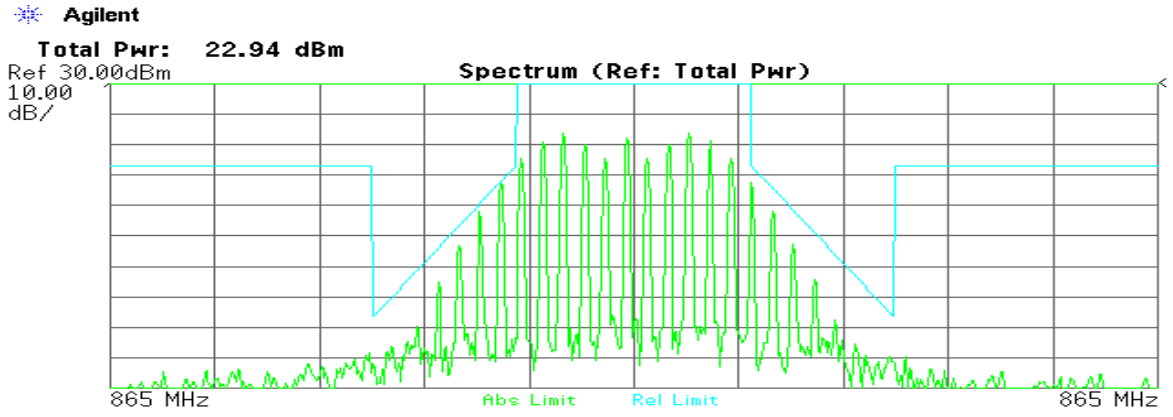
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 11K3F3E at AGC+3dB level
Configuration:	Input: 11K3F3E at AGC+3dB level



Total Pwr Ref: -7.21 dBm / 12.5000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
5.6500 k	12.500 k	100.00	-32.61	864.99 M	-32.63	865.01 M
12.500 k	25.000 k	100.00	-88.82	864.99 M	-94.19	865.01 M

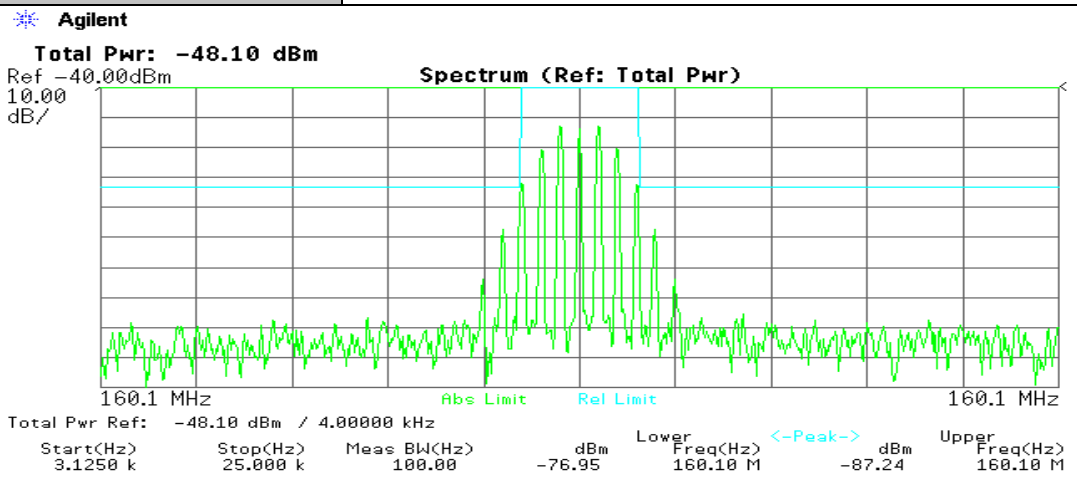
Configuration:	Output Port: EUT



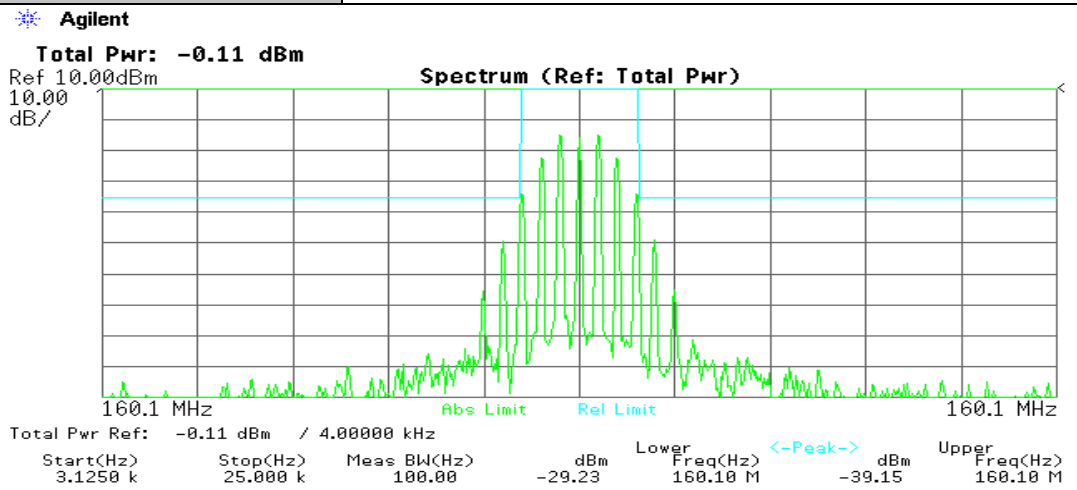
Total Pwr Ref: 22.94 dBm / 12.5000 kHz

Start(Hz)	Stop(Hz)	Meas BW(Hz)	Lower dBm	Lower Freq(Hz)	<-Peak-> dBm	Upper Freq(Hz)
5.6500 k	12.500 k	100.00	-2.45	864.99 M	-2.45	865.01 M
12.500 k	25.000 k	100.00	-60.74	864.99 M	-60.52	865.01 M

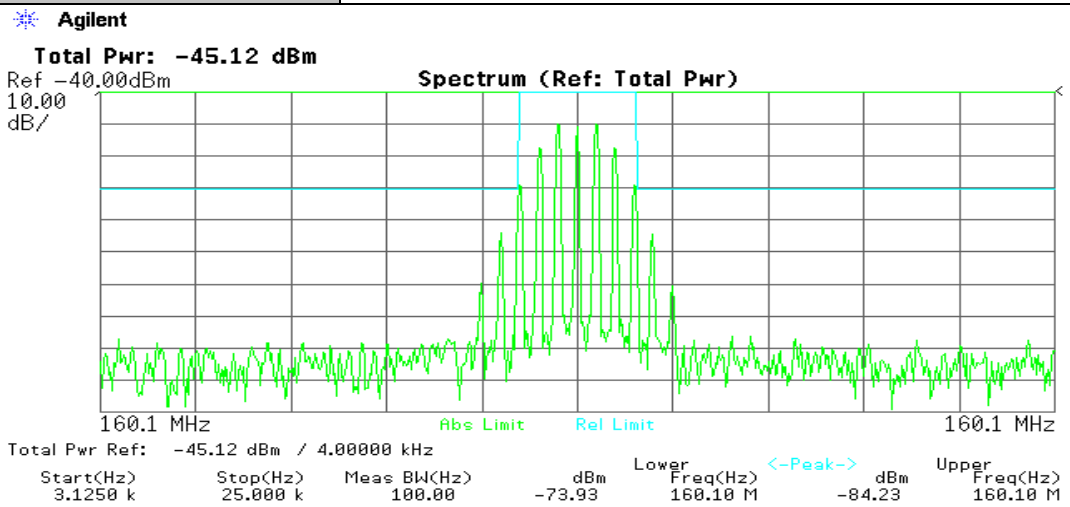
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 4k00F3E at AGC level
Configuration:	Input: 4k00F3E at AGC level



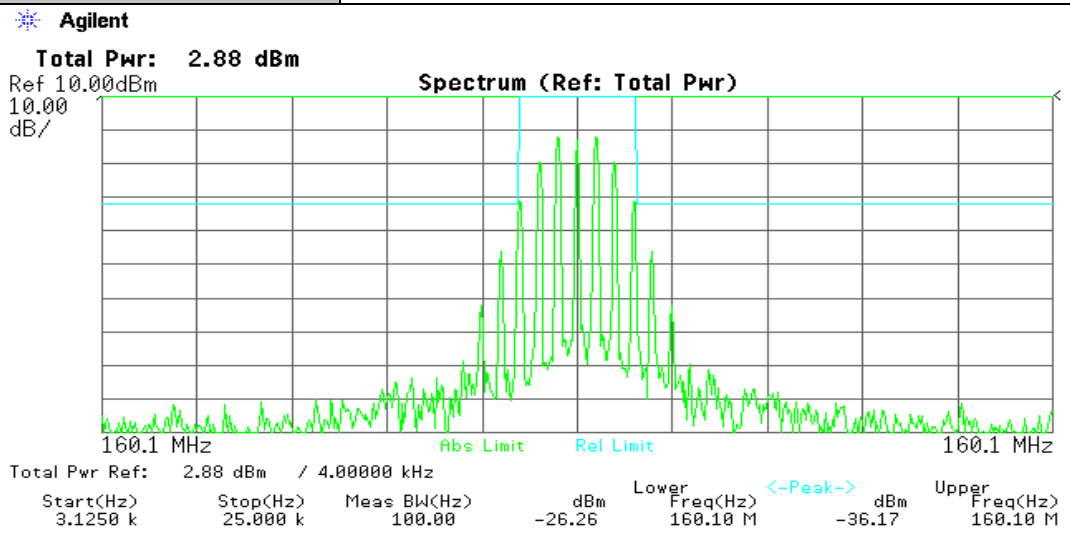
Configuration:	Output Port: EUT



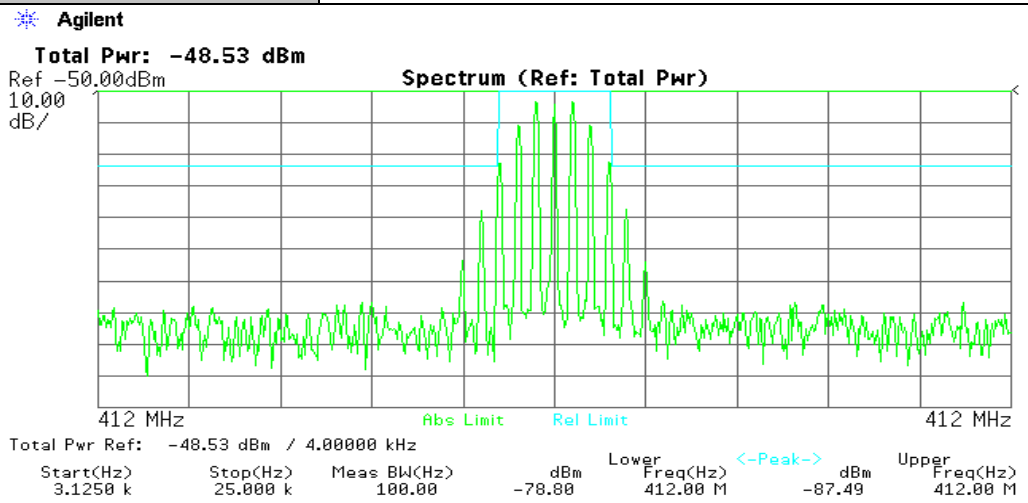
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 4k00F3E at AGC+3dB level
Configuration:	Input: 4k00F3E at AGC+3dB level



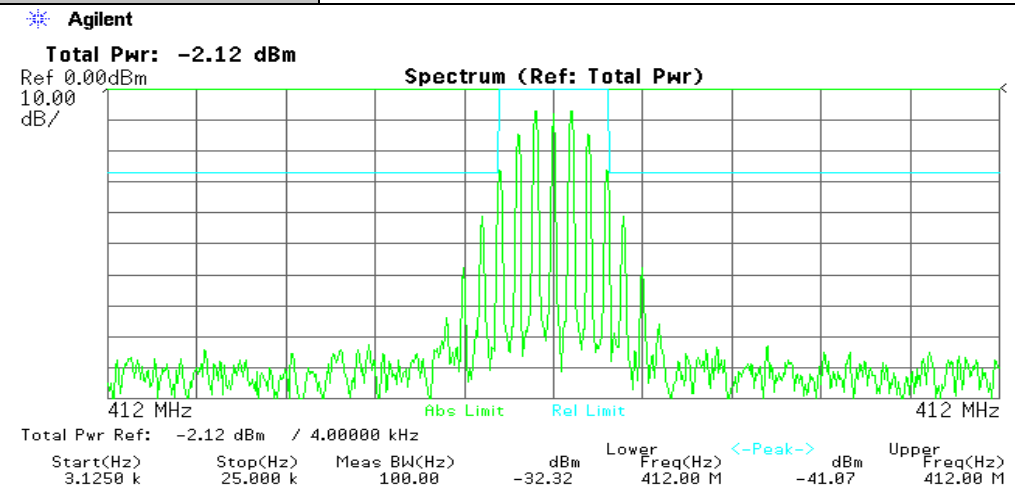
Configuration:	Output Port: EUT



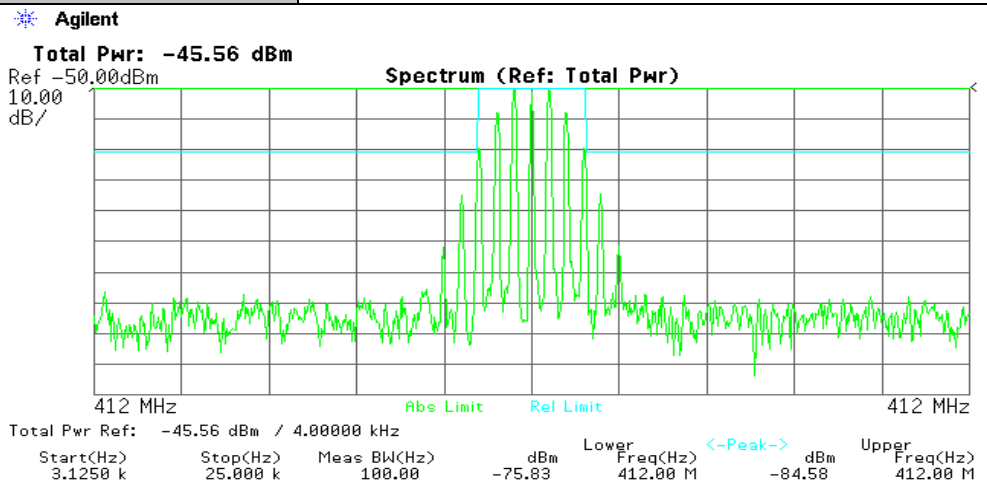
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 4k00F3E at AGC level
Configuration:	Input: 4k00F3E at AGC level



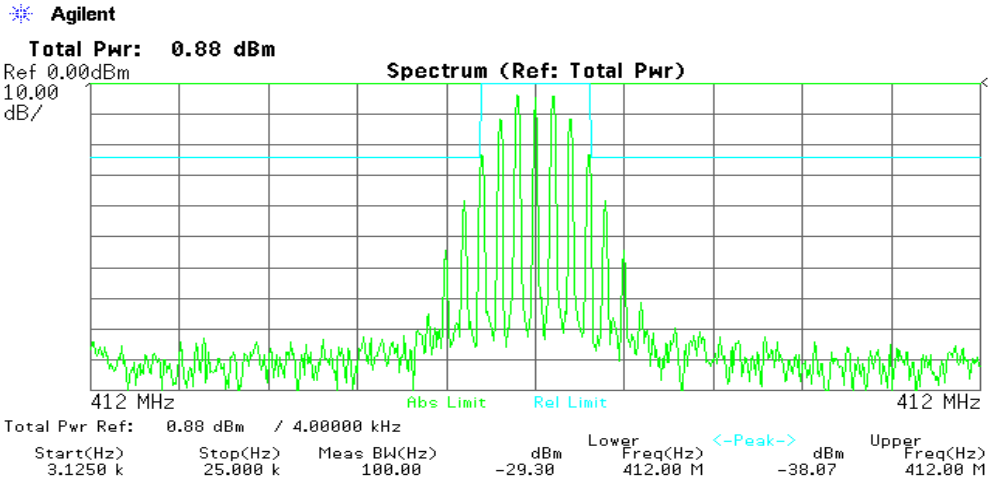
Configuration:	Output Port: EUT



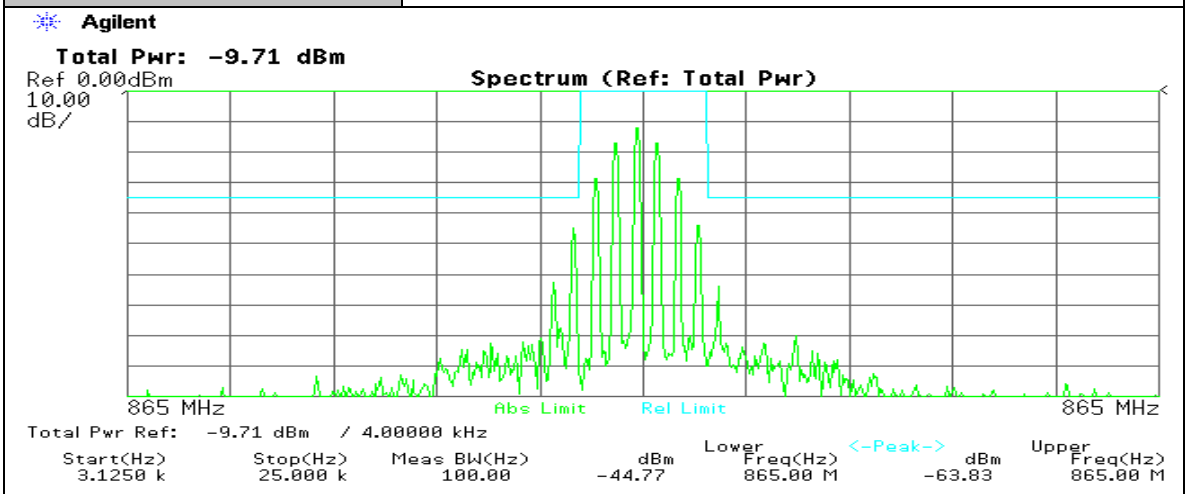
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 4k00F3E at AGC+3dB level
Configuration:	Input: 4k00F3E at AGC+3dB level



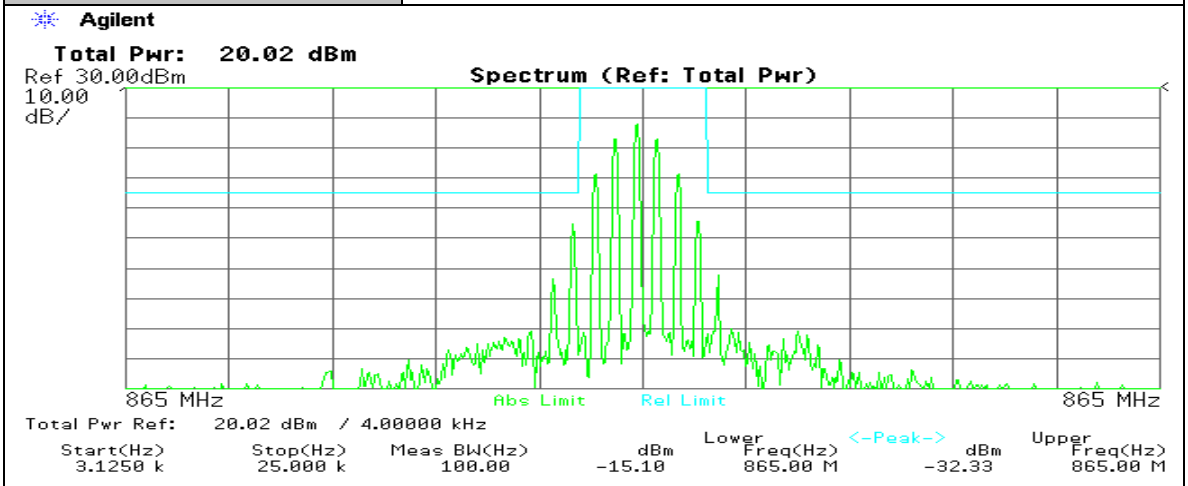
Configuration:	Output Port: EUT



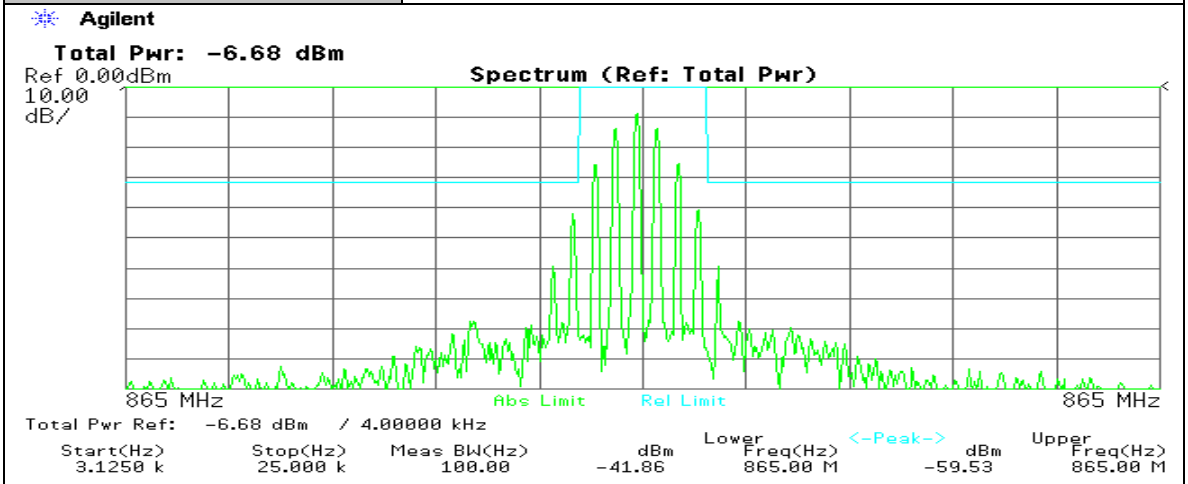
Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 4k00F3E at AGC level
Configuration:	Input: 4k00F3E at AGC level



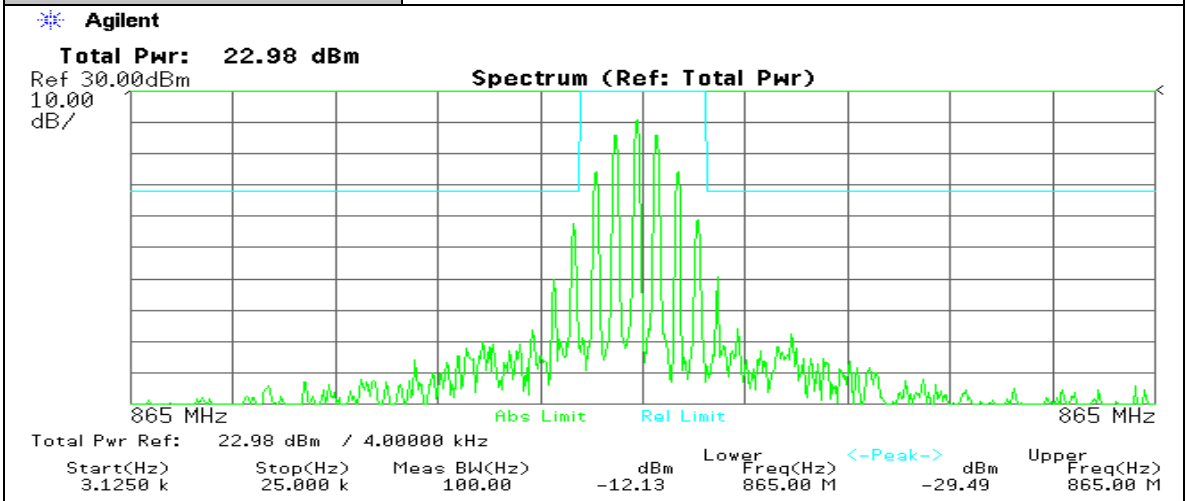
Configuration:	Output Port: EUT



Section:	Input-versus-output signal comparison
Plot Name:	Input/Output Signal for Signal 4k00F3E at AGC+3dB level
Configuration:	Input: 4k00F3E at AGC+3dB level



Configuration:	Output Port: EUT



Section 6. Input/output power and amplifier/booster gain

Name of Test:	*Input/output power and amplifier/booster gain*	Test Standard:	*KDB 935210 D05*
Tested By:	WEI LI	Test Date:	3/11/2025-4/4/2025

Minimum Standard: per KDB 935210 D05 Indus Booster Basic Meas v01r04, Section 4.5

Method of Measurement:

Input power levels (uplink and downlink) should be set to maximum input ratings, while confirming that the device is not capable of operating in saturation (non-linear mode) at the rated input levels, including during the performance of the input/output power measurements.

a. Power measurement Method 1: using a spectrum or signal analyzer

a) Set the frequency span to at least 1 MHz.

b) Set RBW = 100 kHz.

c) Set VBW ≥ 3 × RBW.

d) Set the detector to PEAK, and trace mode to MAX HOLD.

e) Place a marker on the peak of the signal, and record the value as the maximum power.

f) Repeat step e) but with the EUT in place.

b. Power measurement Method 2: using a power meter

As an alternative to measuring the input and output power levels with a spectrum or signal analyzer, a broadband RF power meter may be used with an appropriate detector.

c. Calculating amplifier, repeater, or industrial booster gain

Gain (dB) = output power (dBm) − input power (dBm).

Test Result: **Complies**

Test Data:

Frequency, MHz	Input Power,dBm	Output Power, dBm	Max. Gain for each Band*, dB
163.0 in Band I	-10.00	20.10	30.10
472.5 in Band II	-10.00	19.95	29.95
865.0 in Band III	-10.00	19.92	29.92

* all cable loss and attenuation factors were taken in account.

Section 7. Band Noise

Name of Test:	*Band Noise*	Test Standard:	*KDB 935210 D05 90.219(e)(2)*
Tested By:	WEI LI	Test Date:	3/11/2025-4/4/2025

Minimum Standard: per KDB 935210 D05 v01r04, Sec. 4.6.

Method of Measurement: Section 90.219(e)(2) limits the noise figure of a signal booster to ≤ 9 dB in either direction.

In accordance with 935210 D02 Signal Boosters Certification v04, Section V, paragraph (j)(5): For the remote unit of a conventional fiber-connected host/remote DAS booster system, it is acceptable to submit compliance information and test data consistent with Section 90.219(d)(6)(ii) (i.e., ERP of noise ≤ −43 dBm in 10 kHz RBW) for the downlink path only, in place of Section 90.219(e)(2) noise figure test data (i.e., NF ≤ 9 dB for both UL and DL).

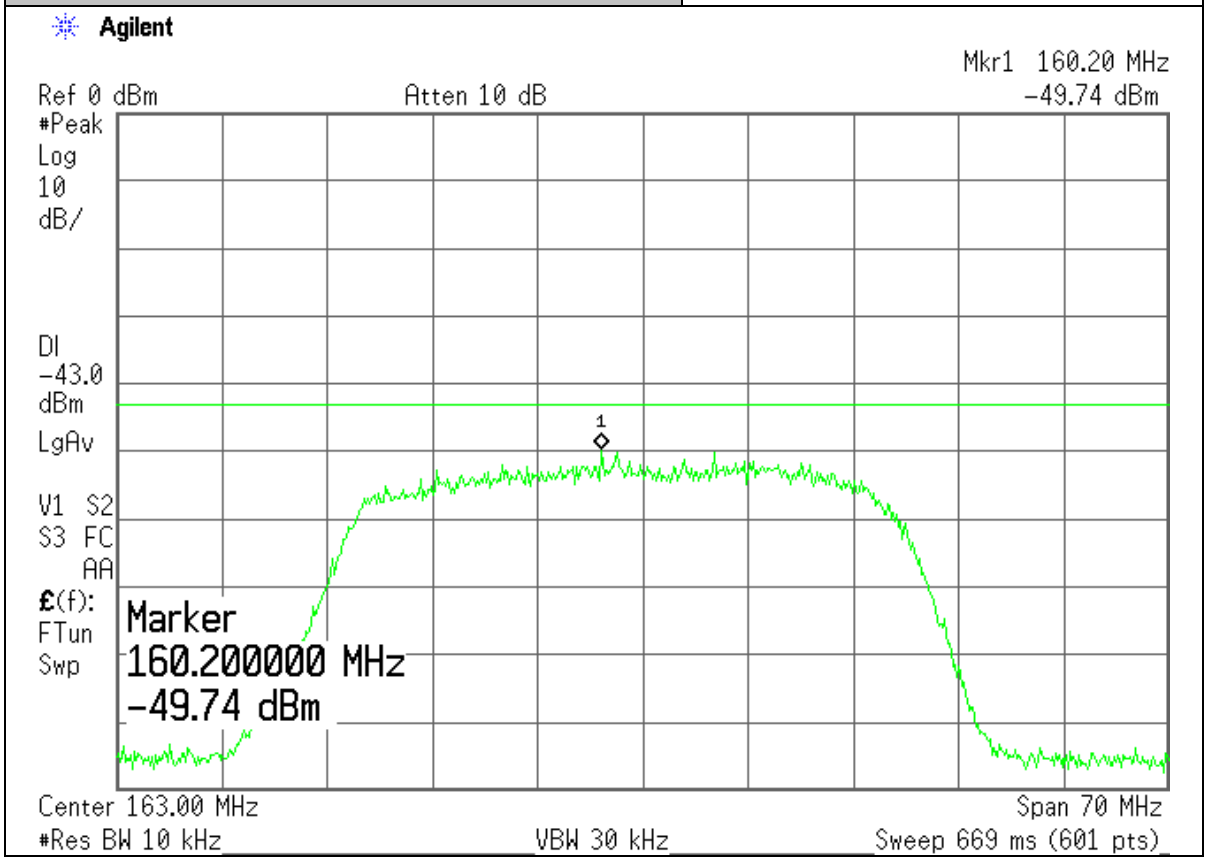
Test Result: **Complies**

Test Data: Attached Plots

Frequency, MHz	Noise, dBm	Limit, dBm	Result	Allowed Antenna Gain less
163.0 in Band I	-49.74	-43	Complies	6.74
472.5 in Band II	-48.50	-43	Complies	5.50
865.0 in Band III	-58.35	-43	Complies	15.35

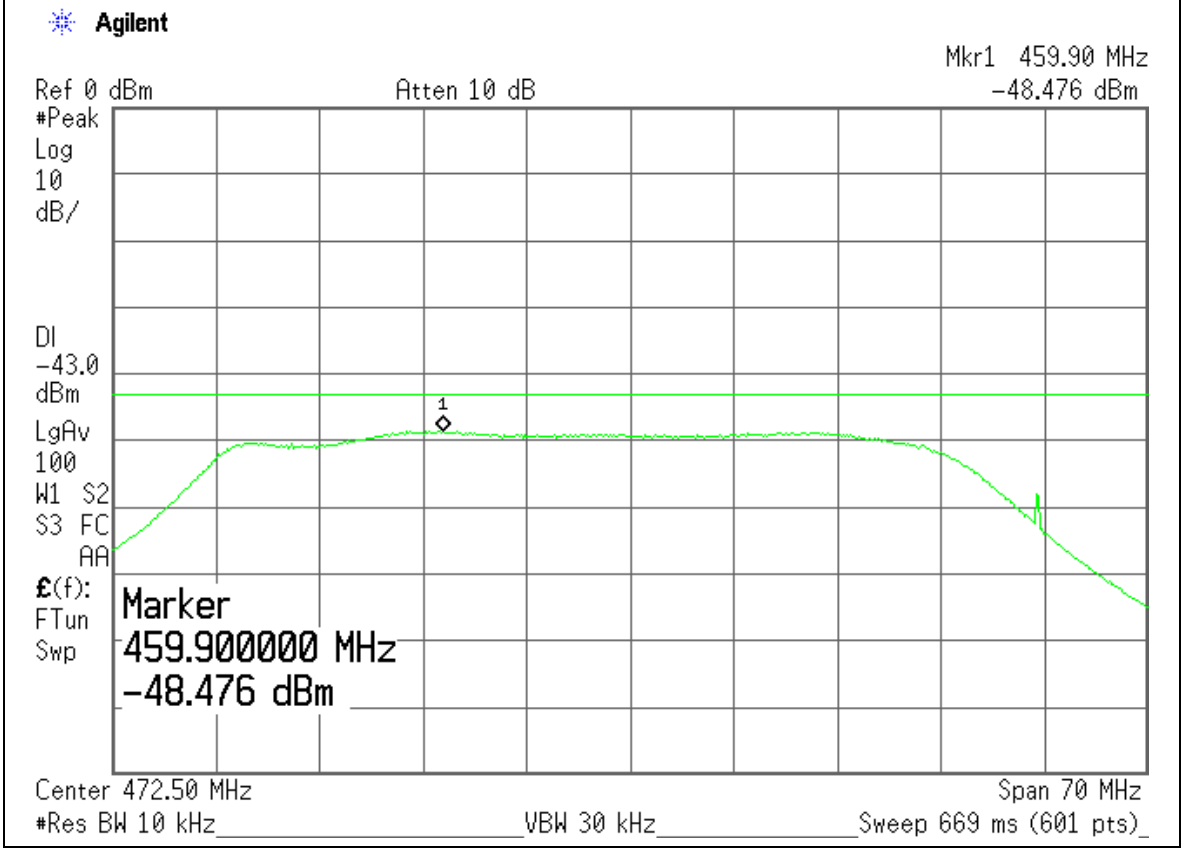
Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	**Band Noise**
Plot Name:	**Pass Band I Noise**
Configuration:	Input: None. Output Port: EUT



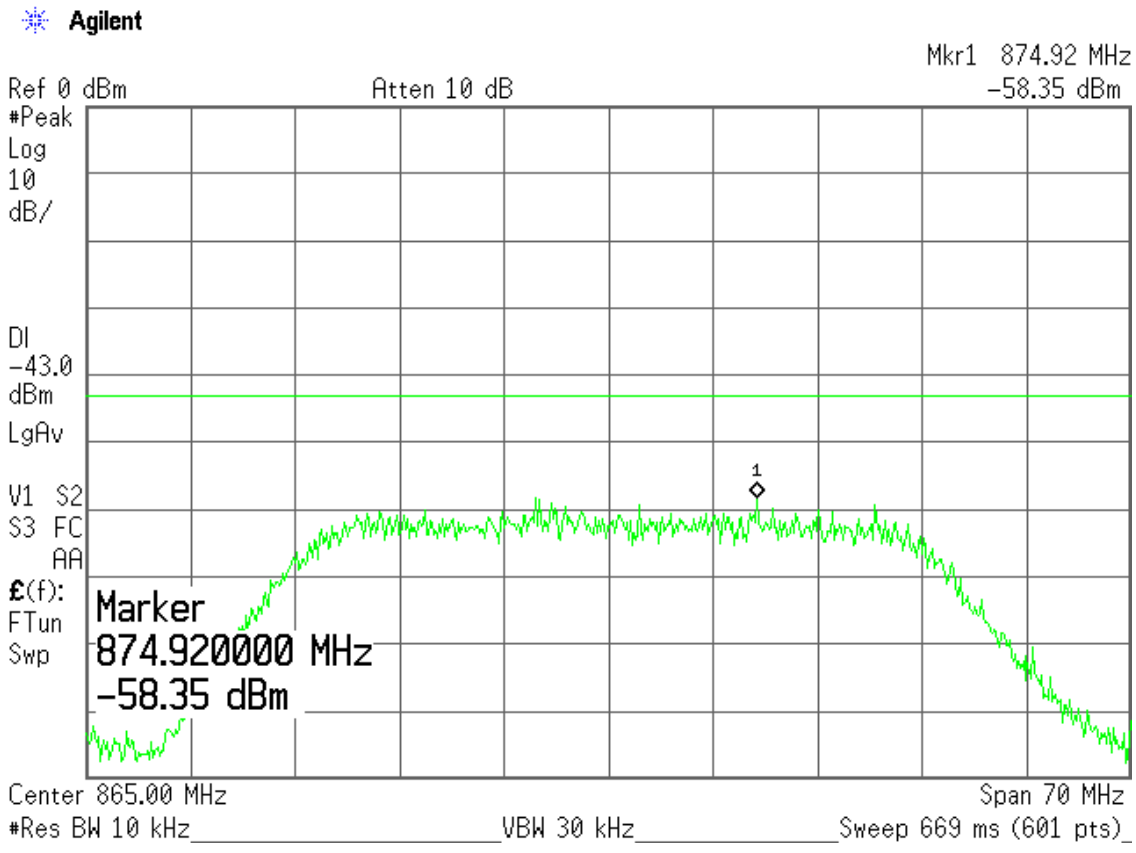
Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	**Band Noise**
Plot Name:	**Pass Band II Noise**
Configuration:	Input: None. Output Port: EUT



Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	**Band Noise**
Plot Name:	**Pass Band III Noise**
Configuration:	Input: None. Output Port: EUT



Section 8. Measuring out-of-band/out-of-block and Spurious Emissions

(including intermodulation)

Name of Test:	***Measuring out-of-band/out-of-block and Spurious Emissions (including intermodulation)***	**Test Standard:**	***KDB 935210 D05 90.210***
Tested By:	WEI LI	**Test Date:**	3/11/2025-4/4/2025

Minimum Standard: per KDB 935210 D05 Indus Booster Basic Meas v01r04, Section 4.7

Method of Measurement:

Out-of-band/out-of-block emissions conducted measurements

a) Connect a signal generator to the input of the EUT.

If the signal generator is not capable of producing two independent modulated carriers simultaneously, then two discrete signal generators can be connected, with an appropriate combining network to support the two-signal test.

b) Configure the two signal generators to produce CW on frequencies spaced consistent with 4.7.1, with amplitude levels set to just below the AGC threshold.

c) Connect a spectrum analyzer to the EUT output.

d) Set the span to 100 kHz.

e) Set RBW = 300 Hz with VBW ≥ 3 × RBW.

f) Set the detector to power averaging (rms).

g) Place a marker on highest intermodulation product amplitude.

h) Capture the plot for inclusion in the test report.

i) Repeat steps c) to h) with the composite input power level set to 3 dB above the AGC threshold.

j) Repeat steps b) to i) for all operational bands.

EUT spurious emissions conducted measurements

a) Connect a signal generator to the input of the EUT.

b) Configure the signal generator to produce a CW signal.

c) Set the frequency of the CW signal to the center channel of the EUT passband.

d) Set the output power level so that the resultant signal is just below the

AGC threshold .

e) Connect a spectrum analyzer to the output of the EUT, using appropriate attenuation as necessary.

f) Set the RBW = 100 kHz. (i.e., for 30 MHz to 1 GHz PLMRS and/or PSRS booster devices)

g) Set the VBW = 3 × RBW.

h) Set the Sweep time = auto-couple.

i) Set the detector to PEAK.

j) Set the spectrum analyzer start frequency to 30 MHz (or the lowest radio frequency signal generated in the EUT, without going below 9 kHz if the EUT has additional internal clock frequencies), and the stop frequency to 10 times the highest allowable frequency of the EUT passband.

k) Select MAX HOLD, and use the marker peak function to find the highest emission(s) outside the passband. (This could be either at a frequency lesser or greater than the passband frequencies.)

l) Capture a plot for inclusion in the test report.

m) Repeat steps c) to l) for each authorized frequency band/block of operation.

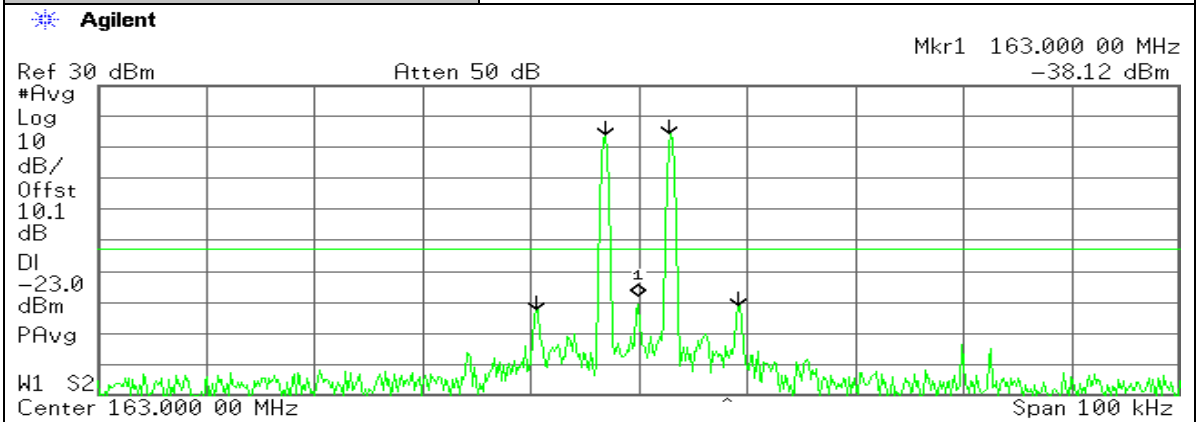
Test Result: **Complies**

Test Data: Attached Plots

Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

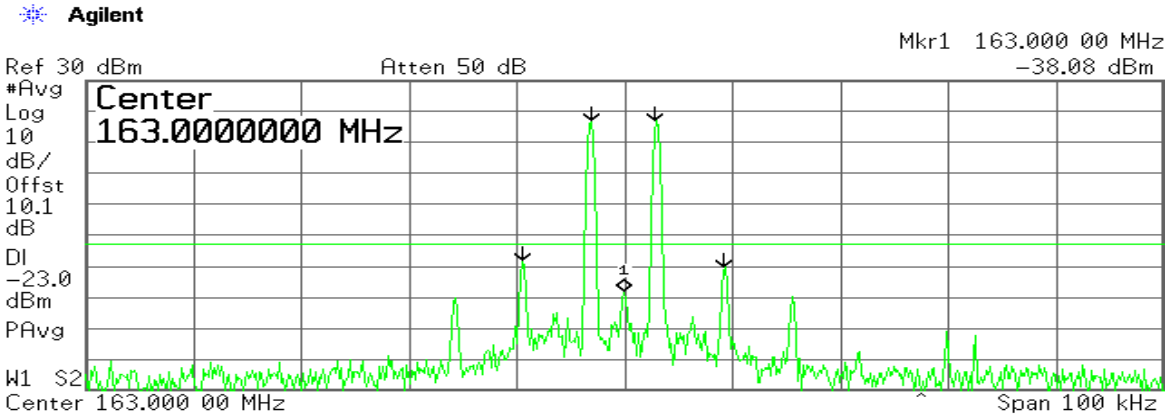
A. Intermodulation Products with rated input & +3dB input

Section:	Intermodulation Products
Plot Name:	Band I, 6.25KHz Channel Spacing
Configuration:	Input at AGC level



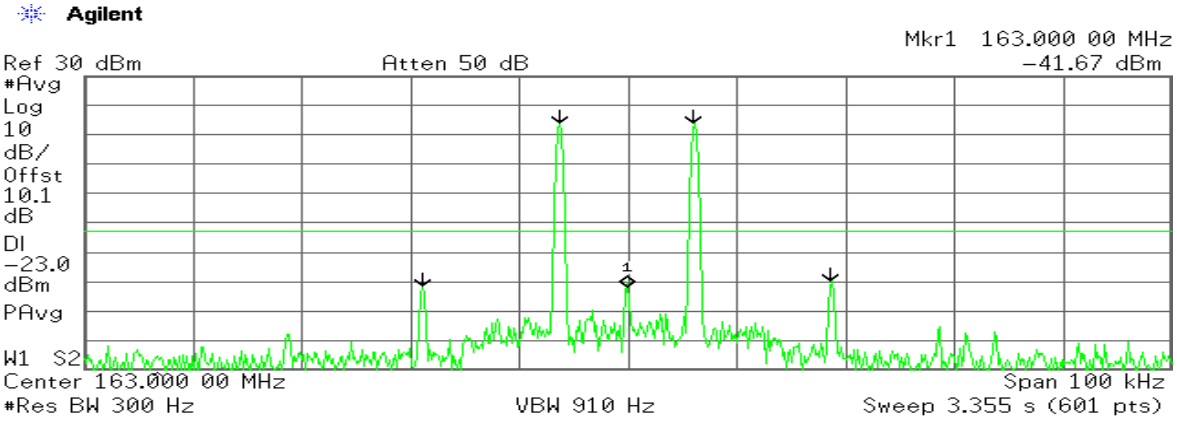
	Freq	dBm	dBc	Intercept
Base Lower	162.997 MHz	14.01	-0.40	
Base Upper	163.003 MHz	14.40	0.00	
Worst Case	163.009 MHz	-40.87	-55.28	41.84 dBm
3rd Order Lower	162.990 MHz	-42.48	-56.89	42.45 dBm
3rd Order Upper	163.009 MHz	-40.87	-55.28	41.84 dBm

Configuration:	Input at AGC +3dB level



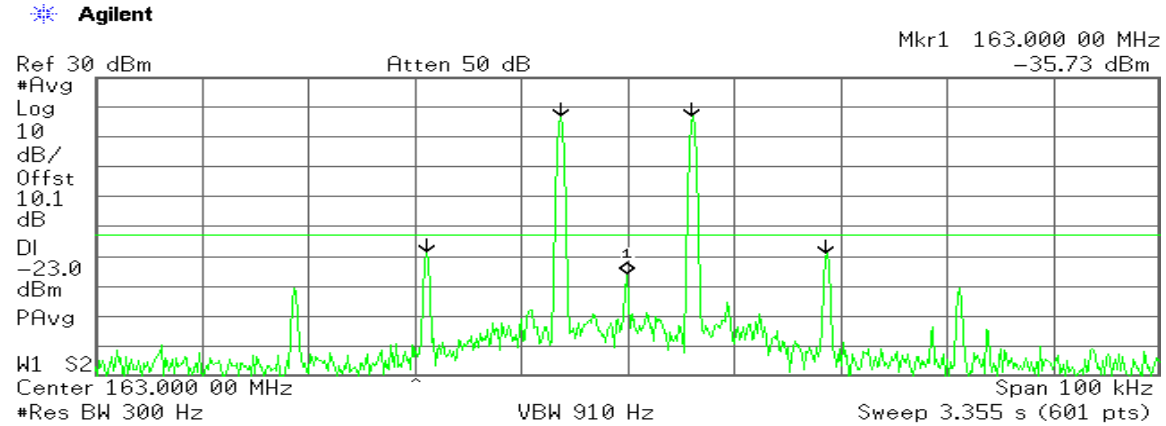
	Freq	dBm	dBc	Intercept
Base Lower	162.997 MHz	16.93	-0.02	
Base Upper	163.003 MHz	16.94	0.00	
Worst Case	162.990 MHz	-28.11	-45.06	39.46 dBm
3rd Order Lower	162.990 MHz	-28.11	-45.06	39.46 dBm
3rd Order Upper	163.009 MHz	-29.97	-46.91	40.39 dBm

Section:	Intermodulation Products
Plot Name:	Band I, 12.5KHz Channel Spacing
Configuration:	Input at AGC level



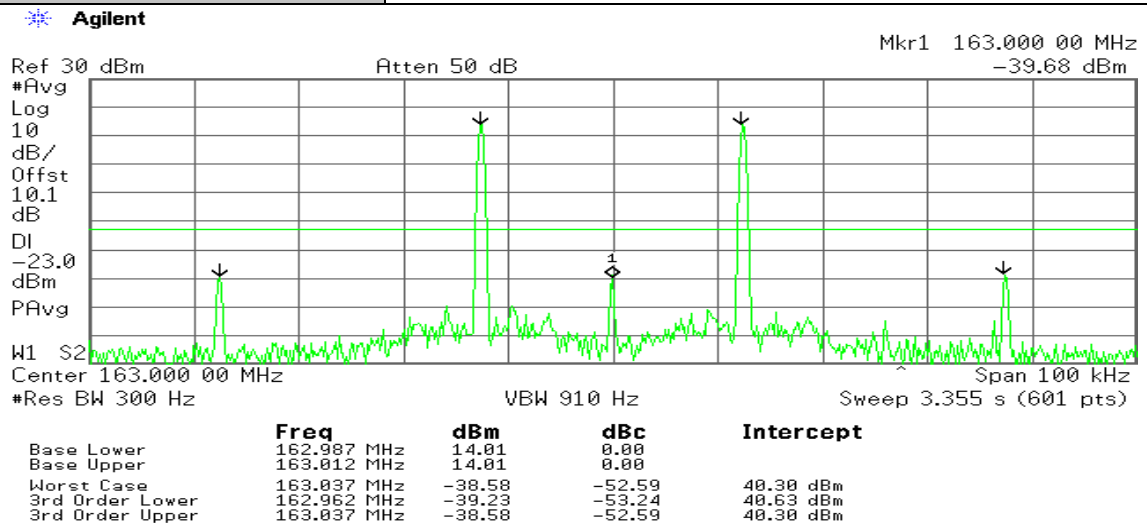
	Freq	dBm	dBc	Intercept
Base Lower	162.994 MHz	14.14	0.00	
Base Upper	163.006 MHz	14.03	-0.10	
Worst Case	163.019 MHz	-39.83	-53.97	41.02 dBm
3rd Order Lower	162.981 MHz	-41.43	-55.57	41.87 dBm
3rd Order Upper	163.019 MHz	-39.83	-53.97	41.02 dBm

Configuration:	Input at AGC +3dB level



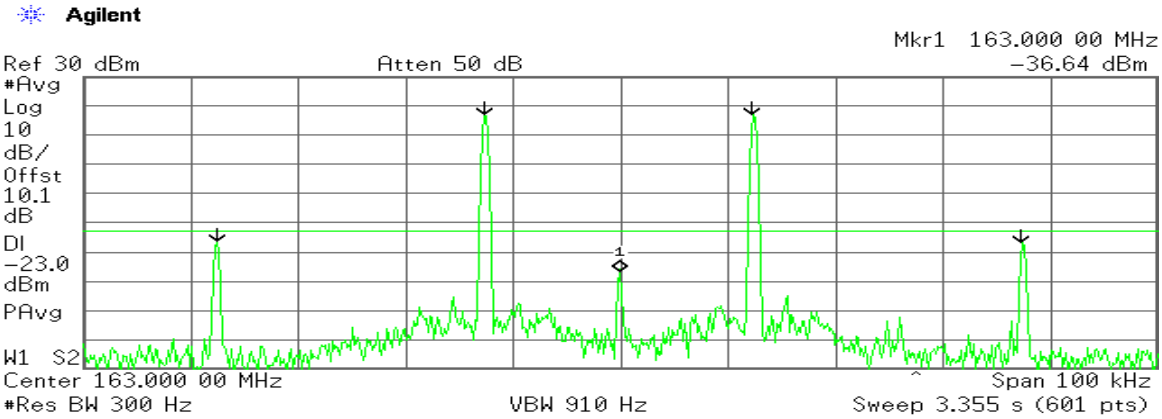
	Freq	dBm	dBc	Intercept
Base Lower	162.994 MHz	17.00	0.00	
Base Upper	163.006 MHz	16.95	-0.05	
Worst Case	162.981 MHz	-28.64	-45.65	39.80 dBm
3rd Order Lower	162.981 MHz	-28.64	-45.65	39.80 dBm
3rd Order Upper	163.019 MHz	-28.72	-45.72	39.82 dBm

Section:	Intermodulation Products
Plot Name:	Band I, 25KHz Channel Spacing
Configuration:	Input at AGC level



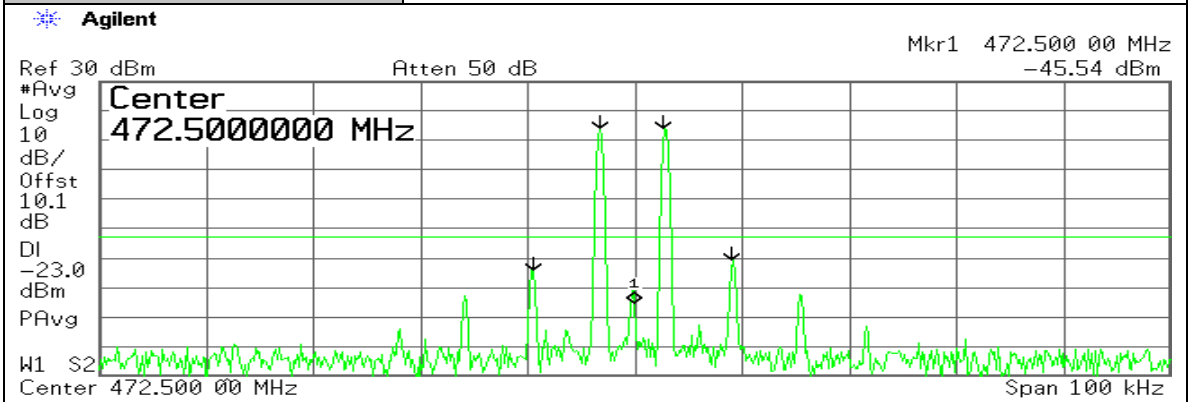
	Freq	dBm	dBc	Intercept
Base Lower	162.987 MHz	14.01	0.00	
Base Upper	163.012 MHz	14.01	0.00	
Worst Case	163.037 MHz	-38.58	-52.59	40.30 dBm
3rd Order Lower	162.962 MHz	-39.23	-53.24	40.63 dBm
3rd Order Upper	163.037 MHz	-38.58	-52.59	40.30 dBm

Configuration:	Input at AGC +3dB level



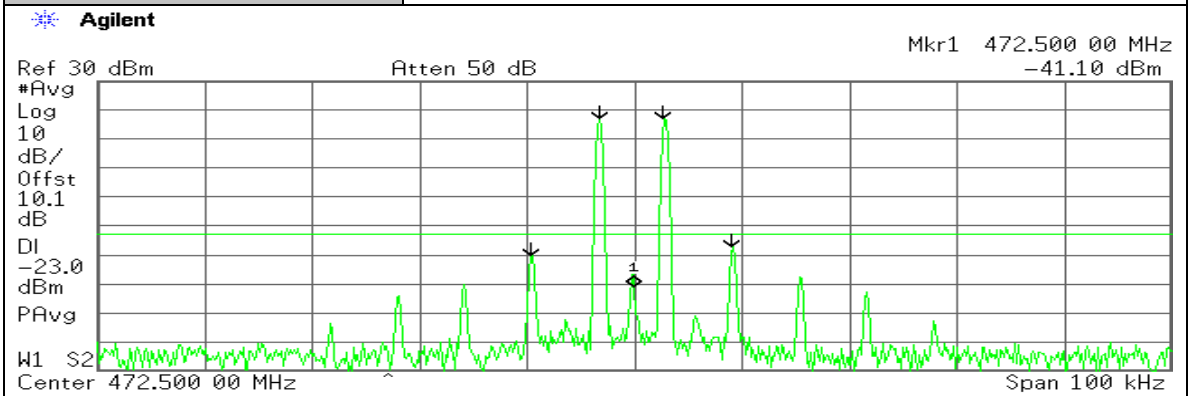
	Freq	dBm	dBc	Intercept
Base Lower	162.987 MHz	16.93	0.00	
Base Upper	163.012 MHz	16.90	-0.03	
Worst Case	162.962 MHz	-26.19	-43.13	38.48 dBm
3rd Order Lower	162.962 MHz	-26.19	-43.13	38.48 dBm
3rd Order Upper	163.037 MHz	-26.84	-43.78	38.79 dBm

Section:	Intermodulation Products
Plot Name:	Band II, 6.25KHz Channel Spacing
Configuration:	Input at AGC level



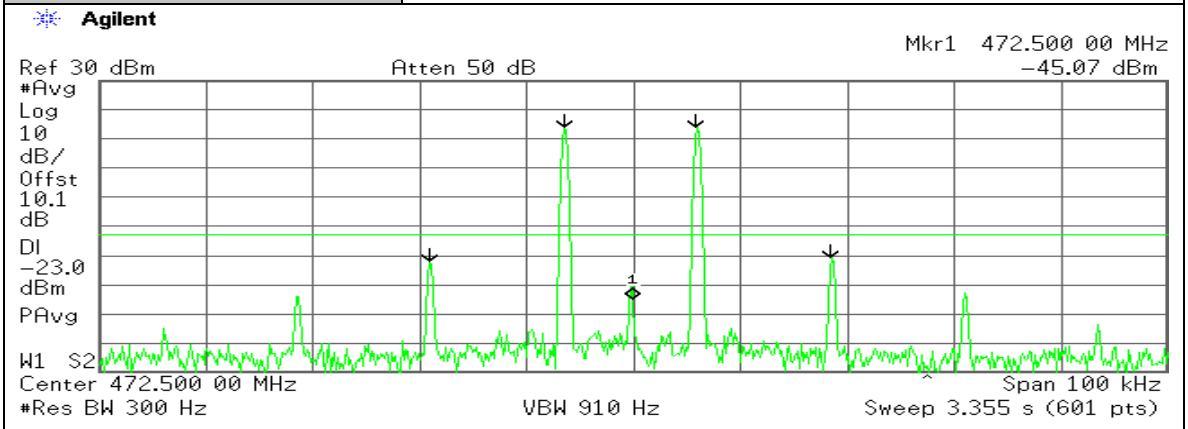
	Freq	dBm	dBc	Intercept
Base Lower	472.497 MHz	14.15	-0.03	
Base Upper	472.503 MHz	14.18	0.00	
Worst Case	472.509 MHz	-30.80	-44.97	36.65 dBm
3rd Order Lower	472.490 MHz	-33.99	-48.16	38.23 dBm
3rd Order Upper	472.509 MHz	-30.80	-44.97	36.65 dBm

Configuration:	Input at AGC +3dB level



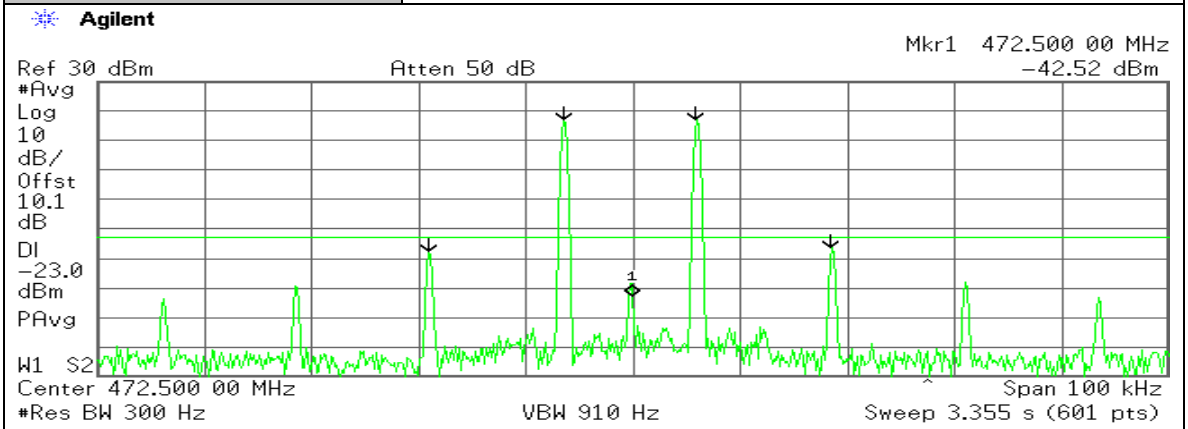
	Freq	dBm	dBc	Intercept
Base Lower	472.497 MHz	17.10	-0.05	
Base Upper	472.503 MHz	17.15	0.00	
Worst Case	472.509 MHz	-26.95	-44.10	39.18 dBm
3rd Order Lower	472.490 MHz	-30.04	-47.19	40.70 dBm
3rd Order Upper	472.509 MHz	-26.95	-44.10	39.18 dBm

Section:	Intermodulation Products
Plot Name:	Band II, 12.5KHz Channel Spacing
Configuration:	Input at AGC level



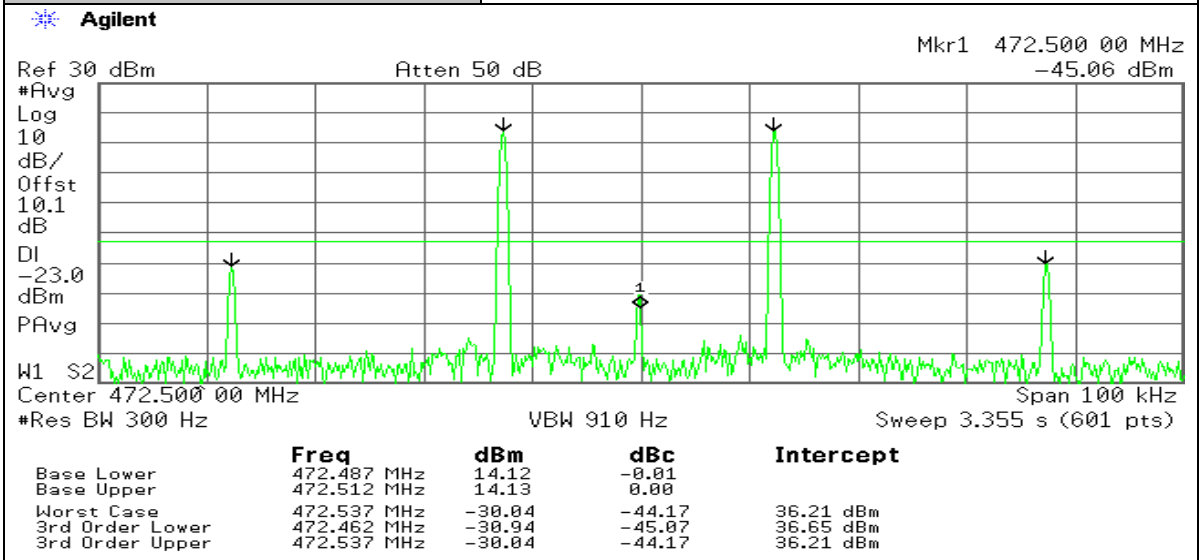
	Freq	dBm	dBc	Intercept
Base Lower	472.493 MHz	14.03	-0.13	
Base Upper	472.506 MHz	14.15	0.00	
Worst Case	472.518 MHz	-30.70	-44.85	36.51 dBm
3rd Order Lower	472.481 MHz	-31.95	-46.10	37.08 dBm
3rd Order Upper	472.518 MHz	-30.70	-44.85	36.51 dBm

Configuration:	Input at AGC +3dB level



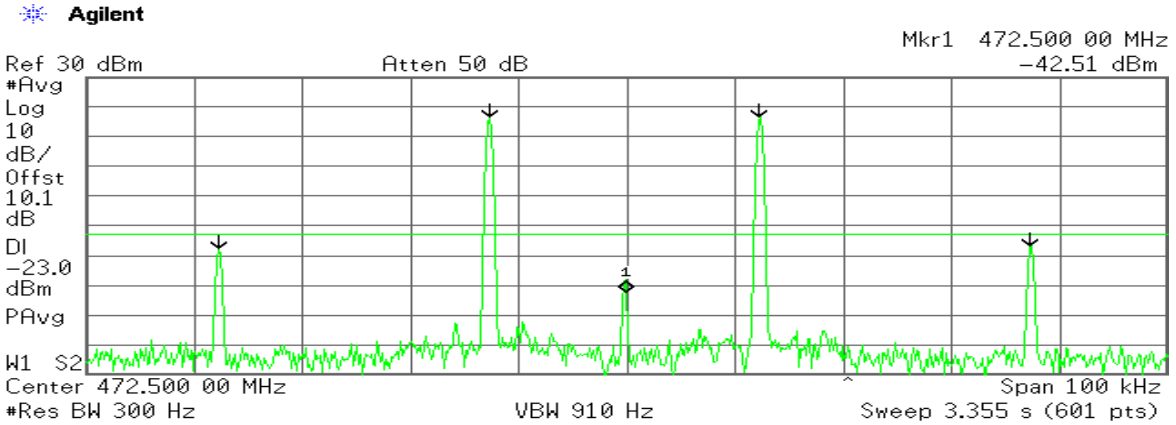
	Freq	dBm	dBc	Intercept
Base Lower	472.493 MHz	16.98	-0.13	
Base Upper	472.506 MHz	17.11	0.00	
Worst Case	472.518 MHz	-26.25	-43.36	38.72 dBm
3rd Order Lower	472.481 MHz	-27.70	-44.81	39.39 dBm
3rd Order Upper	472.518 MHz	-26.25	-43.36	38.72 dBm

Section:	Intermodulation Products
Plot Name:	Band II, 25KHz Channel Spacing
Configuration:	Input at AGC level



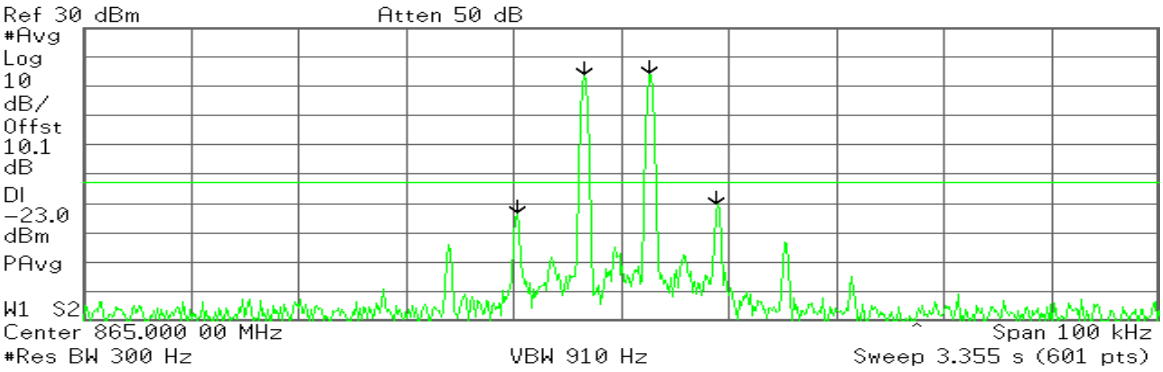
	Freq	dBm	dBc	Intercept
Base Lower	472.487 MHz	14.12	-0.01	
Base Upper	472.512 MHz	14.13	0.00	
Worst Case	472.537 MHz	-30.04	-44.17	36.21 dBm
3rd Order Lower	472.462 MHz	-30.94	-45.07	36.65 dBm
3rd Order Upper	472.537 MHz	-30.04	-44.17	36.21 dBm

Configuration:	Input at AGC +3dB level



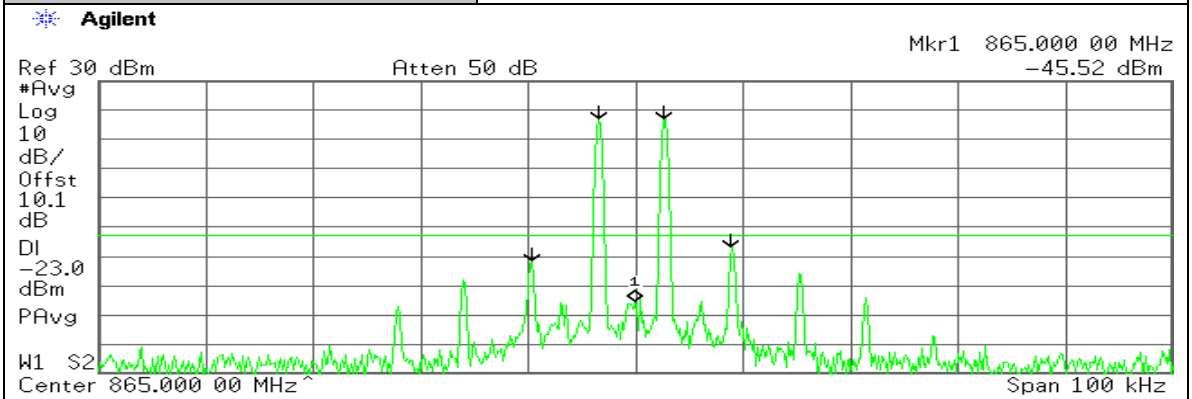
	Freq	dBm	dBc	Intercept
Base Lower	472.487 MHz	16.51	0.00	
Base Upper	472.512 MHz	16.45	-0.06	
Worst Case	472.537 MHz	-26.50	-43.02	37.96 dBm
3rd Order Lower	472.462 MHz	-27.43	-43.94	38.45 dBm
3rd Order Upper	472.537 MHz	-26.50	-43.02	37.96 dBm

Section:	Intermodulation Products
Plot Name:	Band III, 6.25KHz Channel Spacing
Configuration:	Input at AGC level



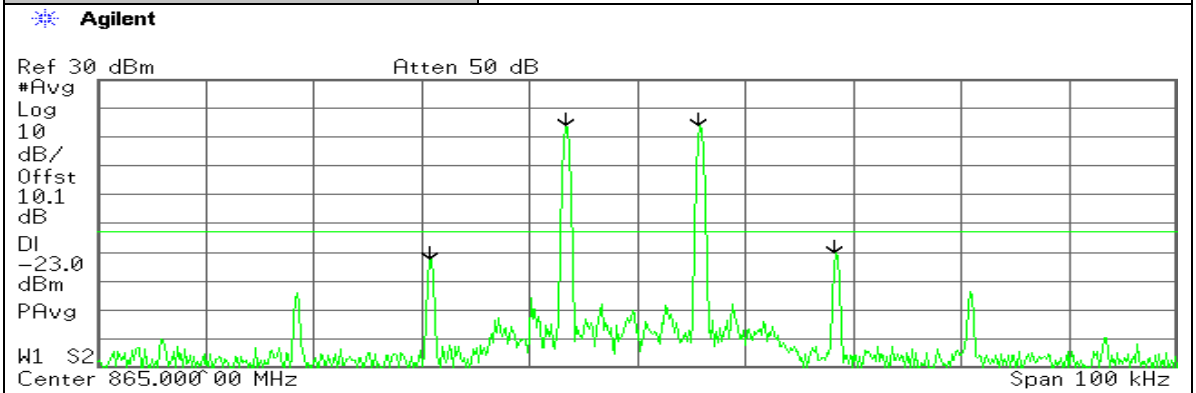
	Freq	dBm	dBc	Intercept
Base Lower	864.996 MHz	14.17	-0.05	
Base Upper	865.003 MHz	14.21	0.00	
Worst Case	865.009 MHz	-30.12	-44.33	36.36 dBm
3rd Order Lower	864.990 MHz	-33.22	-47.43	37.88 dBm
3rd Order Upper	865.009 MHz	-30.12	-44.33	36.36 dBm

Configuration:	Input at AGC +3dB level



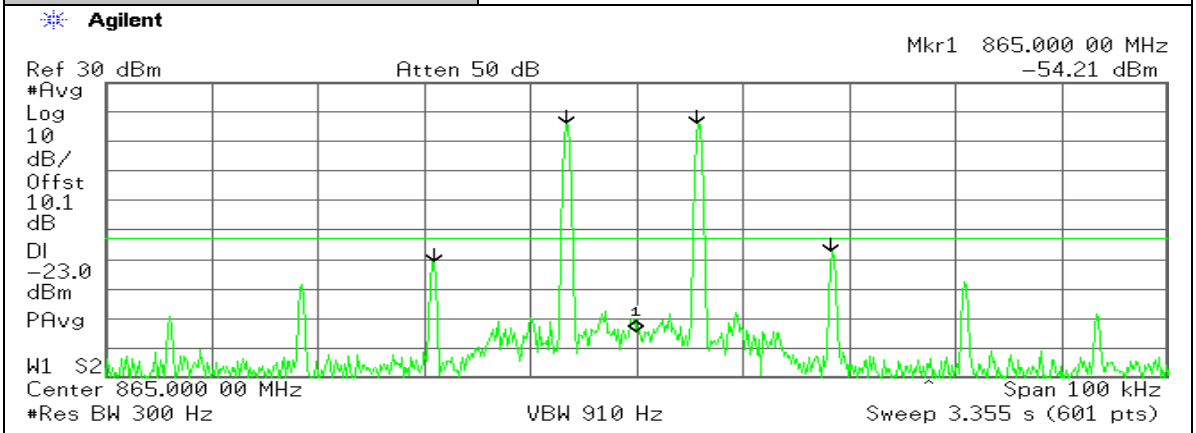
	Freq	dBm	dBc	Intercept
Base Lower	864.996 MHz	16.98	0.00	
Base Upper	865.003 MHz	16.92	-0.07	
Worst Case	865.009 MHz	-26.79	-43.78	38.80 dBm
3rd Order Lower	864.990 MHz	-31.48	-48.46	41.18 dBm
3rd Order Upper	865.009 MHz	-26.79	-43.78	38.80 dBm

Section:	Intermodulation Products
Plot Name:	Band III, 12.5KHz Channel Spacing
Configuration:	Input at AGC level



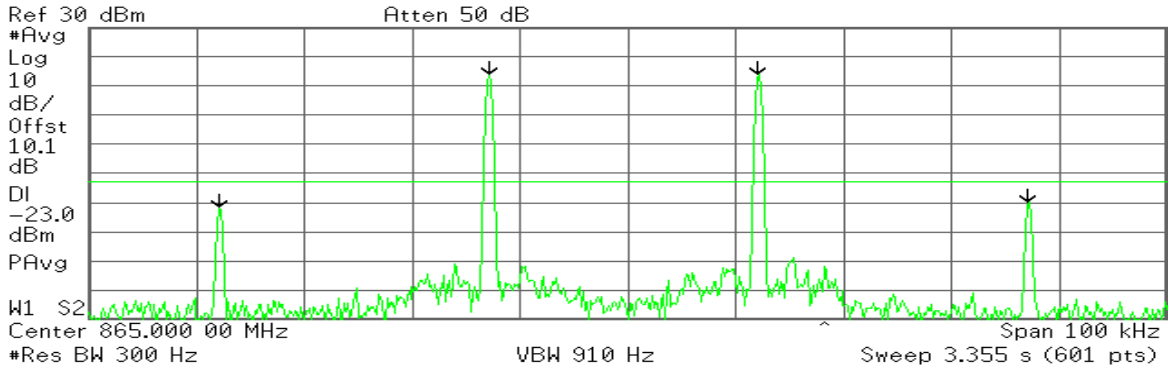
	Freq	dBm	dBc	Intercept
Base Lower	864.993 MHz	13.98	-0.03	
Base Upper	865.006 MHz	14.01	0.00	
Worst Case	865.018 MHz	-30.13	-44.14	36.06 dBm
3rd Order Lower	864.981 MHz	-32.46	-46.46	37.21 dBm
3rd Order Upper	865.018 MHz	-30.13	-44.14	36.06 dBm

Configuration:	Input at AGC +3dB level



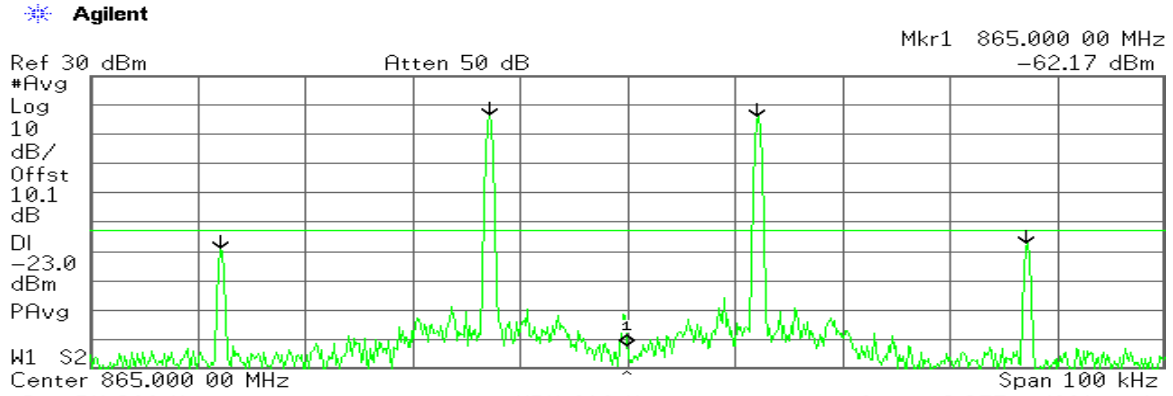
	Freq	dBm	dBc	Intercept
Base Lower	864.993 MHz	16.14	-0.23	
Base Upper	865.006 MHz	16.36	0.00	
Worst Case	865.018 MHz	-27.34	-43.71	38.10 dBm
3rd Order Lower	864.981 MHz	-30.67	-47.03	39.65 dBm
3rd Order Upper	865.018 MHz	-27.34	-43.71	38.10 dBm

Section:	Intermodulation Products
Plot Name:	Band III, 25KHz Channel Spacing
Configuration:	Input at AGC level



	Freq	dBm	dBc	Intercept
Base Lower	864.987 MHz	14.13	0.00	
Base Upper	865.012 MHz	14.12	-0.01	
Worst Case	865.037 MHz	-29.74	-43.87	36.05 dBm
3rd Order Lower	864.962 MHz	-31.64	-45.77	37.01 dBm
3rd Order Upper	865.037 MHz	-29.74	-43.87	36.05 dBm

Configuration:	Input at AGC +3dB level

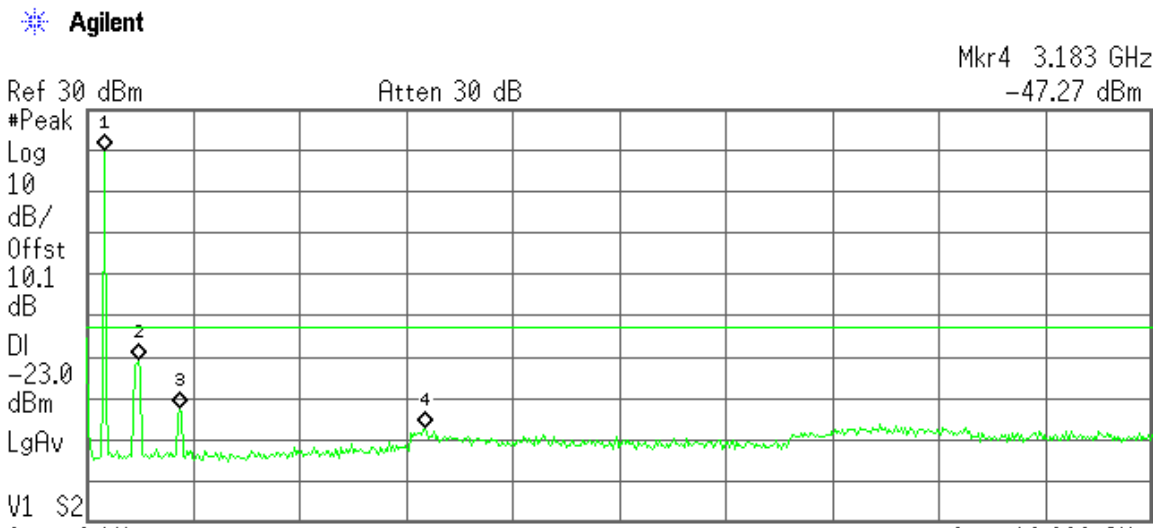


	Freq	dBm	dBc	Intercept
Base Lower	864.987 MHz	16.51	0.00	
Base Upper	865.012 MHz	16.27	-0.25	
Worst Case	865.037 MHz	-27.11	-43.62	38.08 dBm
3rd Order Lower	864.962 MHz	-29.07	-45.58	39.18 dBm
3rd Order Upper	865.037 MHz	-27.11	-43.62	38.08 dBm

B. Conducted Spurious Emissions

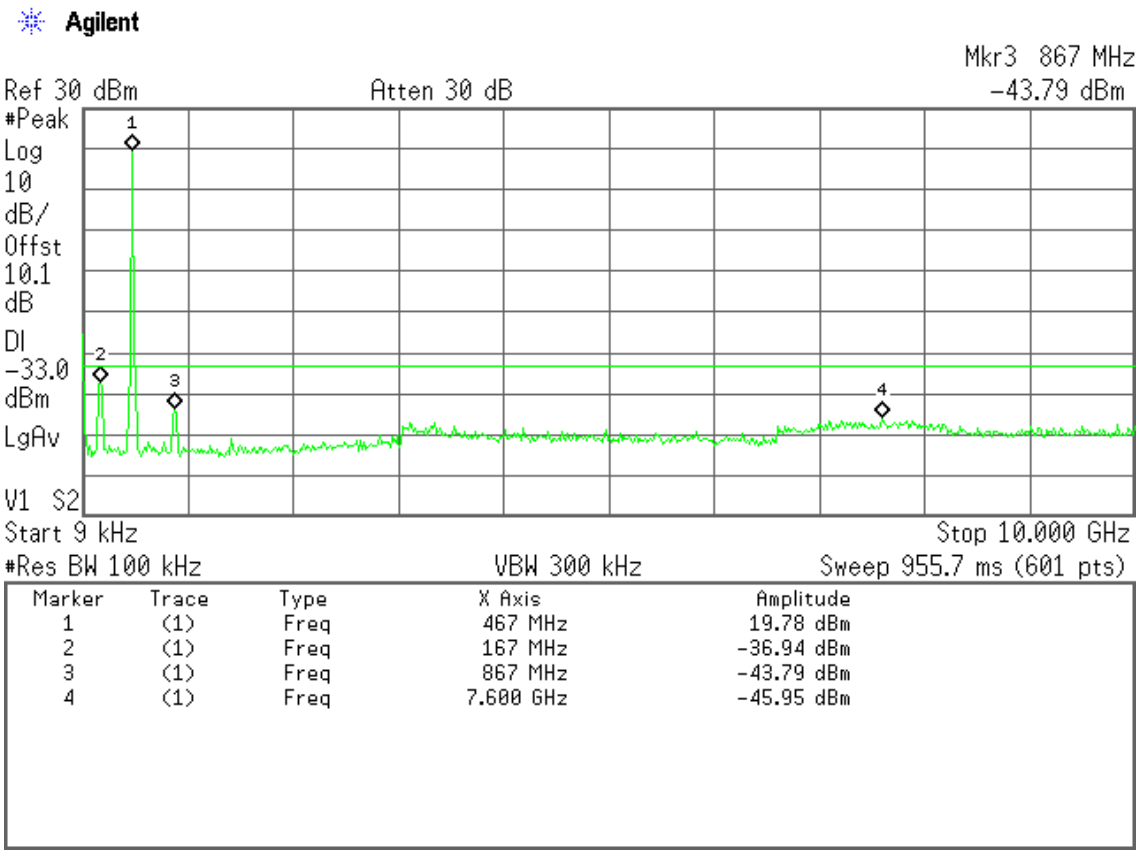
Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	**Conducted Spurious Emissions**
Plot Name:	**Band I Spurious**
Configuration:	Input: CW. Output Port: EUT



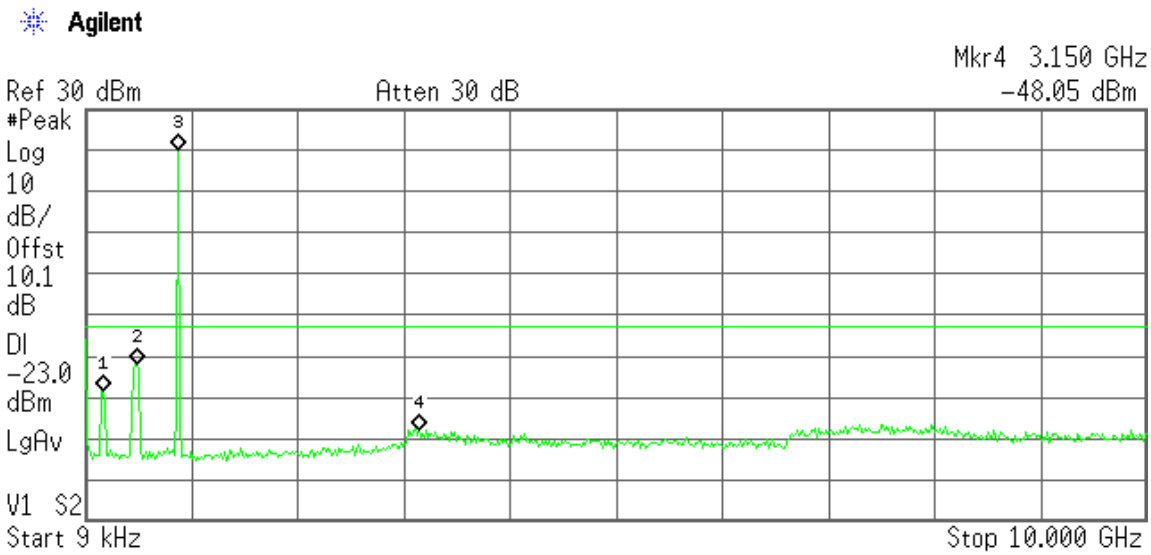
Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	**Conducted Spurious Emissions**
Plot Name:	**Band II Spurious**
Configuration:	Input: CW. Output Port: EUT



Project Number:	0048-250311-01
EUT:	Fiber to Antenna System/ Booster FTA DL 2.0 3A
SN:	PT001
Tested By:	Wei Li
Temperature:	70°F
Humidity:	30%

Section:	**Conducted Spurious Emissions**
Plot Name:	**Band III Spurious**
Configuration:	Input: CW. Output Port: EUT



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	167 MHz	-38.45 dBm
2	(1)	Freq	483 MHz	-31.98 dBm
3	(1)	Freq	867 MHz	20.01 dBm
4	(1)	Freq	3.150 GHz	-48.05 dBm

Section 9. Frequency Stability Measurements

Name of Test:	*Frequency stability measurements*	Test Standard:	*KDB 935210 D05 Part 90.219(e)(4)(i)*
Tested By:	WEI LI	Test Date:	3/11/2025-4/4/2025

Minimum Standard: per KDB 935210 D05 Indus Booster Basic Meas v01r04, Section 4.8

Method of Measurement: Refer to FCC Part 90.213 limit
Frequency Stability vs Temperature Variation and Power Supply Voltage Variation.

Test Result: **Complies**

Test Data:

A. Frequency Stability vs . Voltage

Nominal voltage =120Vac (provided to Power Box for +48Vdc output), 85% &115% of S.T.V. , T=25C, Choose Nominal Middle channel frequency =472.50MHz

	Voltage	Freq-Hz	Error-ppm	Limit(ppm)
85% Nominal	102	472499912	0.0042	1
Normal	**120**	**472499914**	**0**	**1**
115% Nominal	138	472499914	0	1

B. Frequency Stability vs. Temperature

Nominal voltage =120Vac (output+48Vdc),
Nominal Middle channel frequency =472.50MHz

Temperature ©	Measured Frequency (Hz)	Frequency Error (Hz)	Error in ppm	Limit
-30	472499882	-31	0.0656	1
-10	472499890	-23	0.0487	1
0	472499896	-17	0.0360	1
10	472499905	-8	0.0169	1
20	**472499913**	**0**	**0**	**1**
30	472499915	2	0.0042	1
40	472499910	-3	0.0064	1
50	472499905	-8	0.0169	1

Section 10. Field Strength of Spurious

Name of Test:	*Field Strength of Spurious*	Test Standard:	*KDB 935210 D05 2.1053*
Tested By:	DAVID TU	Test Date:	3/11/2025-4/4/2025

Minimum Standard: per KDB 935210 D05 Indus Booster Basic Meas v01r04, Section 4.9

Method of Measurement: Refer to Part 2.1053 & KDB 971168

Limit
-13 dBm = 82.2 dBuV/m at 3 m

Test Result: **Complies**

Test Data: See Attached Table(s)

* The pre-scan investigation shows that different modulation mode has no evident effect on spurious measurements. CW is chosen for final data collection.

Operation Mode : SG Frequency at Band I: 163.0 MHz (Rated Power)

Frequency (MHz)	Polarity [H, V]	Height (m)	Amplitude Reading* (dBμV)	-13dBm Limit @3m (dBμV/m)	Difference from limit (dB)
36.0	H	1.6	36.3	82.2	-45.9
49.6	H	1.6	38.9*	82.2	-43.3
58.9	H	1.6	45.6	82.2	-36.6
66.6	H	1.4	34.6	82.2	-47.6
126.1	H	1.1	35.2	82.2	-47.0
200	H	1.0	36.4	82.2	-45.8
250	H	1.0	40.3	82.2	-41.9
375	H	1.0	43.2	82.2	-39.0
34.3	V	1.3	49.5*	82.2	-32.7
37.2	V	1.2	48.3*	82.2	-33.9
49.1	V	1.1	42.7*	82.2	-39.5
57.2	V	1.2	43.0	82.2	-39.2
115.0	V	1.2	39.5	82.2	-42.7
126.1	V	1.1	42.4	82.2	-39.8
200	V	1.1	35.9	82.2	-46.3
250	V	1.1	39.8	82.2	-42.4
375	V	1.1	37.9	82.2	-44.3

*Peak reading. For emissions that have peak values close to (or over) the specification limit (if any) will be also measured in the quasi-peak or average mode to determine the compliance.
** Quasi-peak or Average Reading at this frequency.

Operation Mode : SG Frequency at Band II: 472.5MHz (Rated Power)

Frequency (MHz)	Polarity [H, V]	Height (m)	Amplitude Reading* (dBμV)	-13dBm Limit @3m (dBμV/m)	Difference from limit (dB)
36.8	H	1.6	37.0	82.2	-45.2
48.9	H	1.6	41.8	82.2	-40.4
59.0	H	1.6	45.0	82.2	-37.2
65.8	H	1.5	34.9	82.2	-47.3
125.4	H	1.3	34.1	82.2	-48.1
200	H	1.1	36.9	82.2	-45.3
250	H	1.1	41.0	82.2	-41.2
375	H	1.1	42.9	82.2	-39.3
35.2	V	1.2	50.3	82.2	-31.9
39.9	V	1.2	49.8	82.2	-32.4
49.6	V	1.2	44.0	82.2	-38.2
55.4	V	1.2	43.8	82.2	-38.4
115.8	V	1.2	40.0	82.2	-42.2
125.6	V	1.2	41.8	82.2	-40.4
200	V	1.1	34.2	82.2	-48.0
250	V	1.1	40.6	82.2	-41.6
375	V	1.1	39.1	82.2	-43.1
432	V	1.1	38.3	82.2	-43.9
700	V	1.1	41.1	82.2	-41.1

*Peak reading. For emissions that have peak values close to (or over) the specification limit (if any) will be also measured in the quasi-peak or average mode to determine the compliance.
** Quasi-peak or Average Reading at this frequency.

Operation Mode : SG Frequency at Band III: 865MHz (Rated Power)

Frequency (MHz)	Polarity [H, V]	Height (m)	Amplitude Reading* (dBμV)	-13dBm Limit @3m (dBμV/m)	Difference from limit (dB)
35.2	H	1.6	38.0	82.2	-44.2
49.0	H	1.6	40.9	82.2	-41.3
58.8	H	1.6	44.8	82.2	-37.4
66.9	H	1.4	34.0	82.2	-48.2
125.8	H	1.1	36.3	82.2	-45.9
200	H	1.0	37.0	82.2	-45.2
250	H	1.0	41.1	82.2	-41.1
375	H	1.0	42.4	82.2	-39.8
34.9	V	1.3	51.3	82.2	-30.9
40.4	V	1.2	50.2	82.2	-32
50.1	V	1.1	44.6	82.2	-37.6
58.0	V	1.2	43.8	82.2	-38.4
113.2	V	1.2	40.4	82.2	-41.8
125.3	V	1.1	41.7	82.2	-40.5
200	V	1.1	37.0	82.2	-45.2
250	V	1.1	40.3	82.2	-41.9
375	V	1.1	39.8	82.2	-42.4
865	V	1.1	45.5	82.2	-36.7
1736	V	1.1	41.2	82.2	-41

*Peak reading. For emissions that have peak values close to (or over) the specification limit (if any) will be also measured in the quasi-peak or average mode to determine the compliance.
** Quasi-peak or Average Reading at this frequency.

Section 11. Maximum Permissible Exposure

MPE estimate is given per 2.1091 of FCC Rules:

Given

$E = \sqrt{(30 * P * G)} / d$

and

$S = E^2 / 3770$

where

E = Field Strength in Volts/meter
P = Power in Watts
G = Numeric antenna gain
d = Distance in meters
S = Power Density in milliwatts/square centimeter

Combining equations and rearranging the terms to express the distance as a function of the remaining variables yields:

$d = \sqrt{((30 * P * G) / (3770 * S))}$

Changing to units of Power to mW and Distance to cm, using:

P (mW) = P (W) / 1000 and
d (cm) =100 * d (m)

yields

$d = 100 * \sqrt{((30 * (P / 1000) * G) / (3770 * S))}$
$d = 0.282 * \sqrt{(P * G / S)}$

where

d = distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power Density in mW/cm^2

Substituting the logarithmic form of power and gain using:

P (mW) = 10 ^ (P (dBm) / 10) and
G (numeric) = 10 ^ (G (dBi) / 10)

yields

$d = 0.282 * 10^{((P + G) / 20)} / \sqrt{S}$ Equation (1)

$S = 0.0796 * 10^{((P + G)/10)} / d^2$ Equation (2)

where

d = MPE distance in cm
P = Power in dBm
G = Antenna Gain in dBi
S = Power Density Limit in mW/cm^2

Equation (1) and the measured peak power is used to calculate the MPE distance.
Equation (2) and the measured peak power is used to calculate the Power density.

Limit:

$S=1.0$ mW/cm^2 for public (un-controlled environment)*.
$S=5.0$ mW/cm^2 for professional (controlled environment)

*1mW/ cm^2 is the reference level for general public exposure according to the OET Bulletin 65, Edition 97-01 Table 1.

Results:

This EUT shall comply with RF exposure requirements stated in FCC KDB865664 section 2. and KDB447498 section 7.

No Antenna is included in this application. As reference, typical max. gain of antenna is G=3dBi. With P=+23dBm (3dB over rated power), using formula (1) or (2),

Minimum MPE distance d= 2.5 cm.

The intended and expected application for this product is for installation in a commercial base station (restricted access).

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.

Section 12. Test Equipment List

Manufacturer	Model	Serial No.	Description	Last Cal mm/dd/yy	Cal Due mm/dd/yy
Agilent	E4440A	US40420700	3Hz-26.5GHz Spec. Analyzer	1/27/24	1/17/26
R &S	ESPI	100018	9KHz-7GHz EMI Receiver	8/28/23	8/28/25
HP	HP8546A	3448A00290	9kHz to 6.5GHz EMI Receiver	9/25/23	9/25/25
EMCO	3104C	9307-4396	20-300MHz Biconical Antenna	4/21/24	4/21/26
EMCO	3146	9008-2860	200-1000MHz Log-Periodic Antenna	4/7/24	4/7/26
Electro-Meterics	ALR-25M/30	289	10KHz-30MHz Active Loop Antenna	3/12/24	3/12/26
EMCO	3115	4945	Double Ridge Guide Horn Antenna	5/21/24	5/21/26
ARA	MWH-1826/B	1013	18-26GHZ Horn Antena	11/15/23	11/15/25
R&S	SMH	8942280/010	Signal Generator	7/31/24	7/31/26
Agilent	E4433B	41310344	Signal Generator	7/31/24	7/31/26
RES-NET	RFA500NFF30	0108	30dB in-line Power Attenuator	*	
Narda	3022	80986	Directional Coupler	*	
Lorch Microwave	5NF-800/1000-S	AC3	Notch Filter	*	

All Test Equipment Used are Calibrated Traceable to NIST Standards. Calibration Interval: 2 Year.

* Functional Check and verified before each usage.