RF Test Report

Project Number: 4763950 **Proposal:** SUW-202102000467

Report Number: 4763950EMC01 **Revision Level:** 0

Client: Fiplex Communications, Inc.

Equipment Under Test: Class B Digital Channel Selective Signal Booster

Model Number: A7S27B

FCC ID: P3TA7S-2B

IC: 8986A-A7S2

FCC Rule Parts: FCC Part 90

Test Standards: ANSI C63.26:2015

RSS-131, Issue 3

RSS-GEN, Issue 5

FCC KDB 935210 D05 Indus Booster Basic Meas v01r04

Report issued on: 01 June 2021

Test Result: Compliant

Prepared by: Jeremy Pickens, RF Lab Manager

Reviewed by: David Schramm, Operations Manager

Remarks: This report details the results of the testing carried out on one sample; the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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TABLE OF CONTENTS

1 Summary of Test Results

Part 2	RSS-GEN		Result
2.202	A10.d	Bandwidth and emissions	Compliant
2.1033(c)(8)		Power at the final amplifier	Compliant
2.1046(a)	6.12	RF output power	Compliant
2.1047	A10.b	Modulation characteristics	N/A[1]
2.1049	6.7	Occupied bandwidth	Compliant
2.1051	6.13	Spurious emissions at antenna terminals	Compliant
2.1053	6.13	Field strength of spurious emissions	Compliant
2.1055	6.11	Frequency stability	N/A[1]
Part 90	RSS-131		Result
90.205	5.2.3	Transmitter power	Compliant
90.207		Types of emissions	Compliant
90.209		Bandwidth limitations	Compliant
90.210	5.2.2	Emission masks, in-band	Compliant
90.210	5.2.1	Emission masks, out-ot-band	Compliant
90.213	5.2.4	Frequency stability	N/A[1]
90.214		Transient frequency behavior	N/A[1]
90.219(d)(3)(i), (e)(1)		ERP of radiated power	N/A[2]
90.219(d)(6)(i)		ERP of intermodulation products	N/A[2]
90.219(d)(6)(ii)		ERP of noise within the passband	N/A[2]
90.219(d)(6)(iii)		ERP of noise on spectrum <1 MHz outside of the passband	N/A[2]
90.219(e)(2)	6.4	Noise figure	Compliant
90.219(e)(3)	6.5	Spurious emissions	Compliant
90.219(e)(4)(i)(ii)(iii)		Retransmitted signals	Compliant
90.221		Adjacent channel power	Compliant
KDB 934210 D05 applicable clauses			Result
4.1		Test signals for PLMRS (input signals)	Compliant
4.2		AGC threshold	Reported
4.3		Out-of-band rejection	Reported
4.4		Input vs Output signal comparison	Compliant
4.5		Output power	Compliant
4.5		Amplifier / booster gain	Reported
4.6		Noise figure	Compliant
4.7.2		Intermodulation products	Compliant
4.7.3		Spurious conducted emissions	Compliant
4.8		Frequency stability	N/A[1]
4.9		Spurious radiated emissions	Compliant

1) The EUT does not change the RF input signal in any way
2) Requirements of 90.219(d) apply at the deployment of this EUT. They are not applicable for certification.

2 General Information

2.1 *Client Information*

Name:	Fiplex Communications Inc
Address:	2101 NW 79th Ave.
City, State, Zip, Country:	Miami, FL 33122, USA

2.2 *Test Laboratory*

Name:	SGS Consumer Retail Services
Address:	620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country:	Suwanee, GA 30024, USA
Accrediting Body:	A2LA
Type of Lab:	Testing Laboratory
Certificate Number:	3212.01
Designation Number:	US1126

Environmental Conditions over duration of testing

	Min	Max
Temperature:	23.2 °C	24.2 °C
Relative Humidity:	32.6.2 %	42.5 %

2.3 *General Information of EUT*

Type of Product:	Class B Digital Channel Selective Signal Booster
Model Number:	A7S27B
Serial Number:	20126004FU
Firmware:	1.05-00
RF output power:	DL: 27 dBm (0.5 W); UL: 24 dBm (0.25 W)
Bands of Operation (Uplink):	788-805 MHz; 806-824 MHz
Bands of Operation (Uplink):	758-775 MHz; 851-869 MHz

Bandwidths and Emission class

8K10F1D	9K80F1D	11K3F3E	5M00D7W	10M0D7W
8K10F1E	9K80F1E		5M00F9W	10M0F9W
8K10F1W	9K80D7W		5M00G7D	10M0G7D

No. of Channels:	Varies
Duty cycle:	100%
Rated Voltage:	120Vac, 60Hz
Tested Voltage:	120Vac, 60Hz
Antenna Characteristics:	The EUT does not include antenna(s)
Sample Received Date:	01 April 2021
Dates of testing:	07 – 24 May, 2021

2.4 *Operating Modes and Conditions*

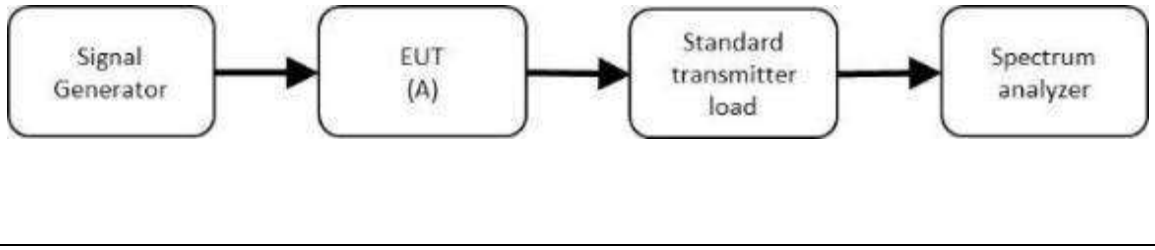
A signal generator was connected to the input port under test and the RF output port was connected to the spectrum analyzer. Both uplink and downlink paths were evaluated.

Test modes		
Link type	Band	Test frequencies (MHz)
Downlink	758 – 775 MHz	758.0125
		763.0000
		774.9875
Uplink	788 – 805 MHz	788.0125
		793.0000
		804.9875
Uplink	806 – 824 MHz	806.0125
		816.9875
		823.9875
Downlink	851 – 869 MHz	851.0125
		861.9875
		868.9875

2.5 *Modifications Required for Compliance*

None

2.6 *EUT Connection Block Diagram*



2.7 *System Configurations*

Device reference	Manufacturer	Description	Model Number	Serial Number
A (EUT)	Fiplex	Signal Booster	A7S27B	20126004FU

3 Out-of band rejection

3.1 *Test Result*

Test Description	Test reference	Test Result
Out-Of Band Rejection	ANSI C63.26 FCC KDB 935210 D05	Reported

3.2 *Test Method*

Testing was performed according to ANSI C63.26 and FCC KDB 935210 D05.

3.3 *Test Equipment*

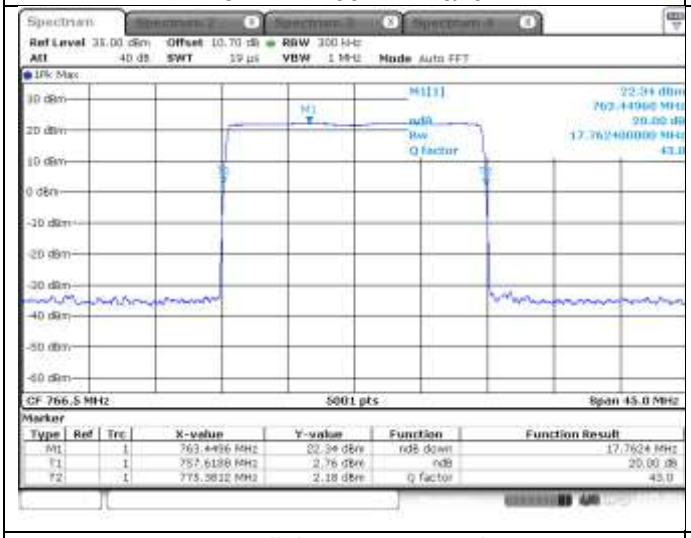
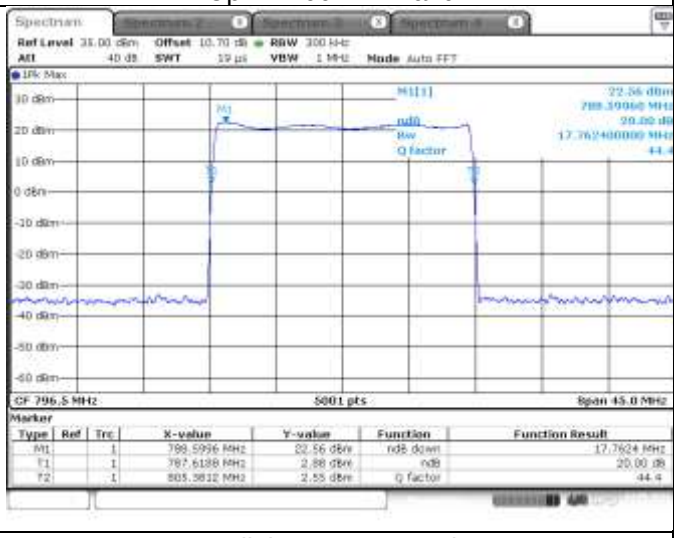
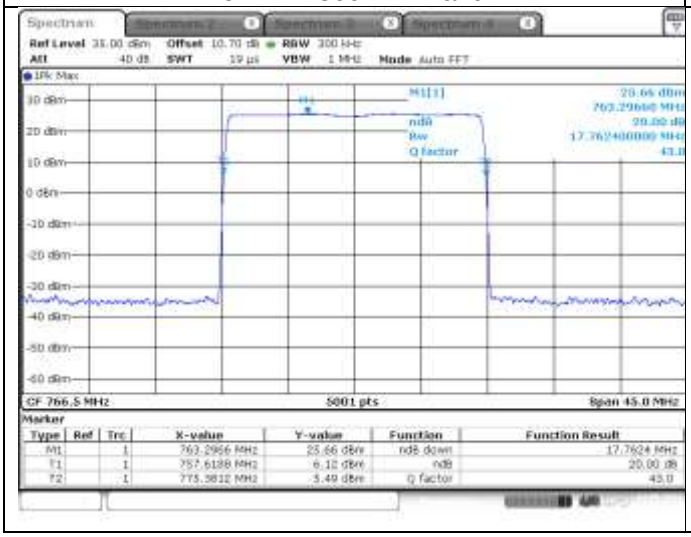
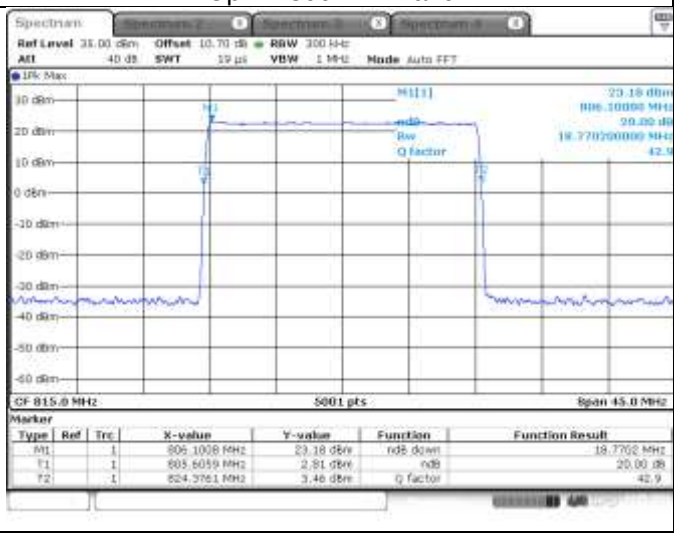
Test End Date: 13-May-2021 Tester: JOP

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
RF CABLE	UC-N-MM-78	MAURY MICROWAVE	17016	3-Sep-2020	3-Sep-2021
RF Cable right angle Nm to SMAm, 2-18GHz	90-102-039	TELEDYNE STORM MICROWAVE	20138	22-Mar-2021	22-Mar-2022
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	27-Dec-2019	27-Dec-2021
SIGNAL GENERATOR	SMB 100A	ROHDE & SCHWARZ	B085760	25-Jun-2019	25-Jun-2022
ATTENUATOR, 10DB	BW-S10W20+	Mini-Circuits	B095595	3-Sep-2020	3-Sep-2021

3.4 *Test Data*

Link type	Band	Passband (kHz)	Class of operation
Downlink	758 – 775 MHz	> 75 kHz	Class B
Uplink	788 – 805 MHz	> 75 kHz	Class B
Uplink	806 – 824 MHz	> 75 kHz	Class B
Downlink	851 – 869 MHz	> 75 kHz	Class B

3.5 *Spectrum plots*

Downlink 700MHz Band	Uplink 700MHz Band
	
Downlink 800MHz Band	**Uplink 800MHz Band**
	

4 Input-versus-output signal comparison

4.1 *Test Result*

Test Description	Test reference	Test Result
Input-versus-output signal comparison	ANSI C63.26 FCC KDB 935210 D05	Compliant

4.2 *Test Method*

Testing was performed according to KDB 935210 D05 Industrial Signal Boosters.

Authorized bandwidth		
Rule Part	Operating Range	Authorized Bandwidth
Part 90	758 – 775 MHz	Unspecified
Part 90	806 – 809 MHz; 851 – 854 MHz	20 kHz
Part 90	809 – 817 MHz; 854 – 862 MHz	20 kHz; 11.25 kHz
Part 90	817 – 824 MHz; 862 – 869 MHz	20 kHz
Applicable input signals		
Signal	Occupied bandwidth (kHz)	Representative emission designator(s)
CW	n/a	n/a
12.5 kHz FM	11.3	11K3F3E
C4FM (P25 Phase I)	8.1	8K10F1D, 8K10F1E
HCPM (P25 Phase II SU)	8.1	8K10F1W
HDQPSK (P25 Phase II BS)	9.8	9K80F1D, 9K80F1E, 9K80D7W
AWGN	4230.77	5M00G7D, 10M0G7D, 5M00D7W, 10M0D7W, 5M00W7D, 10M0W7D, 5M00F9W, 10M0F9W

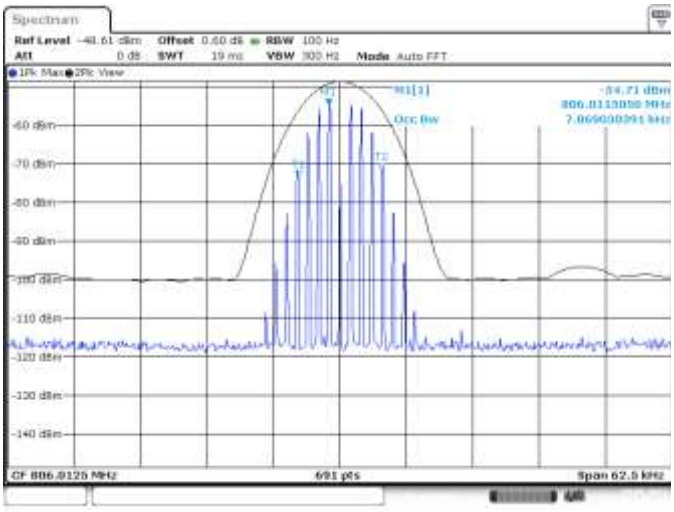
4.3 *Test Equipment*

Test End Date: 20-May-2021 Tester: JOP

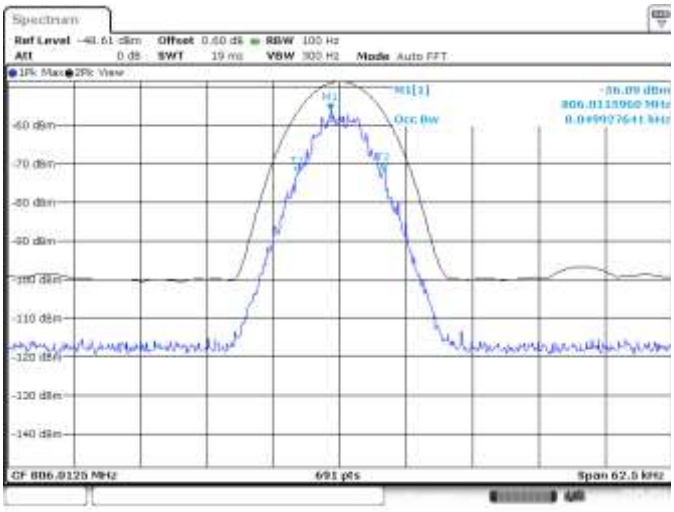
Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
VECTOR SIGNAL GENERATOR (TS8997)	SMBV 100A	ROHDE & SCHWARZ	15002	7-Jan-2019	7-Jan-2022
RF CABLE	UC-N-MM-78	MAURY MICROWAVE	17016	3-Sep-2020	3-Sep-2021
RF Cable right angle Nm to SMAm, 2-18GHz	90-102-039	TELEDYNE STORM MICROWAVE	20138	22-Mar-2021	22-Mar-2022
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	27-Dec-2019	27-Dec-2021
ATTENUATOR, 10DB	BW-S10W20+	Mini-Circuits	B095595	3-Sep-2020	3-Sep-2021

4.4 *Test Data – Input Signals*

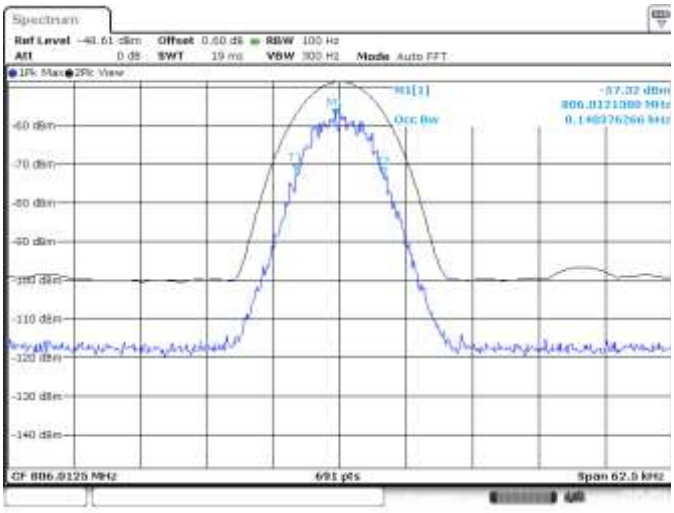
12.5 kHz FM



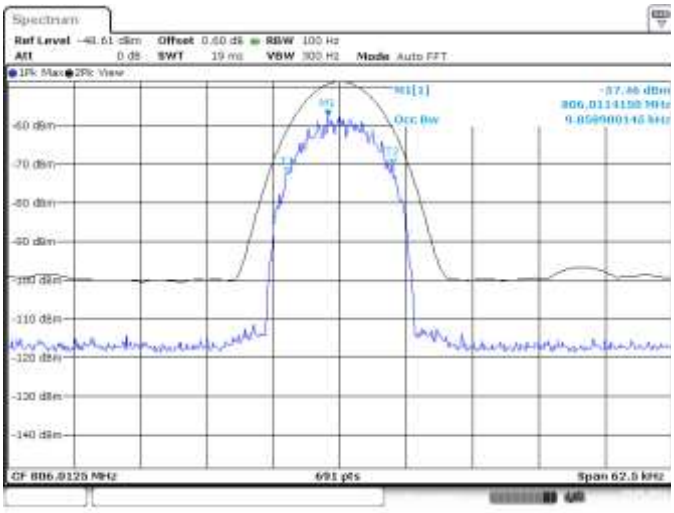
C4FM



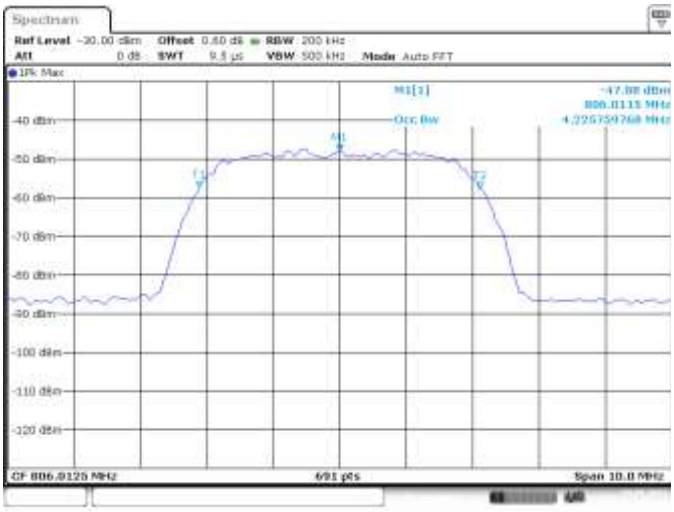
H-CPM



H-DQPSK



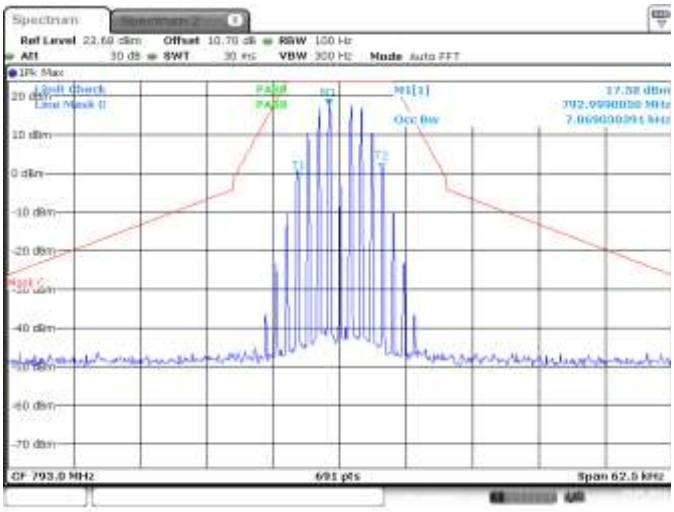
AWGN


Spectrum
Ref Level -20.00 dBm Offset 0.60 dB RBW 200 kHz
Att 0 dB SWT 9.5 µs VBW 500 kHz Mode Auto FFT
1Pk Max
M1[1] -17.88 dBm
806.0115 MHz
Occ Bw 4.225359768 MHz
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
-90 dBm
-100 dBm
-110 dBm
-120 dBm
CF 806.0125 MHz
691 pts
Span 10.0 MHz

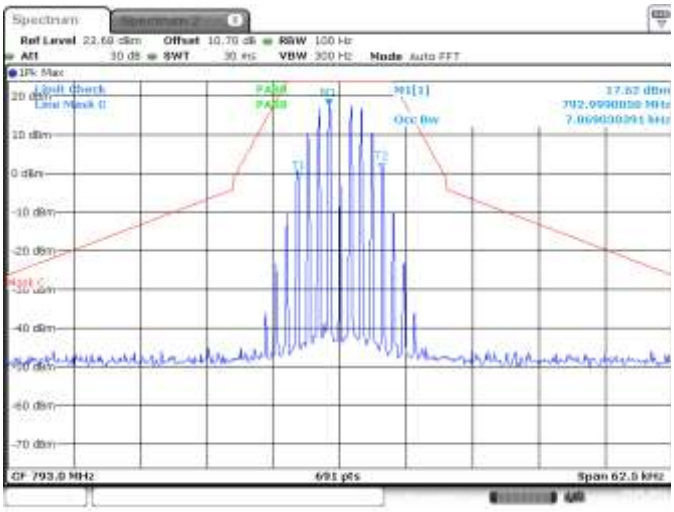
4.5 *Test Data – 700 MHz band uplink*

12.5 kHz FM, uplink

Output at AGC

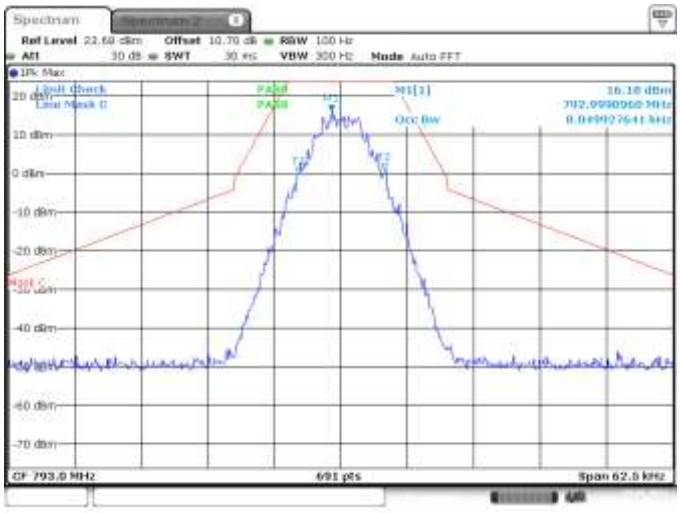


Output at AGC+3dB

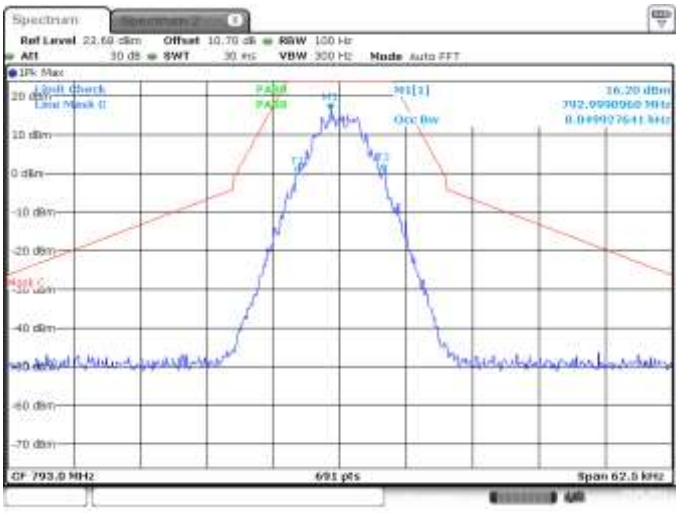


C4FM, uplink

Output at AGC

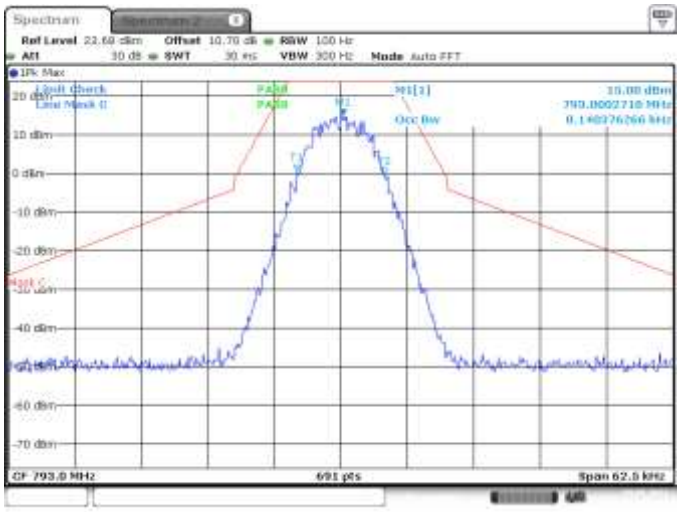


Output at AGC+3dB

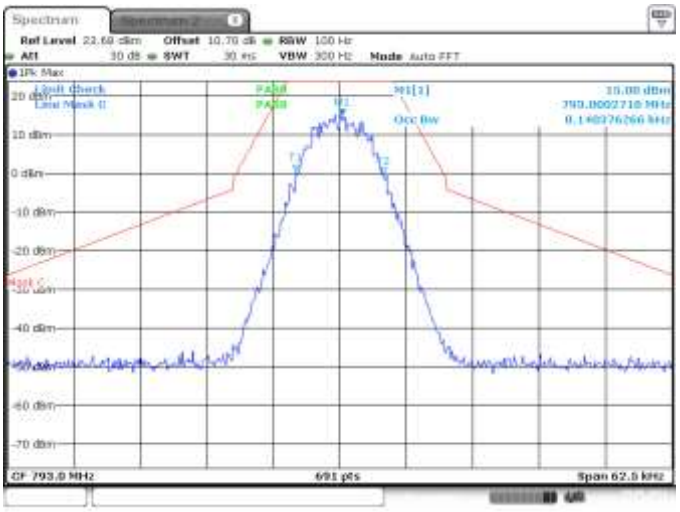


H-CPM, uplink

Output at AGG



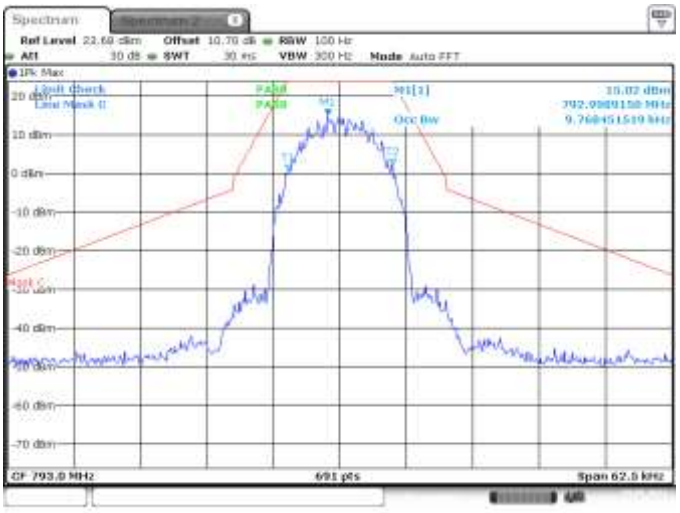
Output at AGC+3dB



H-DQPSK, uplink

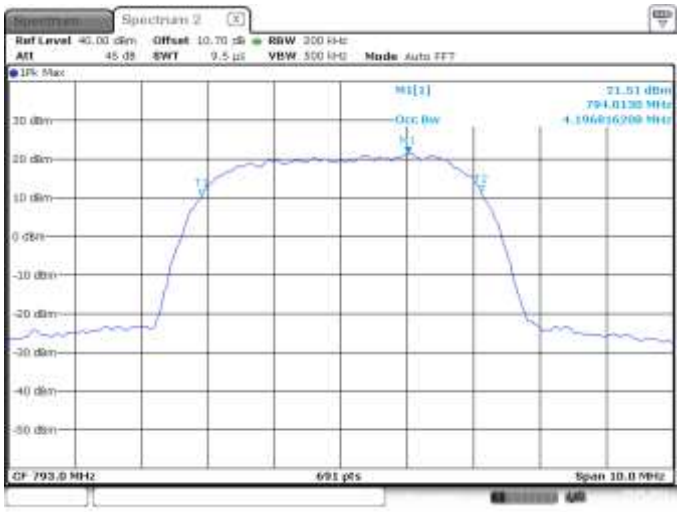
Output at AGC

Output at AGC+3dB

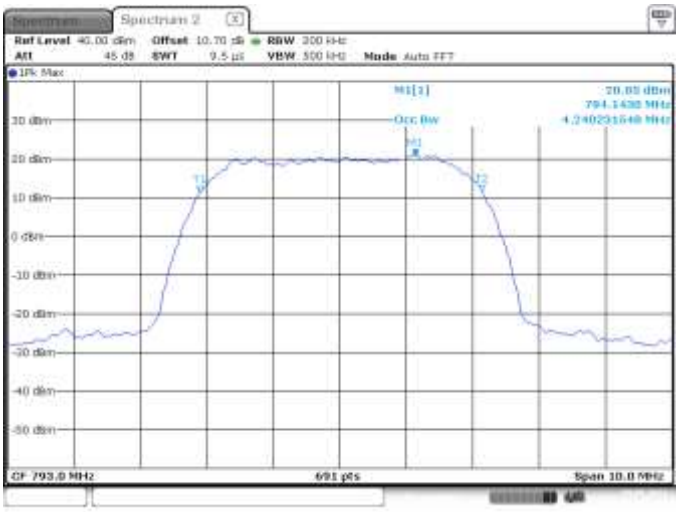


AWGN uplink

Output at AGC



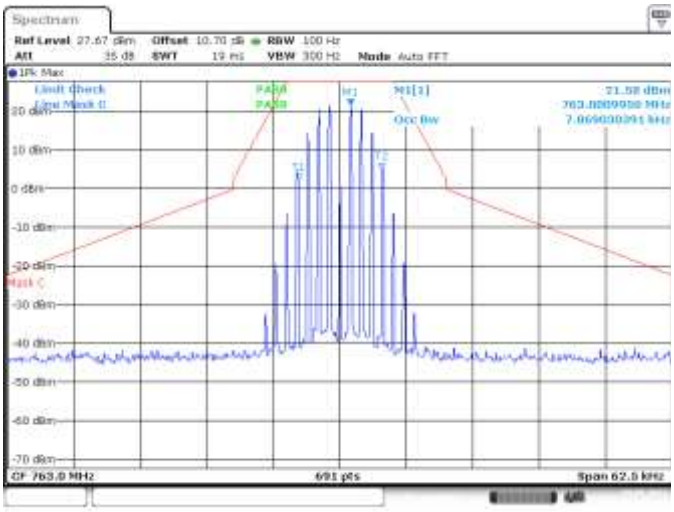
Output at AGC+3dB



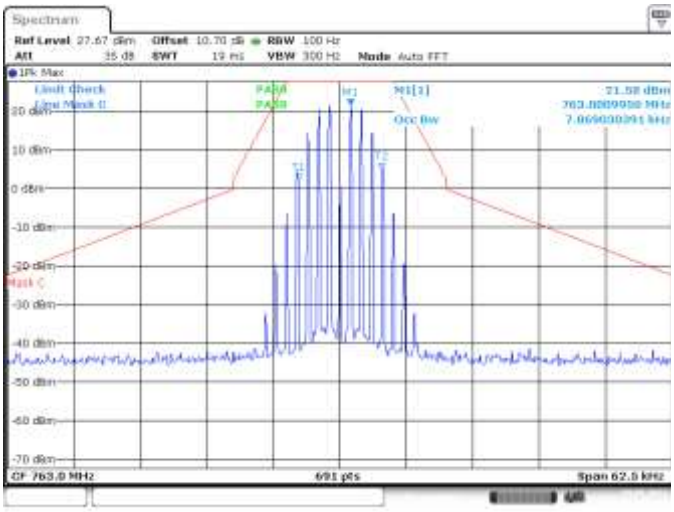
4.6 *Test Data – 700 MHz band downlink*

12.5 kHz FM, downlink

Output at AGC

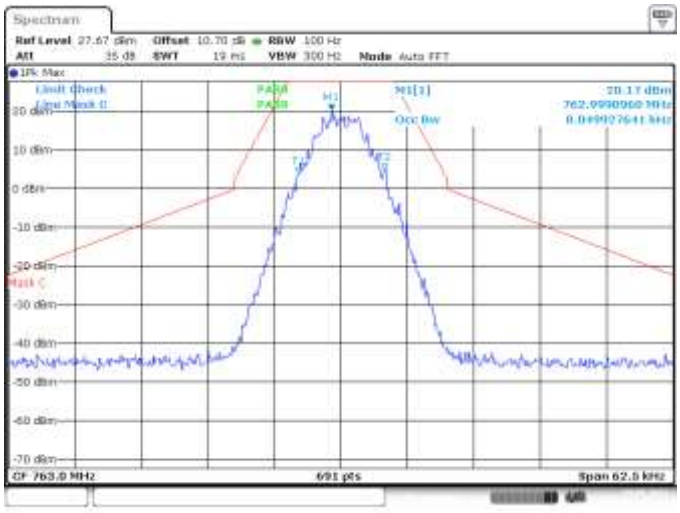


Output at AGC+3dB

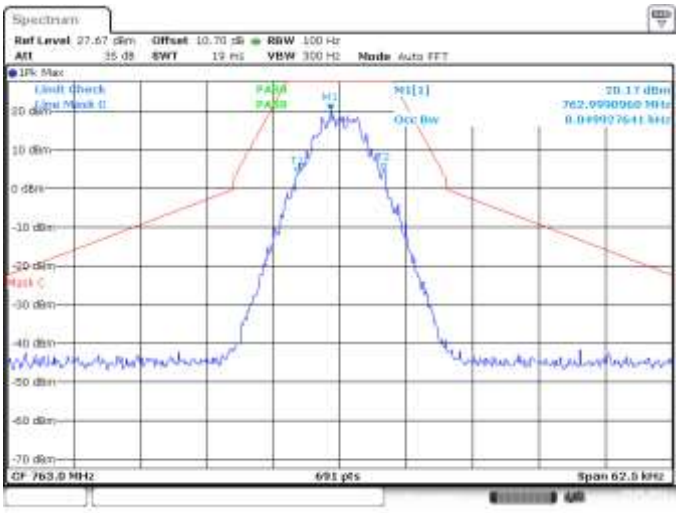


C4FM, downlink

Output at AGC

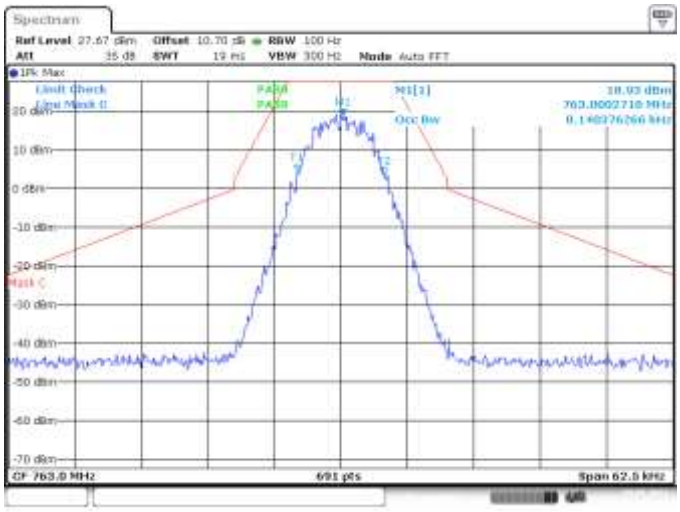


Output at AGC+3dB

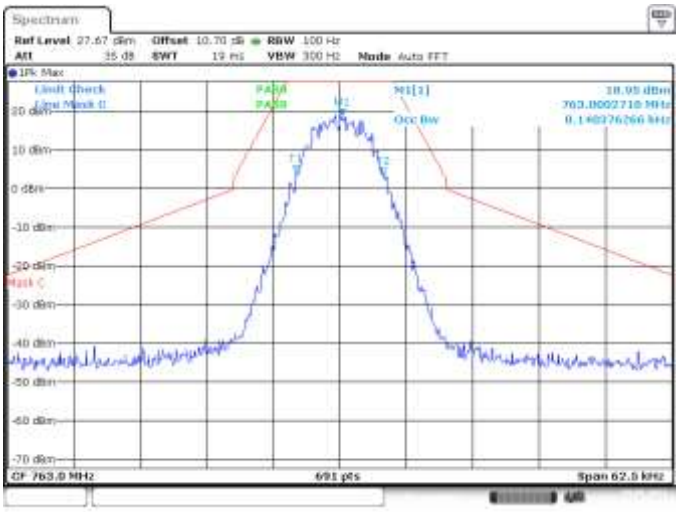


H-CPM, downlink

Output at AGC



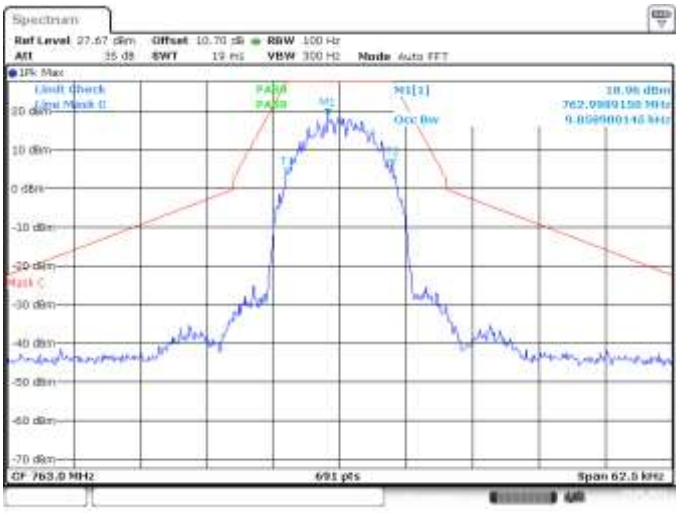
Output at AGC+3dB



H-DQPSK, downlink

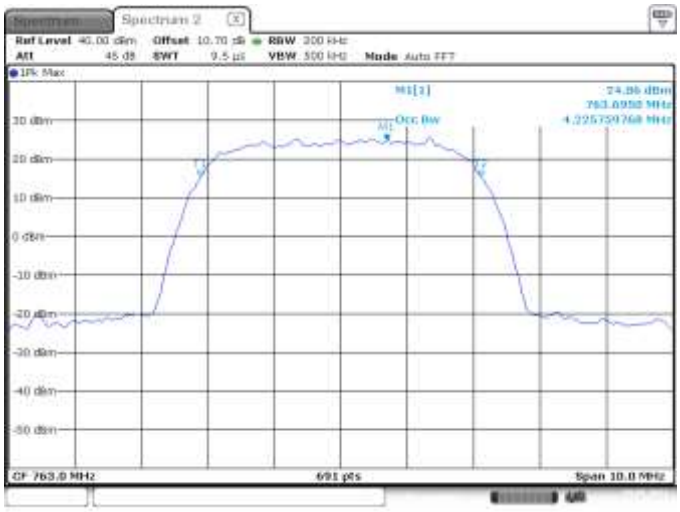
Output at AGC

Output at AGC+3dB

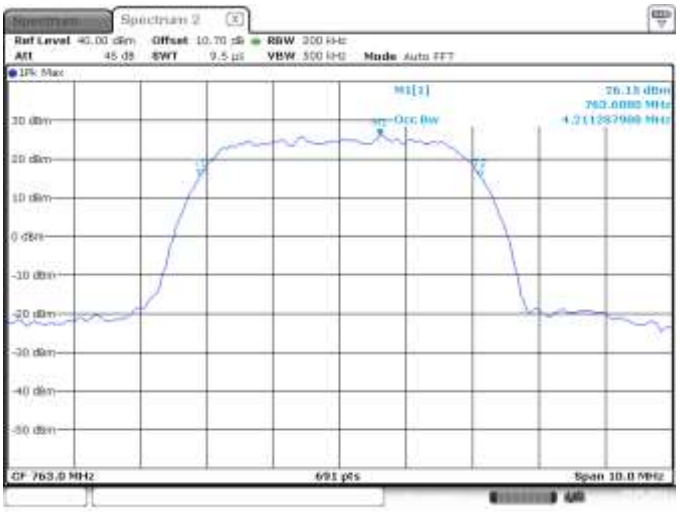


AWGN downlink

Output at AGC



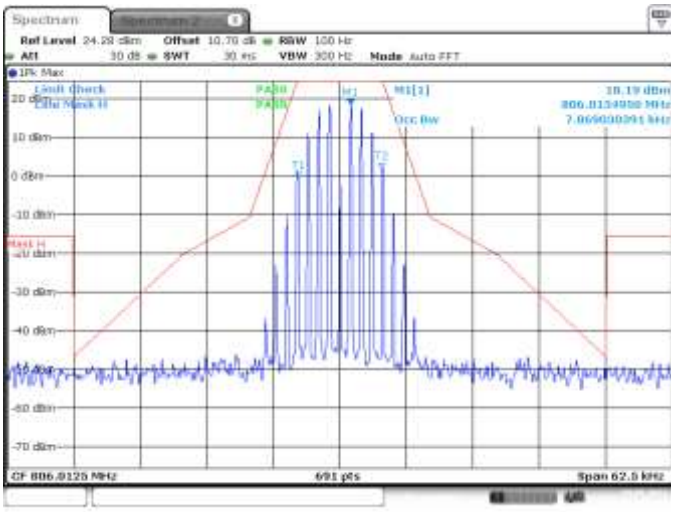
Output at AGC+3dB



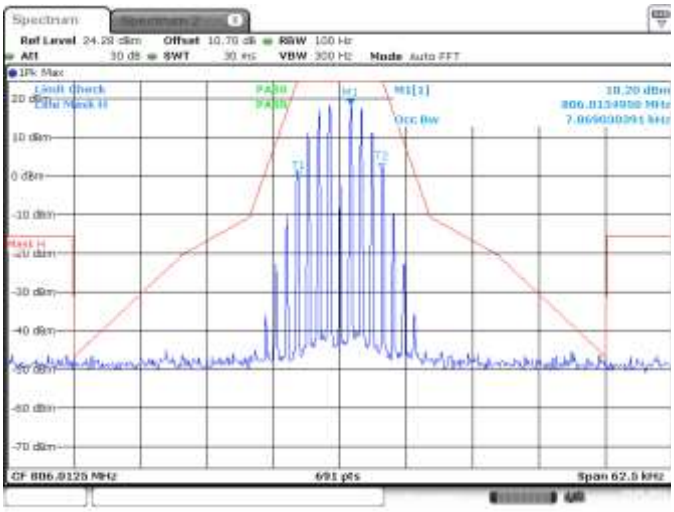
4.7 *Test Data – 800 MHz band uplink*

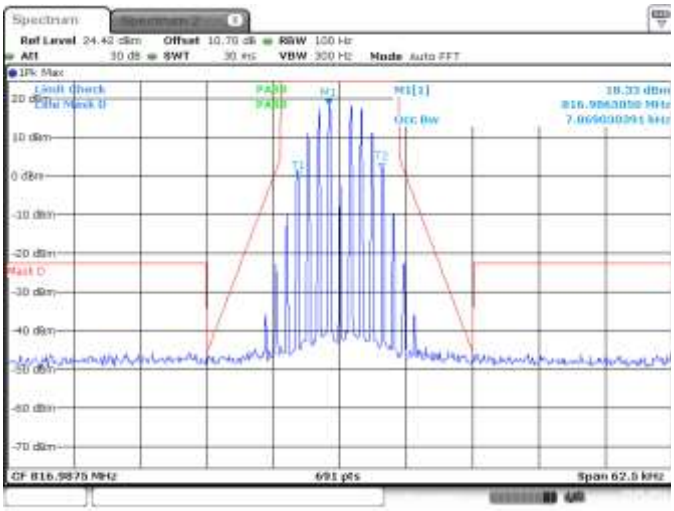
12.5 kHz FM, uplink

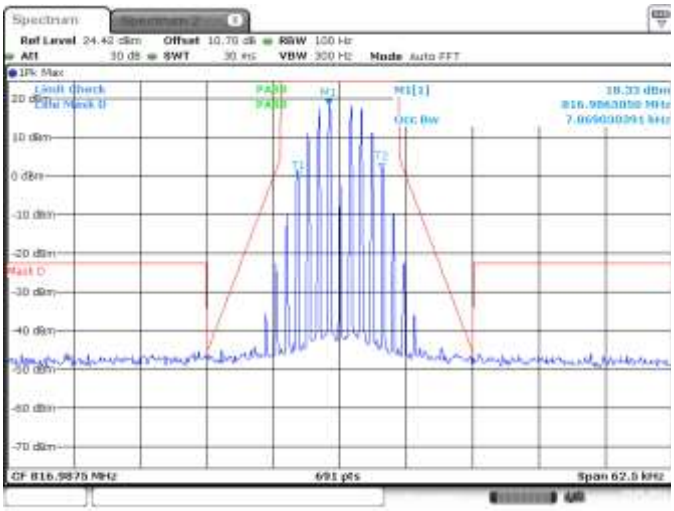
Output at AGC



Output at AGC+3dB

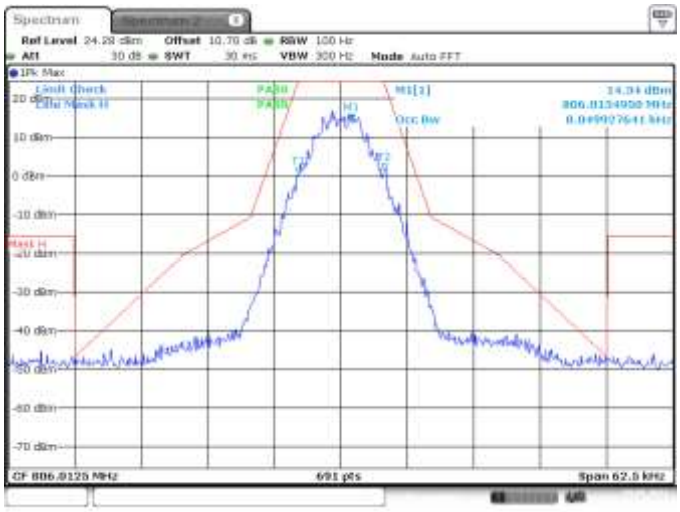




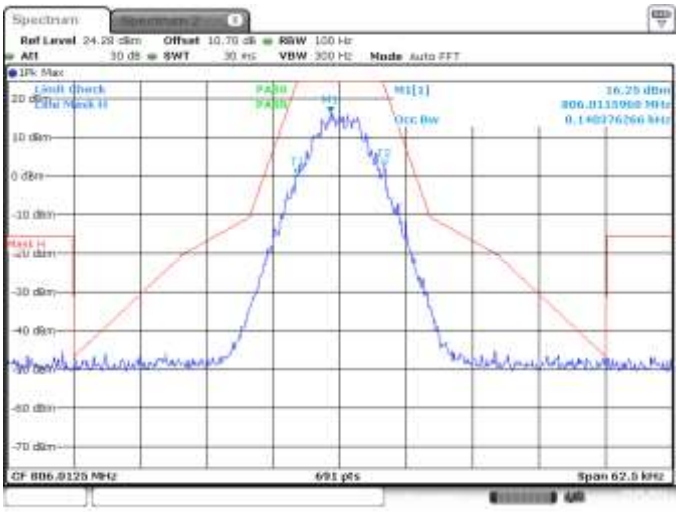


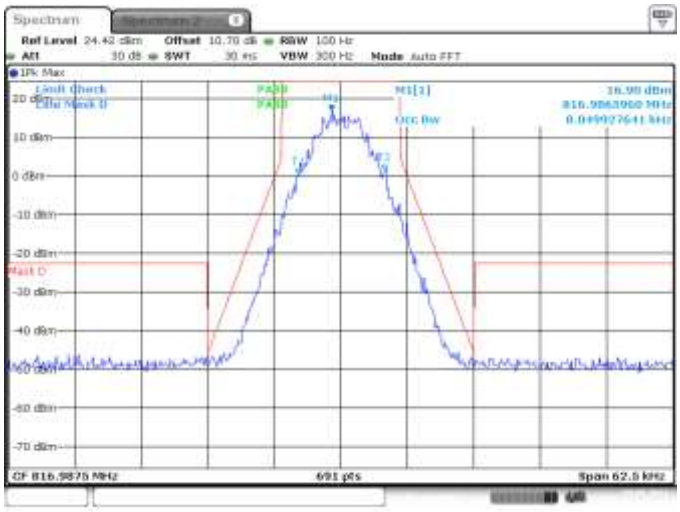
C4FM, uplink

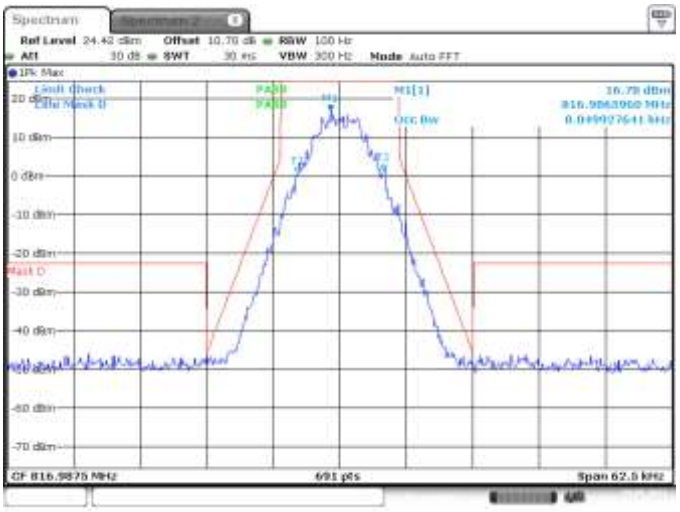
Output at AGC



Output at AGC+3dB

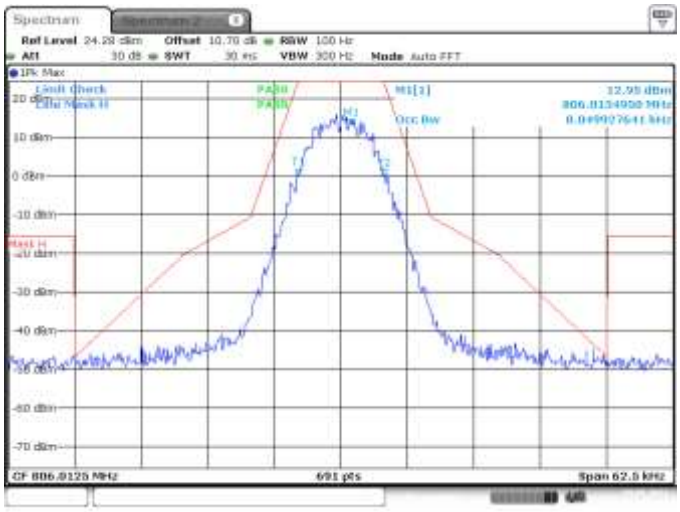


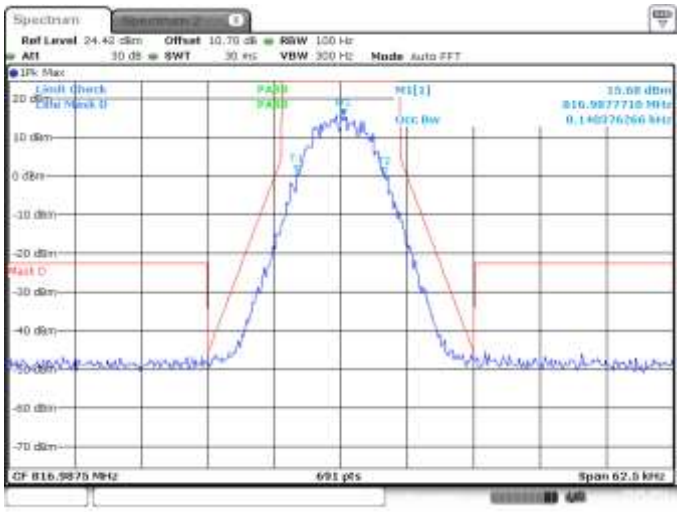




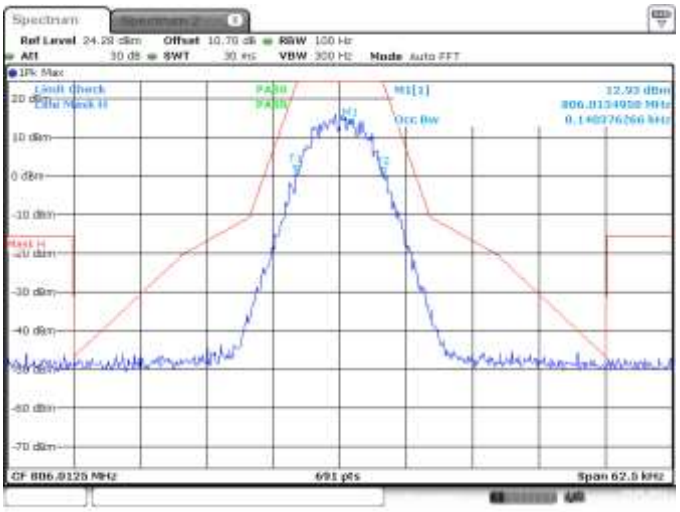
H-CPM, uplink

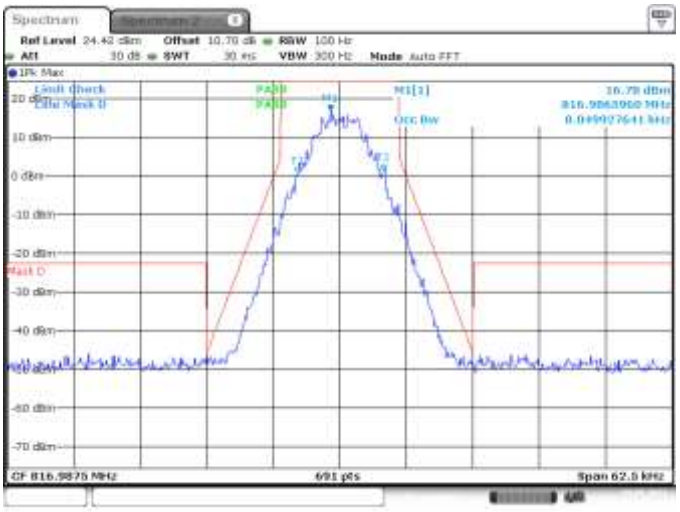
Output at AGC





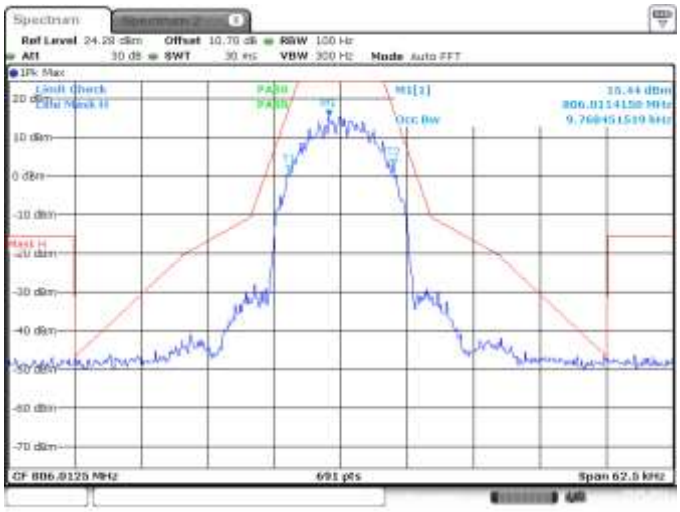
Output at AGC+3dB



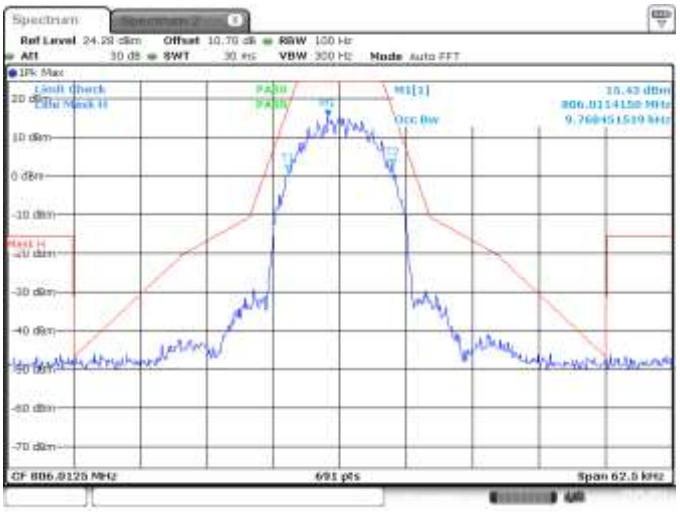


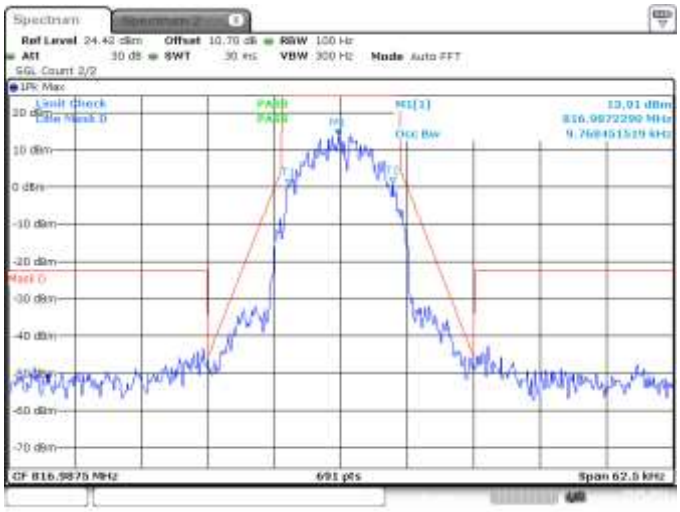
H-DQPSK, uplink

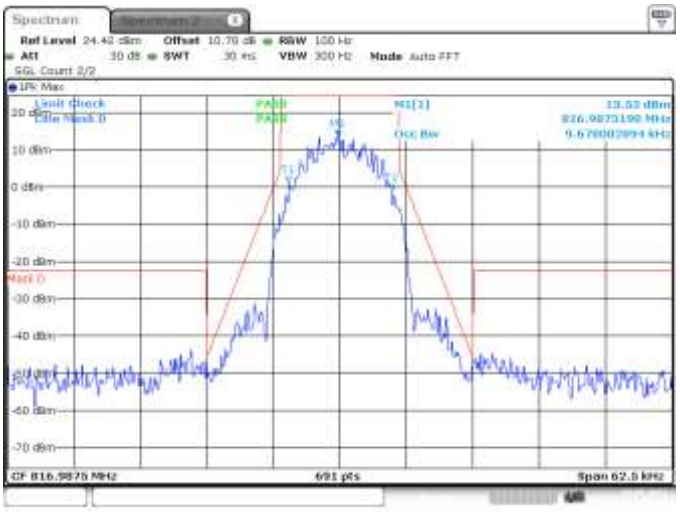
Output at AGC



Output at AGC+3dB

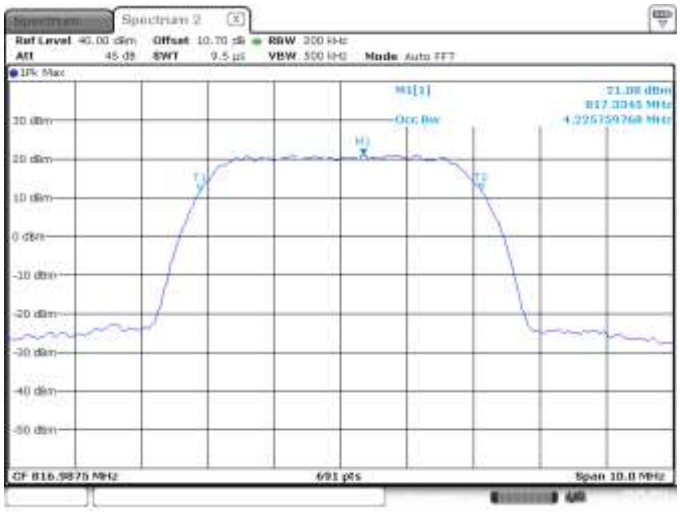






AWGN uplink

Output at AGC

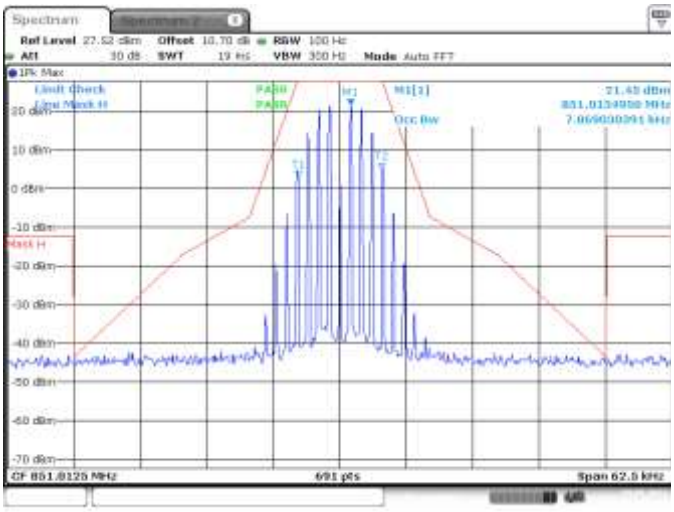


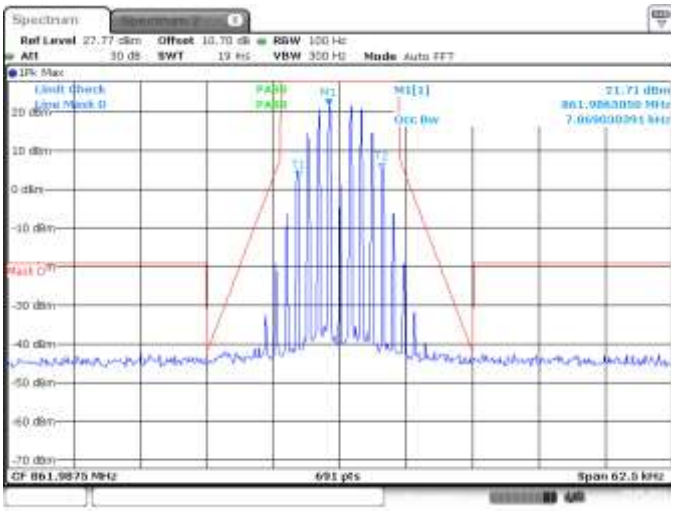
Output at AGC+3dB

4.8 *Test Data – 800 MHz band downlink*

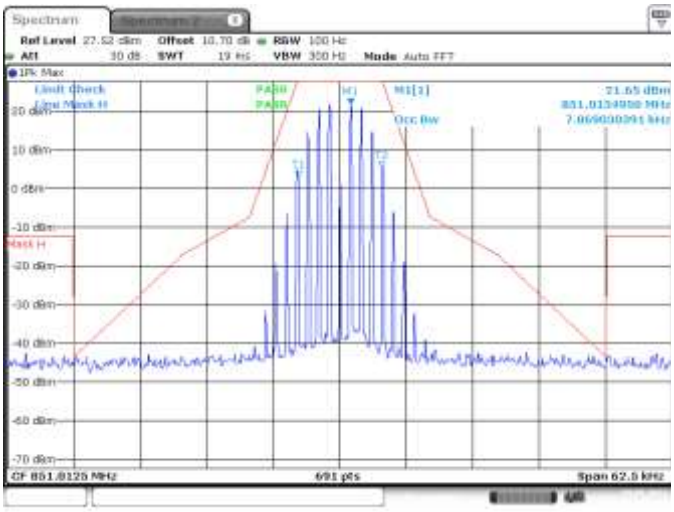
12.5 kHz FM, downlink

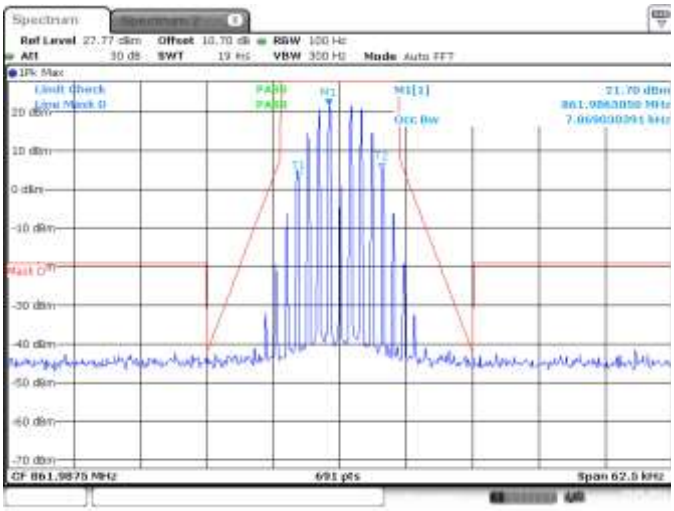
Output at AGC





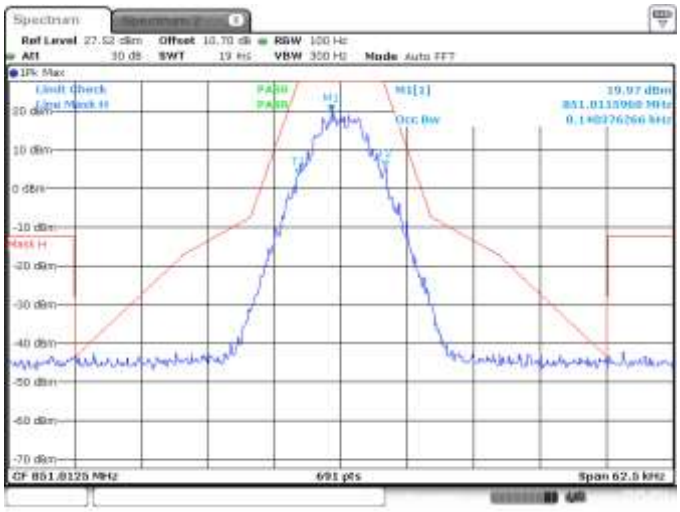
Output at AGC+3dB

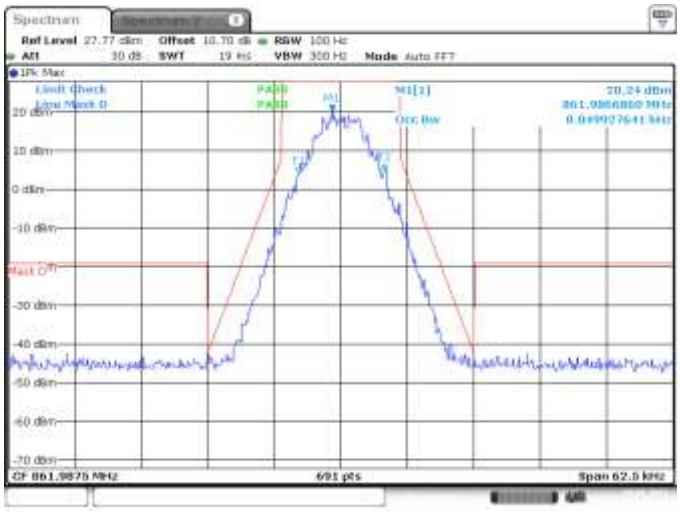




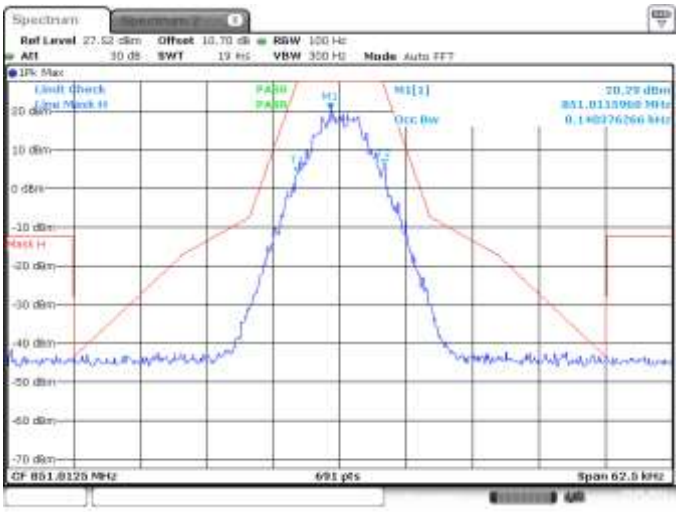
C4FM, downlink

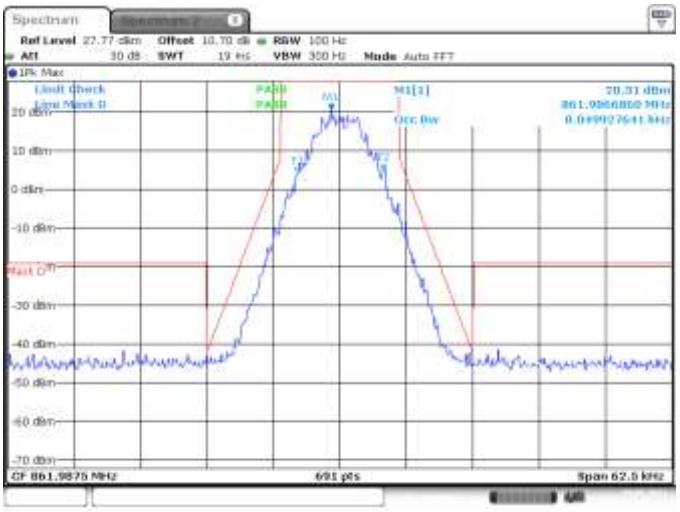
Output at AGC





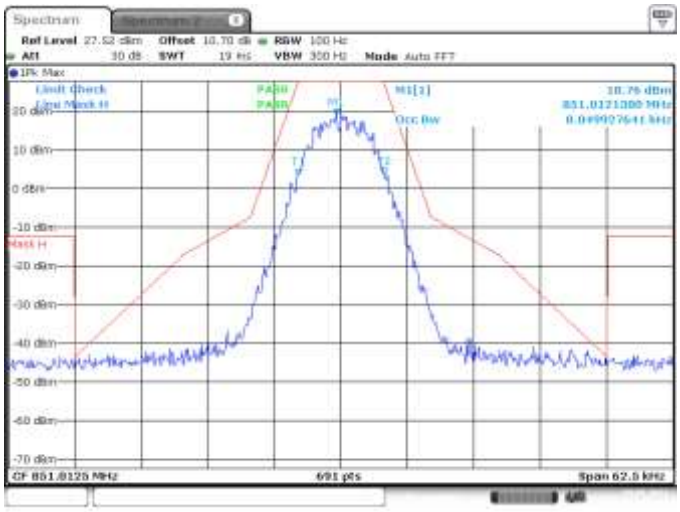
Output at AGC+3dB

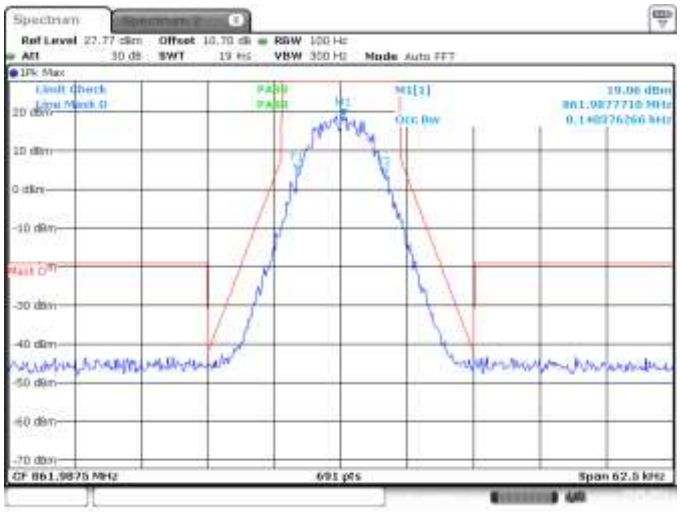




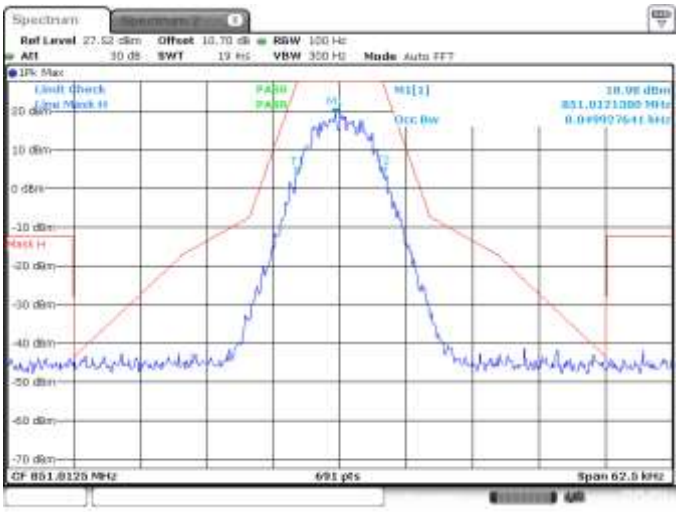
H-CPM, downlink

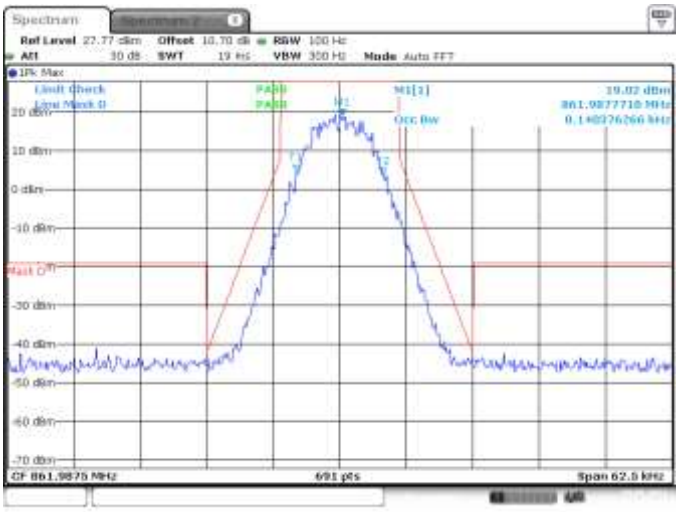
Output at AGC





Output at AGC+3dB

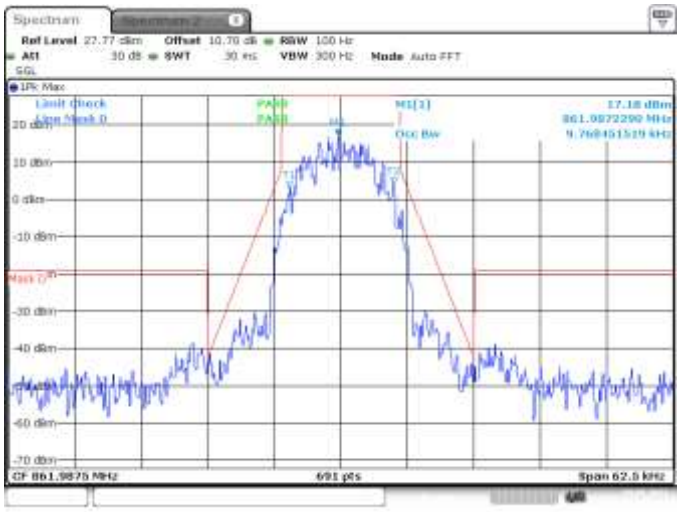


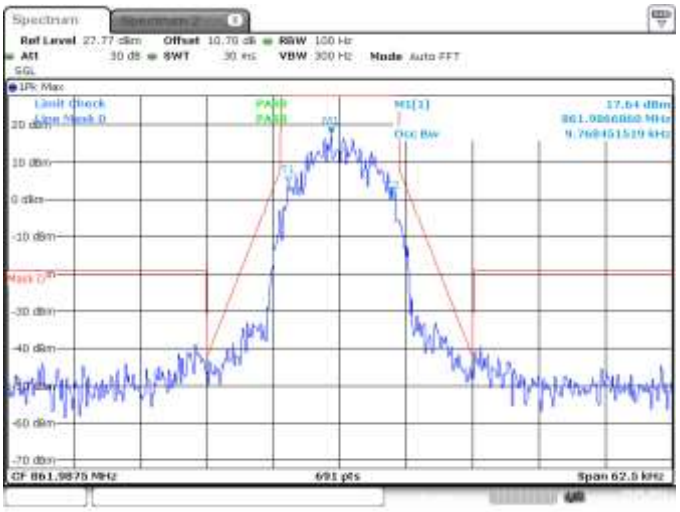


H-DQPSK, downlink

Output at AGC

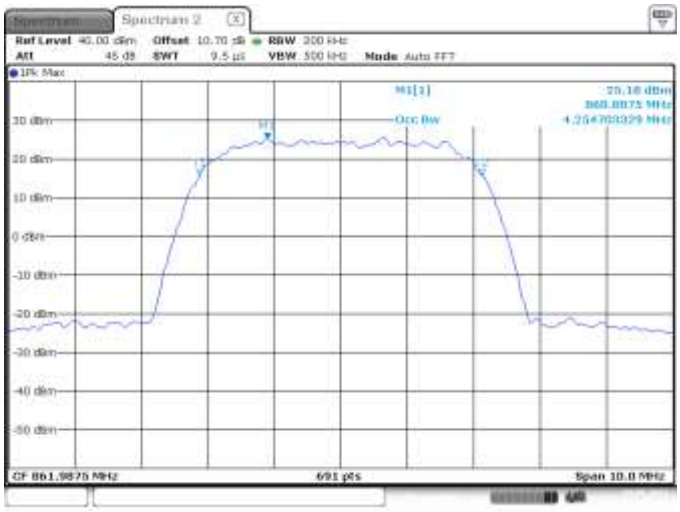
Output at AGC+3dB



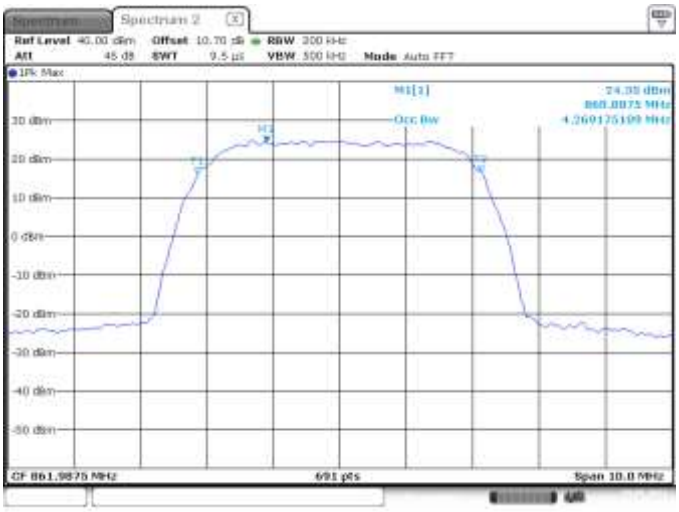


AWGN downlink

Output at AGC



Output at AGC+3dB



5 RF output power and gain

5.1 *Test Result*

Test Description	Test reference	Test Result
Input/output power and amplifier/booster gain	ANSI C63.26 FCC KDB 935210 D05	Reported

5.2 *Test Method*

Testing was performed according to ANSI C63.26 and FCC KDB 935210 D05.

5.3 *Test Equipment*

Test End Date: 11-May-2021 Tester: JOP

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
VECTOR SIGNAL GENERATOR (TS8997)	SMBV 100A	ROHDE & SCHWARZ	15002	7-Jan-2019	7-Jan-2022
RF CABLE	UC-N-MM-78	MAURY MICROWAVE	17016	3-Sep-2020	3-Sep-2021
RF Cable right angle Nm to SMAm, 2-18GHz	90-102-039	TELEDYNE STORM MICROWAVE	20138	22-Mar-2021	22-Mar-2022
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	27-Dec-2019	27-Dec-2021
ATTENUATOR, 10DB	BW-S10W20+	Mini-Circuits	B095595	3-Sep-2020	3-Sep-2021

5.4 *Test Data*

Link type	Rated Max Output Power (dBm)	Rated Max Output Power (Watts)
Uplink	24.0	0.25
Downlink	27.0	0.5

Gain: 700 MHz Band					
Link type	Tuned frequency (MHz)	Input level	Power input (dBm)	Power output (dBm)	Gain (dB)
Downlink	758.0125	AGC	-51.8	27.2	78.3
		AGC +3	-48.8	27.2	75.3
		Maximum	0	27.2	26.5
	763.0000	AGC	-52.7	27.6	79.6
		AGC +3	-49.7	27.6	76.6
		Maximum	0	27.6	26.9
	774.9875	AGC	-51.6	27.5	78.4
		AGC +3	-48.6	27.5	75.4
		Maximum	0	27.5	26.8
Uplink	788.0125	AGC	-56	23.7	79
		AGC +3	-53	23.7	76
		Maximum	0	23.7	23
	793.0000	AGC	-55.9	23.8	79
		AGC +3	-52.9	23.8	76
		Maximum	0	23.7	23
	804.9875	AGC	-55.7	24	79
		AGC +3	-52.7	24	76
		Maximum	0	22.5	21.8

Gain: 800 MHz Band					
Link type	Tuned frequency (MHz)	Input level	Power input (dBm)	Power output (dBm)	Gain (dB)
Uplink	806.0125	AGC	-55.5	24.4	79.2
		AGC +3	-52.5	24.4	76.2
		Maximum	0	23.3	22.6
	816.9875	AGC	-55.2	24.4	78.9
		AGC +3	-52.2	24.4	75.9
		Maximum	0	24	23.3
	926.9875	AGC	-54.9	24.3	78.5
		AGC +3	-51.9	24.3	75.5
		Maximum	0	24.3	23.6
Downlink	851.0125	AGC	-52.2	27.6	79.1
		AGC +3	-49.2	27.6	76.1
		Maximum	0	27.6	26.9
	861.9875	AGC	-52.3	27.8	79.4
		AGC +3	-49.3	27.8	76.4
		Maximum	0	27.8	27.1
	868.9875	AGC	-51.7	27.6	78.6
		AGC +3	-48.7	27.6	75.6
		Maximum	0	27.6	26.9

7 Noise Figure

7.1 *Test Result*

Test Description	Test reference	Test Result
Noise figure measurements	ANSI C63.26 FCC KDB 935210 D05	Compliant

7.2 *Test Method*

Testing was performed according to KDB 935210 D05 Industrial Signal Boosters.

7.3 *Test Equipment*

Test End Date: 28-May-2021 Tester: JP

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
RF CABLE	UC-N-MM-78	MAURY MICROWAVE	17016	3-Sep-2020	3-Sep-2021
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	27-Dec-2019	27-Dec-2021
NOISE SOURCE	346C	HEWLETT PACKARD	S/N: 3328A03285	CNR	CNR

7.4 *Test Data*

Link type	Band	Noise figure (dB)	Limit, (dB)
Downlink	758 – 775 MHz	4.2	< 9
Uplink	788 – 805 MHz	2.7	< 9
Uplink	806 – 824 MHz	3.1	< 9
Downlink	851 – 869 MHz	5.3	< 9

8 Out-of-band conducted spurious emissions

8.1 *Test Result*

Test Description	Test reference	Test Result
Conducted Spurious Emissions	ANSI C63.26 FCC KDB 935210 D05	Pass

8.2 *Test Method*

Testing was performed according to KDB 935210 D05 Industrial Signal Boosters.

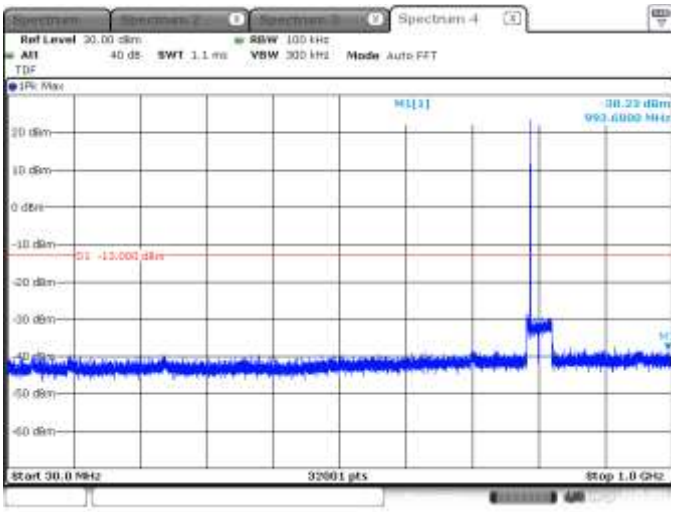
8.3 *Test Equipment*

Test End Date: 13-May-2021 Tester: JOP

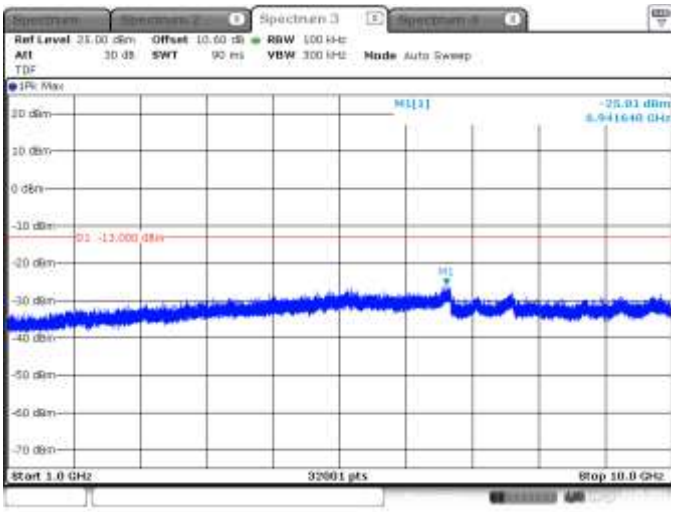
Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
VECTOR SIGNAL GENERATOR (TS8997)	SMBV 100A	ROHDE & SCHWARZ	15002	7-Jan-2019	7-Jan-2022
RF CABLE	UC-N-MM-78	MAURY MICROWAVE	17016	3-Sep-2020	3-Sep-2021
RF Cable right angle Nm to SMAm, 2-18GHz	90-102-039	TELEDYNE STORM MICROWAVE	20138	22-Mar-2021	22-Mar-2022
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	27-Dec-2019	27-Dec-2021
ATTENUATOR, 10DB	BW-S10W20+	Mini-Circuits	B095595	3-Sep-2020	3-Sep-2021

8.4 *Test Data – 700 MHz band*

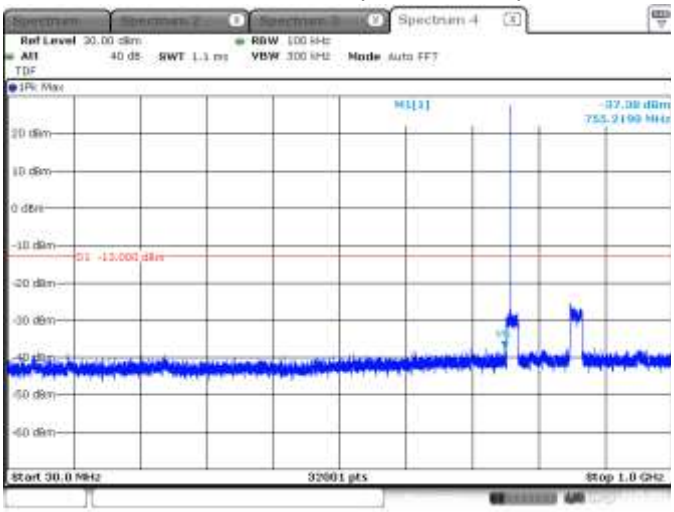
700MHz Uplink (30-1000MHz)



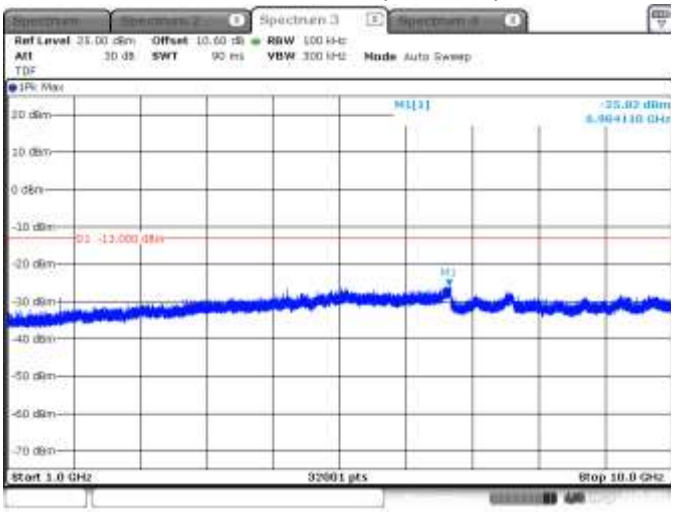
700MHz Uplink (1-10GHz)



700MHz Downlink (30-1000MHz)

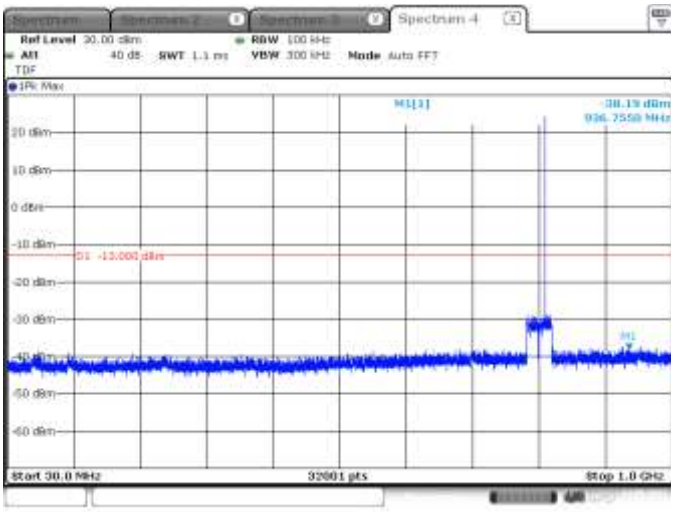


700MHz Downlink (1-10GHz)

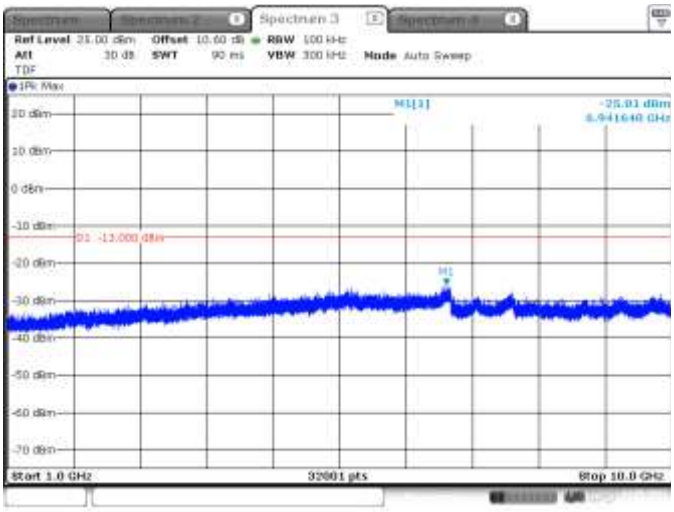


8.5 *Test Data – 800 MHz band*

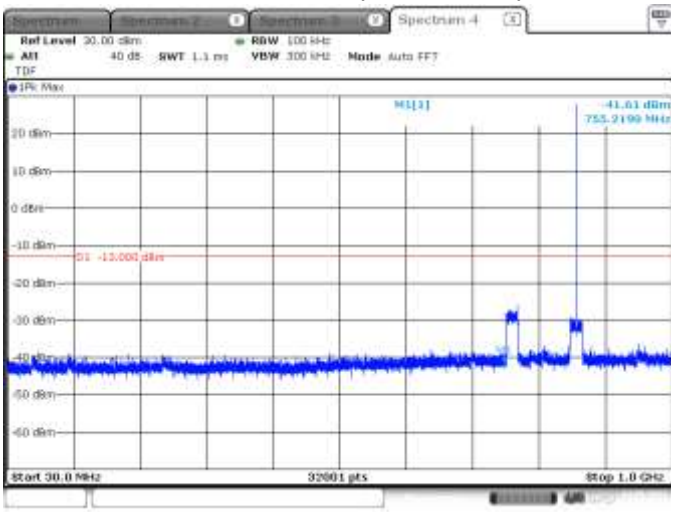
800MHz Uplink (30-1000MHz)



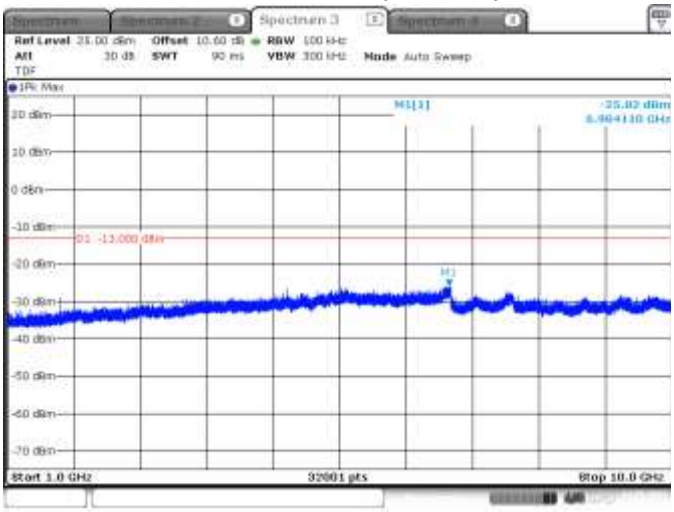
800MHz Uplink (1-10GHz)



800MHz Downlink (30-1000MHz)



800MHz Downlink (1-10GHz)



9 Radiated spurious emissions measurements

9.1 *Test Result*

Test Description	Test reference	Test Result
Spurious emissions radiated measurements	ANSI C63.26 FCC KDB 935210 D05	Pass

9.2 *Test Method*

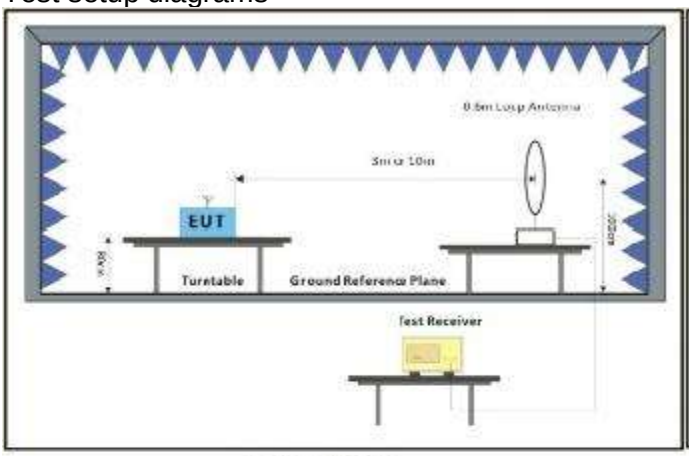
Testing was performed according to KDB 935210 D05 Industrial Signal Boosters.

Limit
-13 dBm

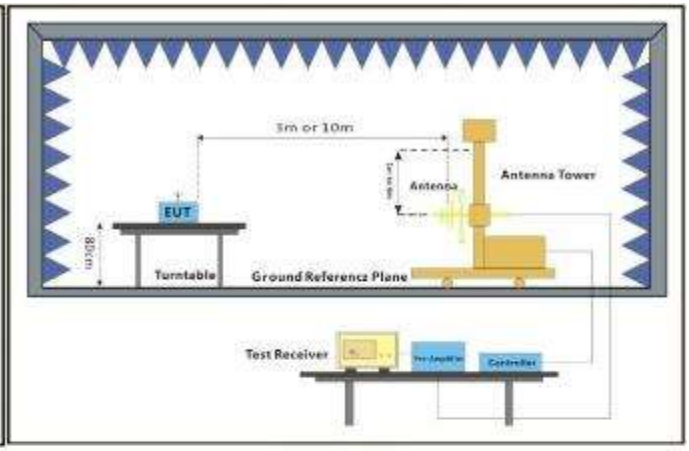
9.3 *Test Site*

10 m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA
Environmental Conditions
Temperature: 24.8 °C
Relative Humidity: 36.1 %

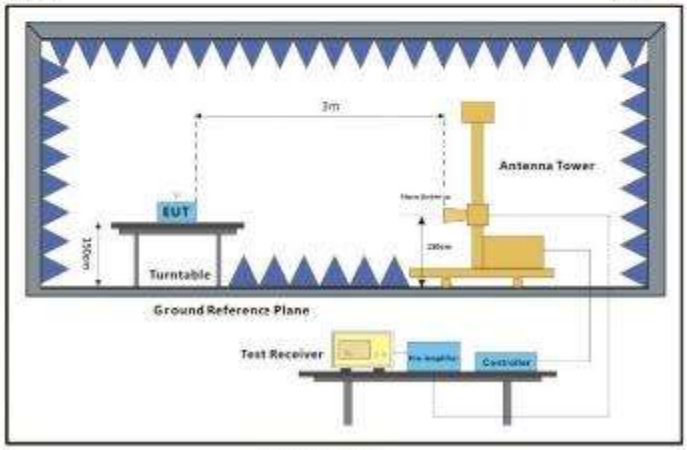
Test setup diagrams



Below 30MHz



30MHz-1GHz



Above 1GHz

9.4 *Test Equipment*

Test End Date: 21-May-2021 Tester: JP, LM, EW

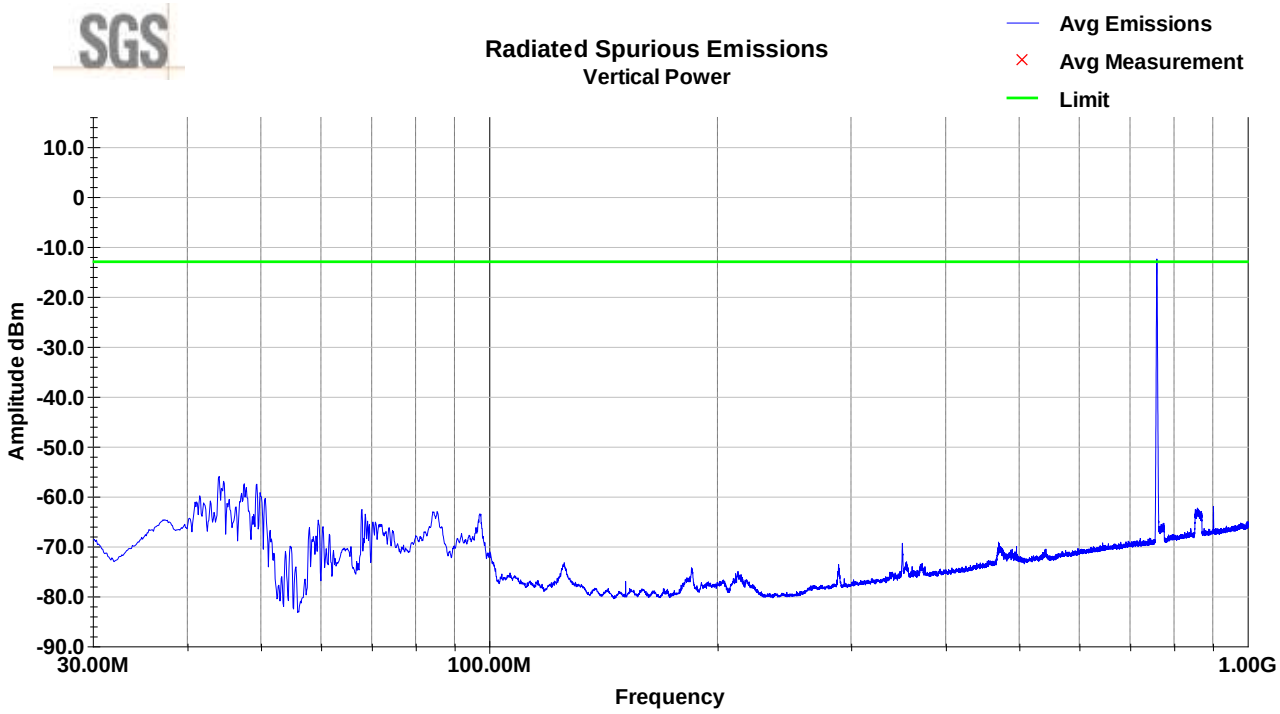
Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
ANTENNA, BILOG	JB6	SUNOL	B079690	13-Jan-2021	13-Jan-2023
ANTENNA, DRG HORN (MEDIUM)	3117	ETS Lindgren	B079691	10-Aug-2020	10-Aug-2022
RF CABLE, Nm to Nm.	90-195-276	TELEDYNE STORM MICROWAVE	21020	26-Mar-2021	26-Mar-2022
RF Cable Nm to Nm, 0.01-18GHz	90-195-118	TELEDYNE STORM MICROWAVE	20125	17-Feb-2021	17-Feb-2022
RF CABLE	SF106	HUBER & SUHNER	B079713	3-Sep-2020	3-Sep-2021
RF CABLE	104PE	HUBER & SUHNER	B079793	3-Sep-2020	3-Sep-2021
RF CABLE	SUCOFLEX 100	Huber & Suhner	B108523	3-Sep-2020	3-Sep-2021
RF Cable Nm to Nm, 0.01-18GHz	90-195-079	TELEDYNE STORM MICROWAVE	20124	17-Feb-2021	17-Feb-2022
RF CABLE N/Male-Male	SUCOTEST 18	HUBER & SUHNER	19001	17-Feb-2021	17-Feb-2022
LOW NOISE AMPLIFIER	ZKL-2+	Mini-Circuits	B079800	25-Sep-2020	25-Sep-2021
LOW NOISE AMPLIFIER	TS-PR18	ROHDE & SCHWARZ	15003	28-Oct-2020	28-Oct-2021
EMI TEST RECEIVER	ESU8	ROHDE & SCHWARZ	B085759	7-May-2020	4-Jun-2021
EMI TEST RECEIVER	ESU40	ROHDE & SCHWARZ	11545	19-Mar-2020	27-Dec-2021
SIGNAL GENERATOR (TS8997)	SMB 100A	ROHDE & SCHWARZ	B094876	30-Nov-2020	30-Nov-2023

Note: The calibration period equipment is 1 year.

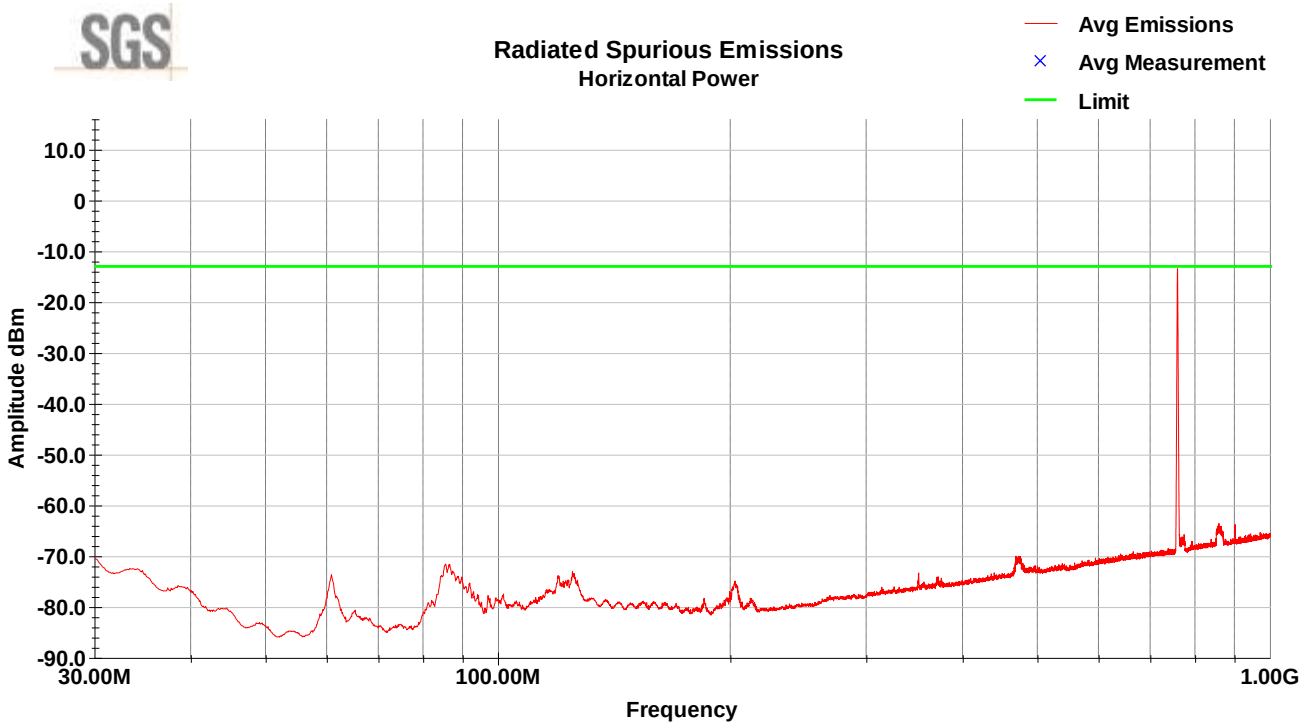
Software:
“RSE 30-1000MHz T7 201007” TILE! profile dated 07 Oct 2020
“RSE 1-18GHz T7 210212 ” TILE! profile dated 12 Feb 2021

9.5 *Test Data – 700 MHz downlink*

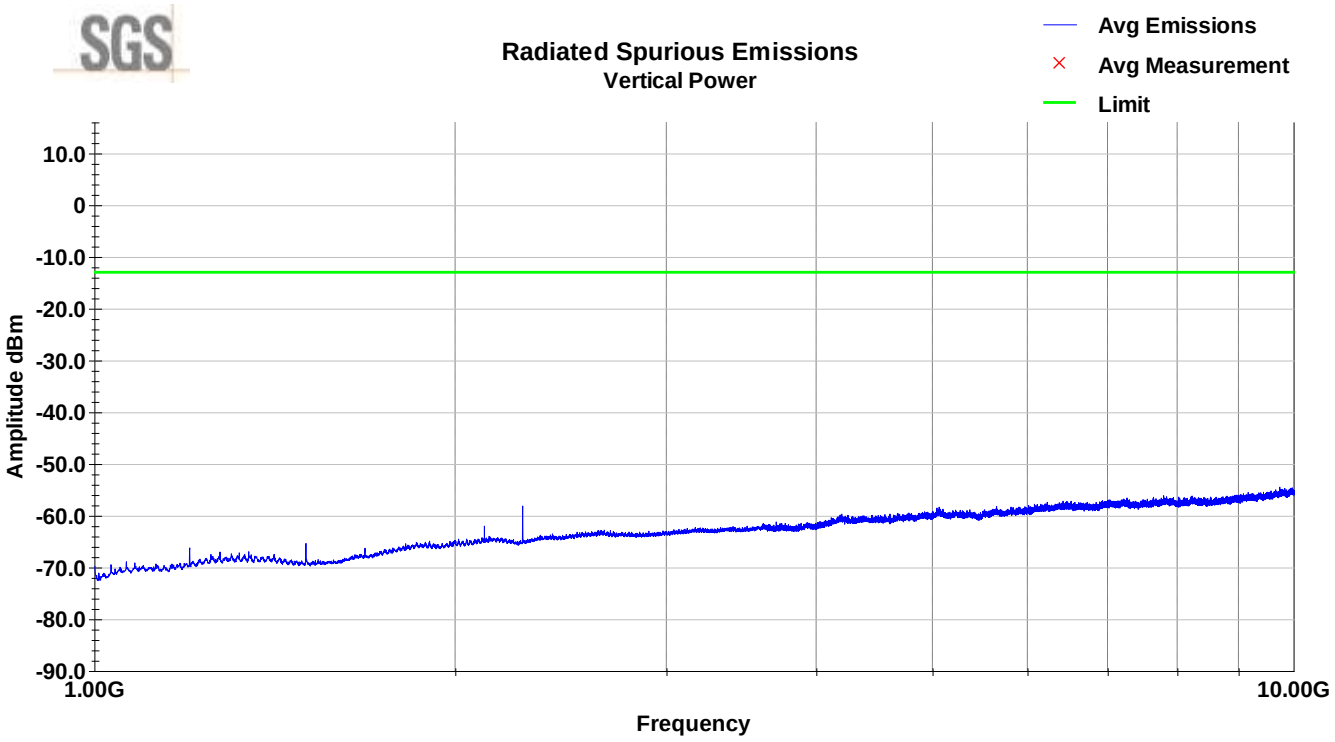
(700 MHz downlink) Tuned frequency: 758.0125
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



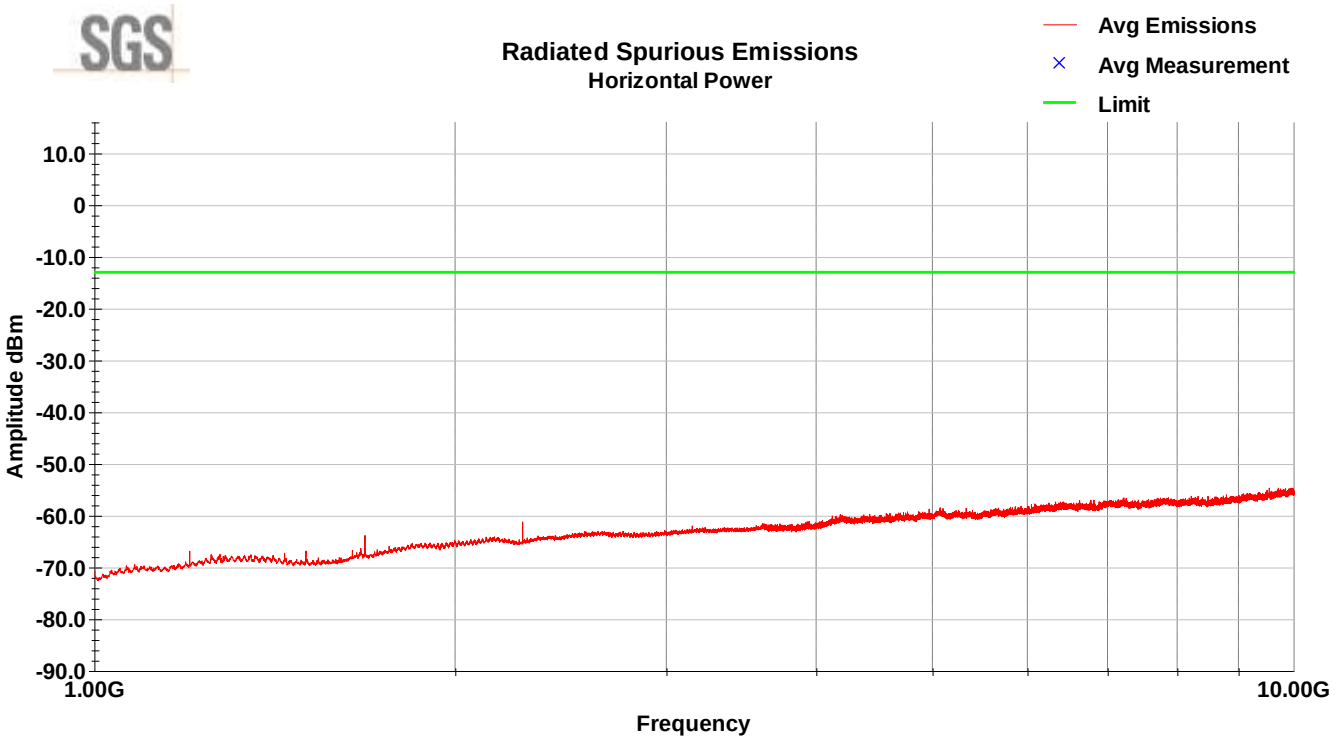
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



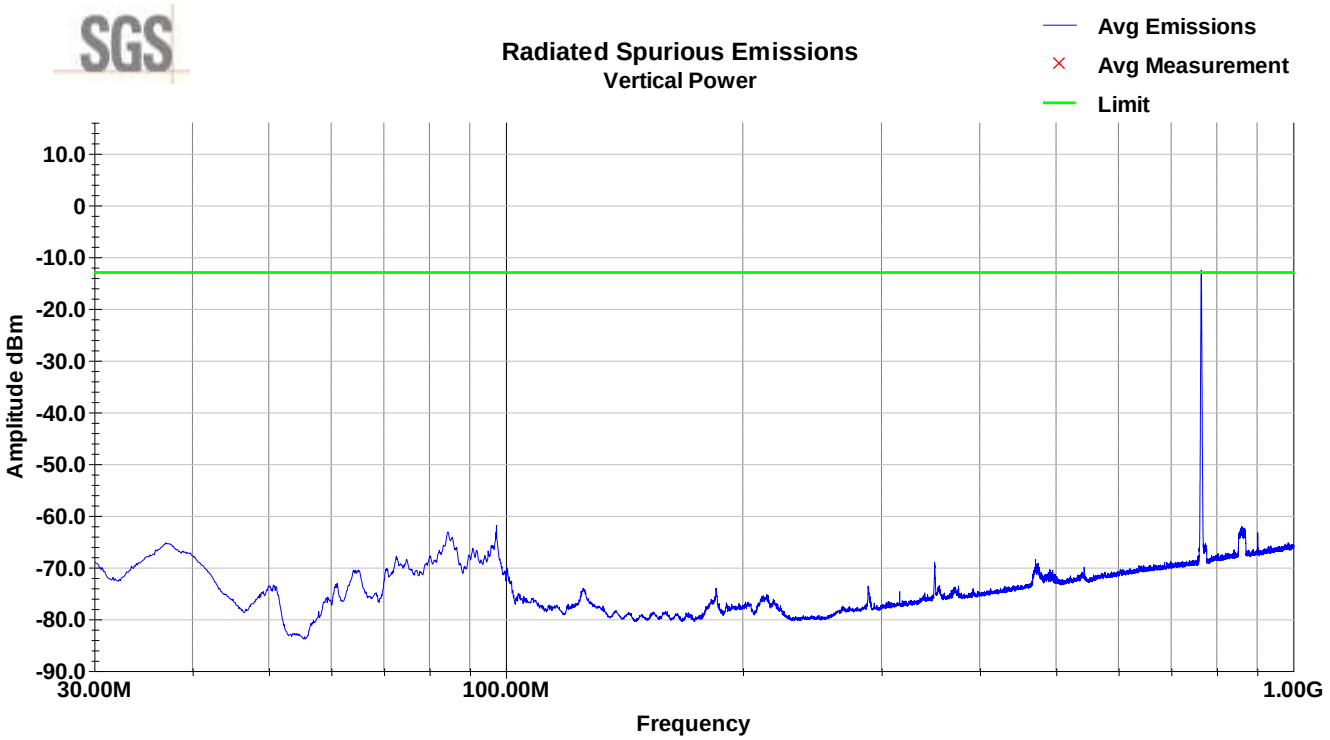
Vertical Radiated Spurious Emissions Plot (1-10GHz)



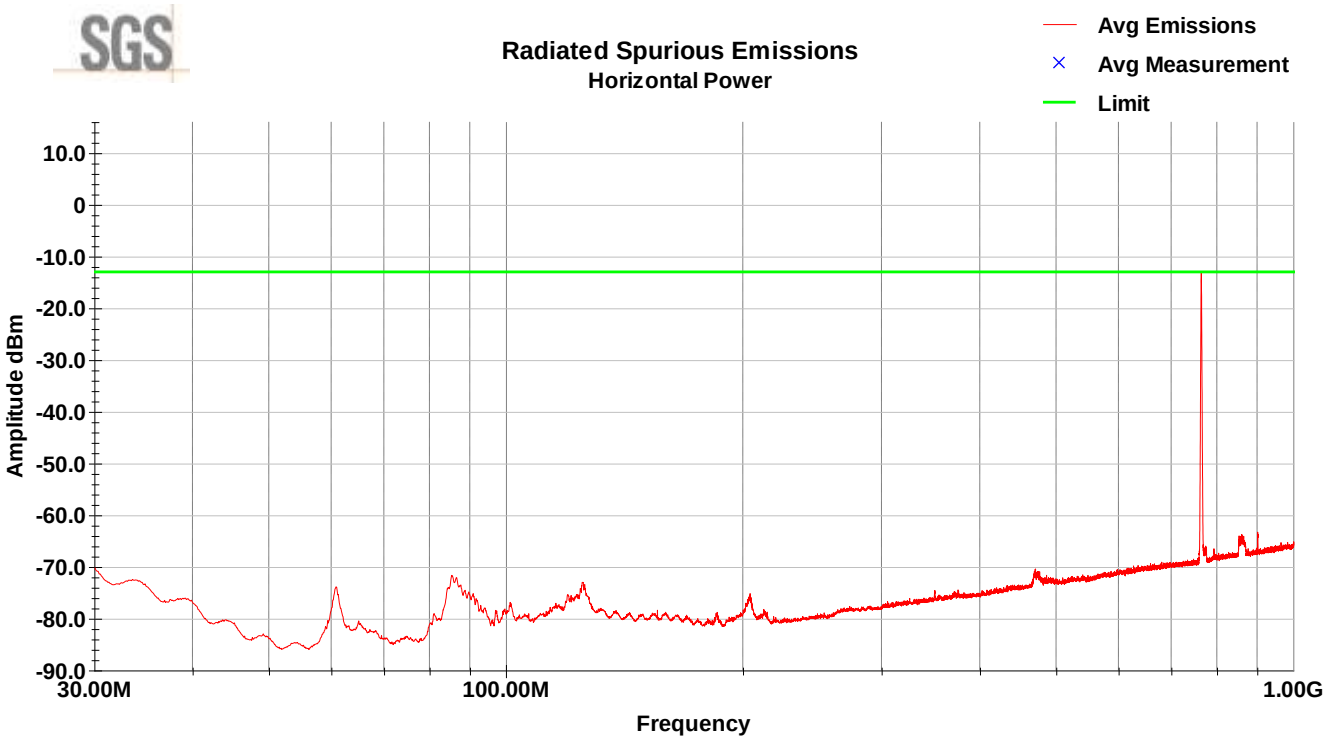
Horizontal Radiated Spurious Emissions Plot (1-10GHz)



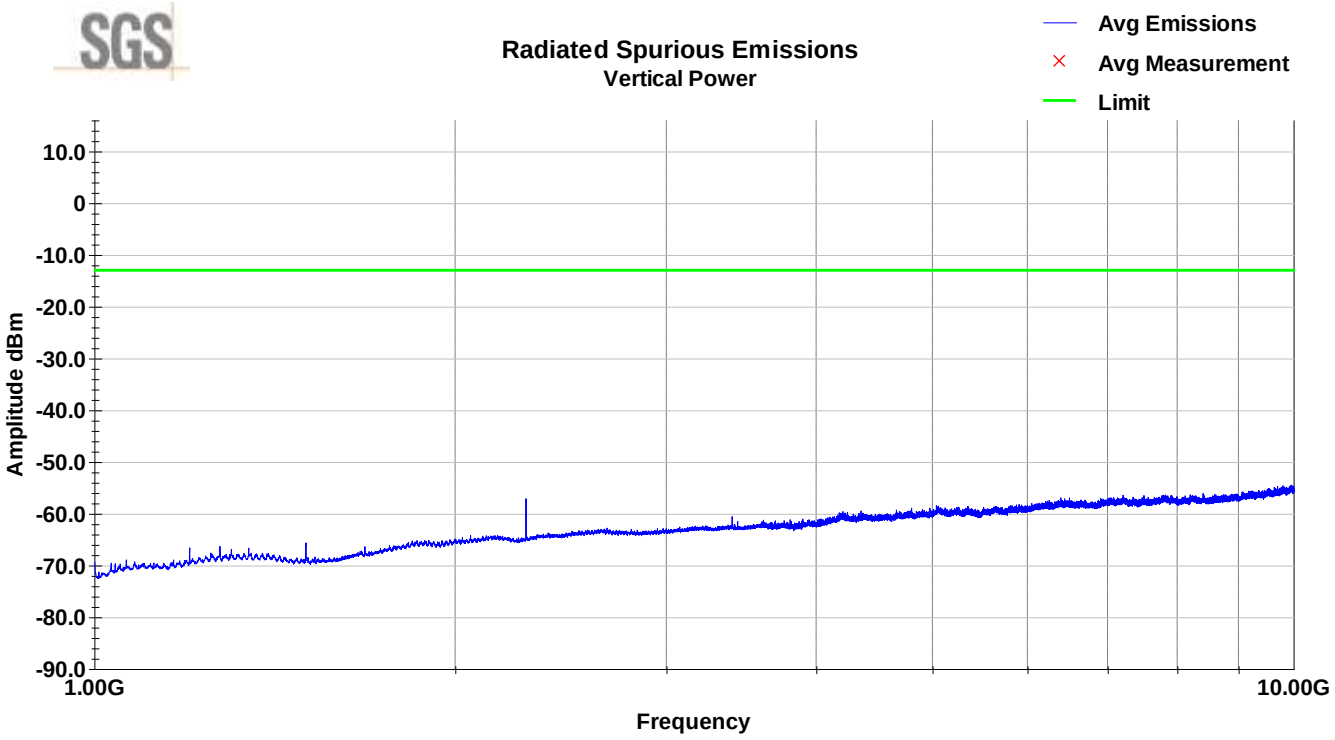
(700 MHz downlink) Tuned frequency: 763
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



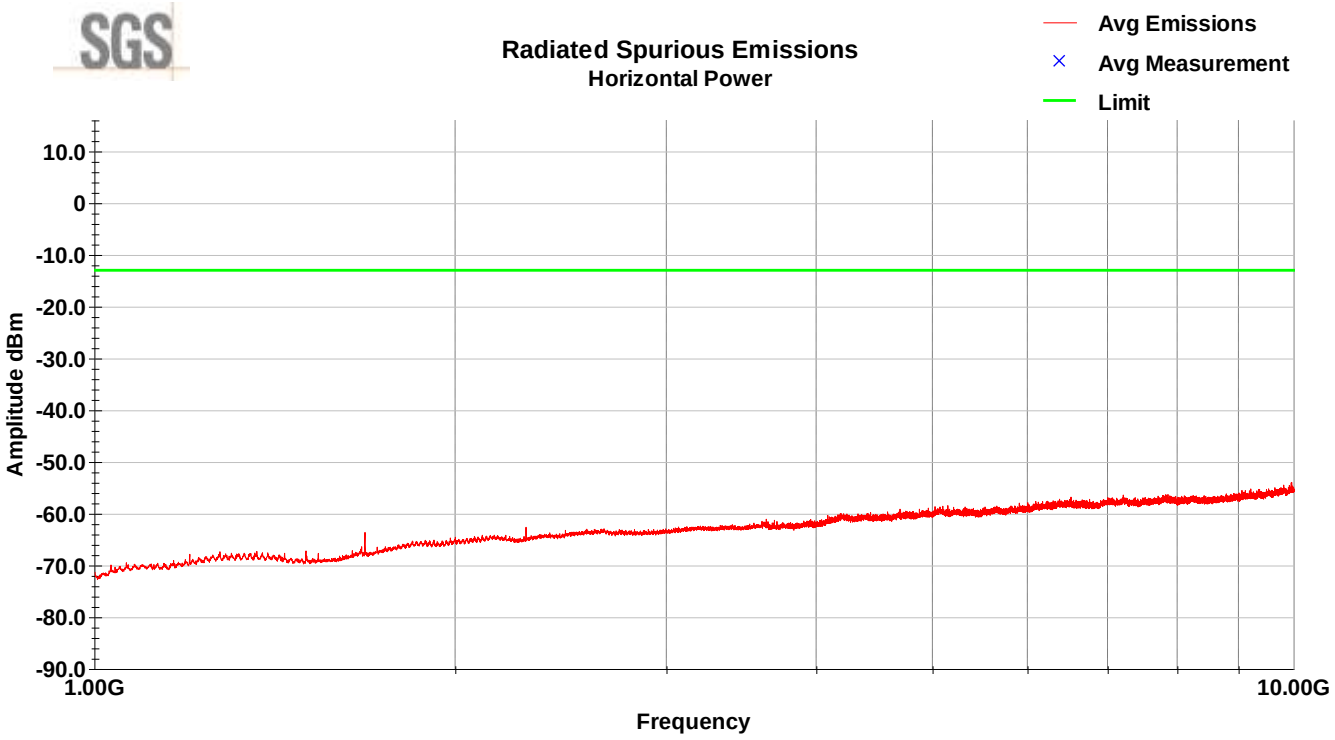
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



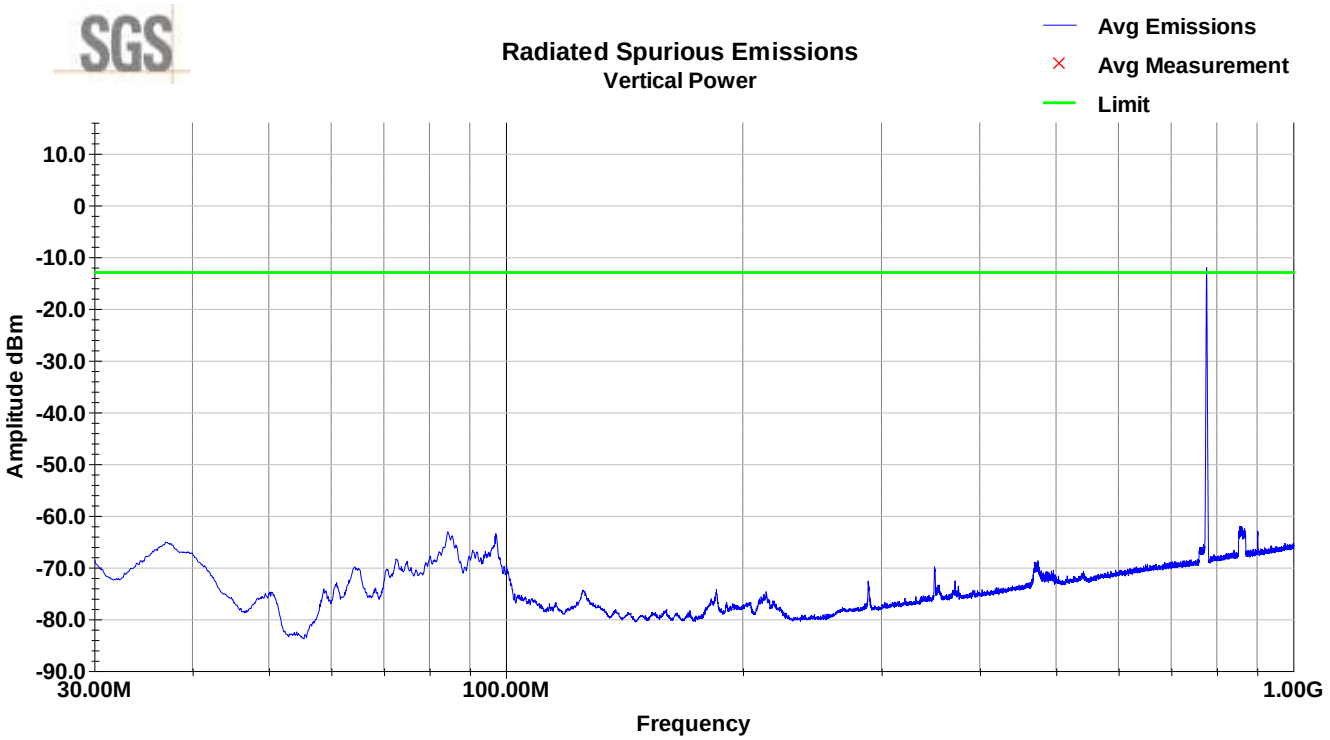
Vertical Radiated Spurious Emissions Plot (1-10GHz)



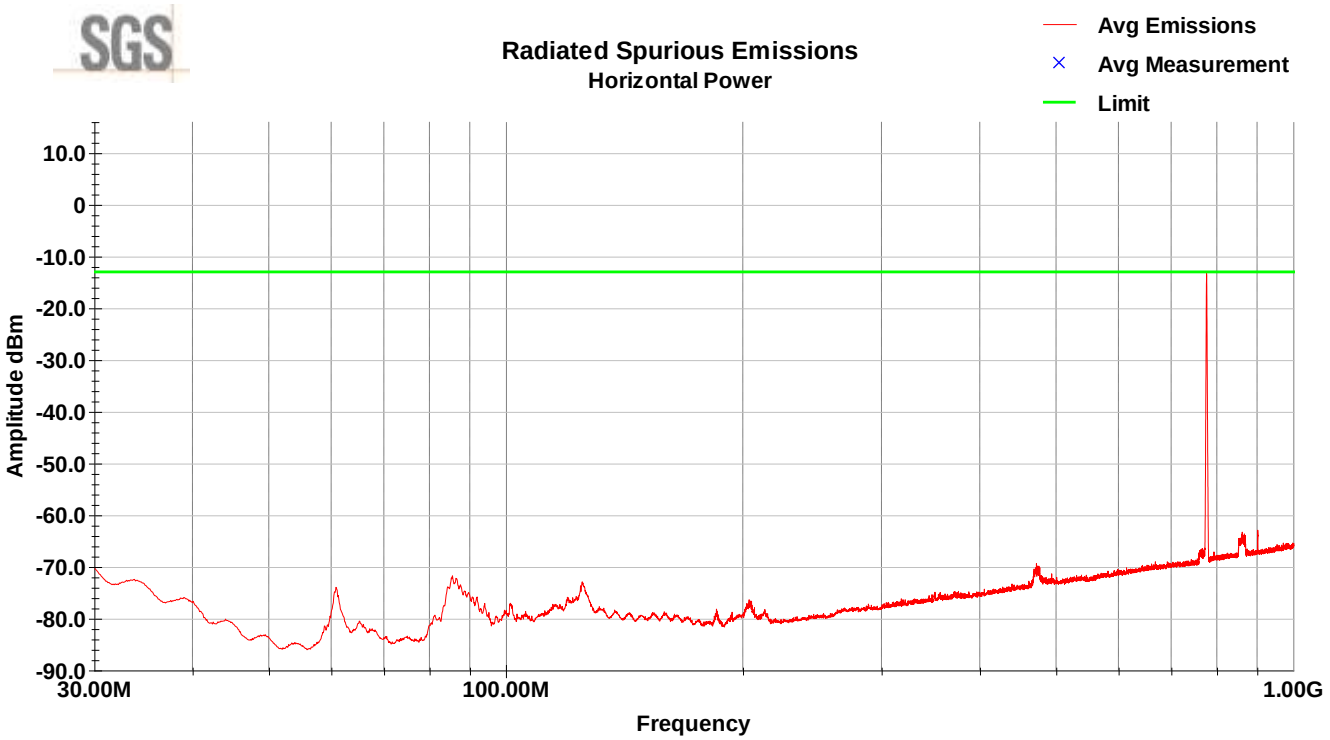
Horizontal Radiated Spurious Emissions Plot (1-10GHz)



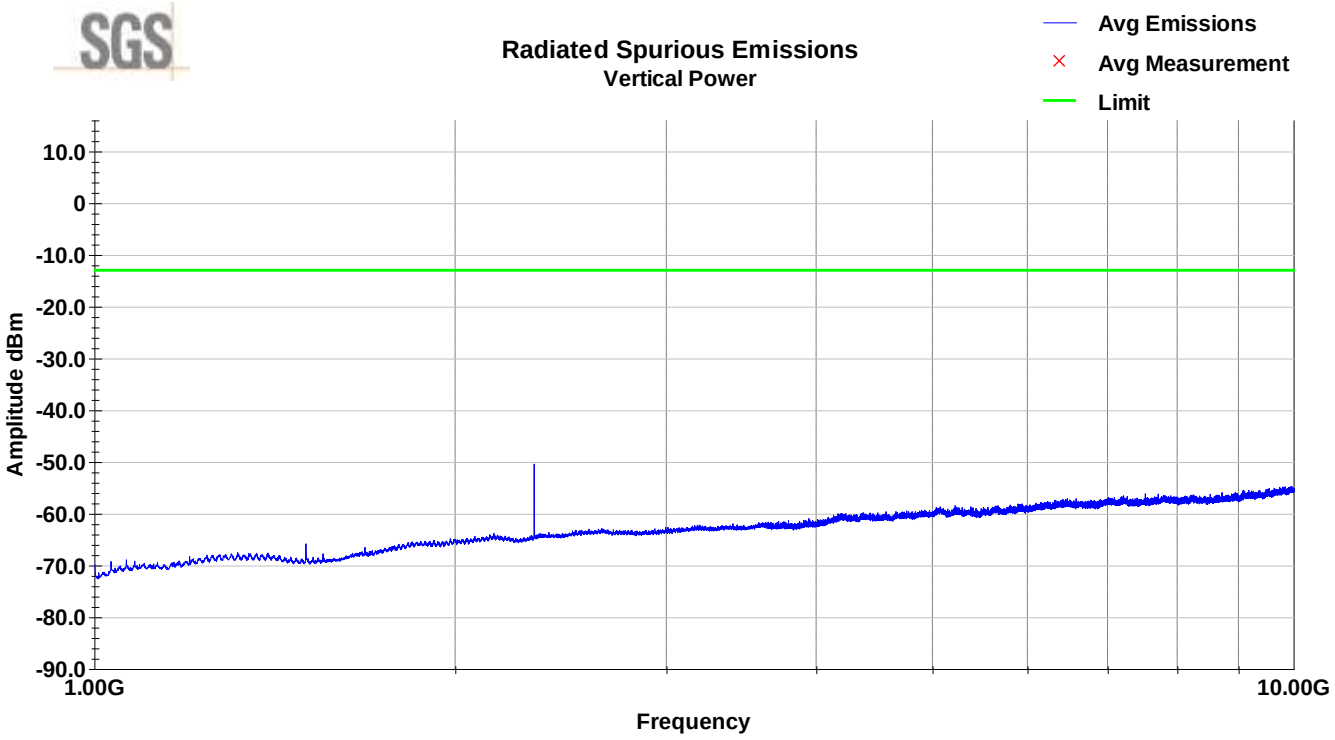
(700 MHz downlink) Tuned frequency: 774.9875
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



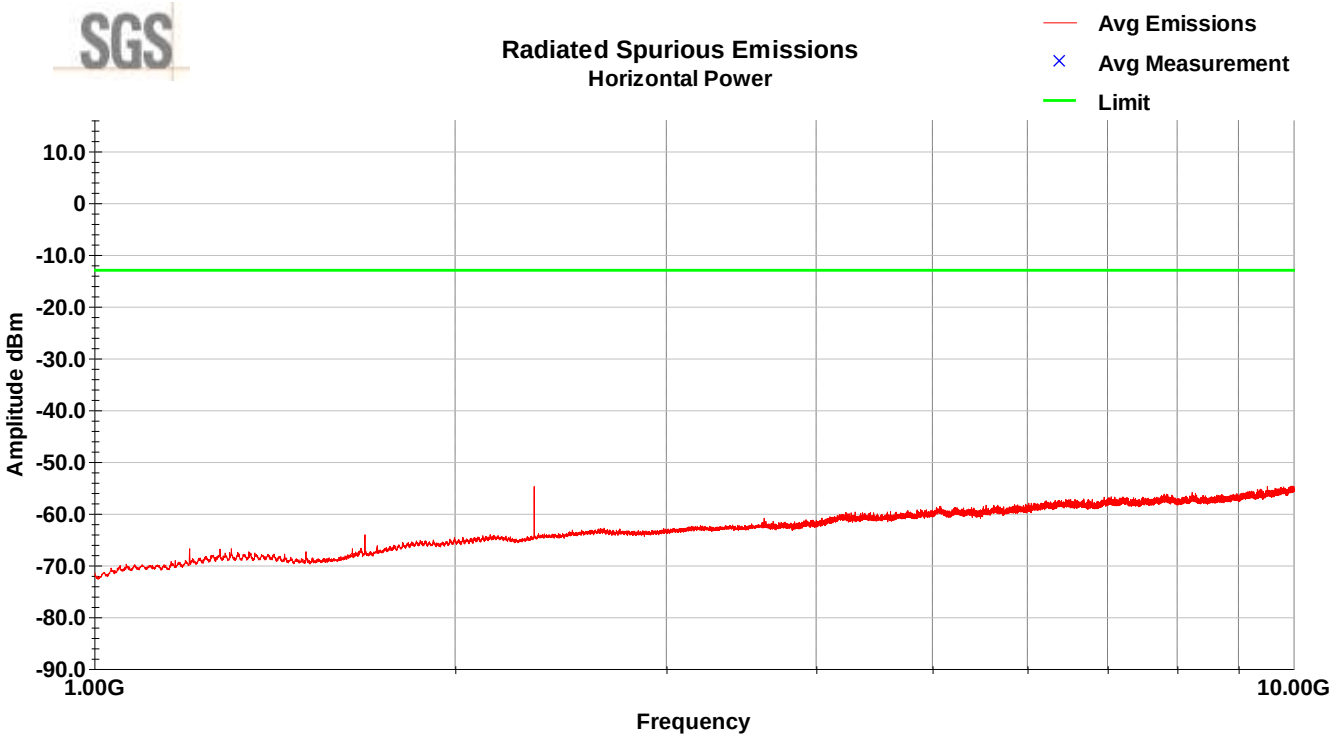
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



Vertical Radiated Spurious Emissions Plot (1-10GHz)

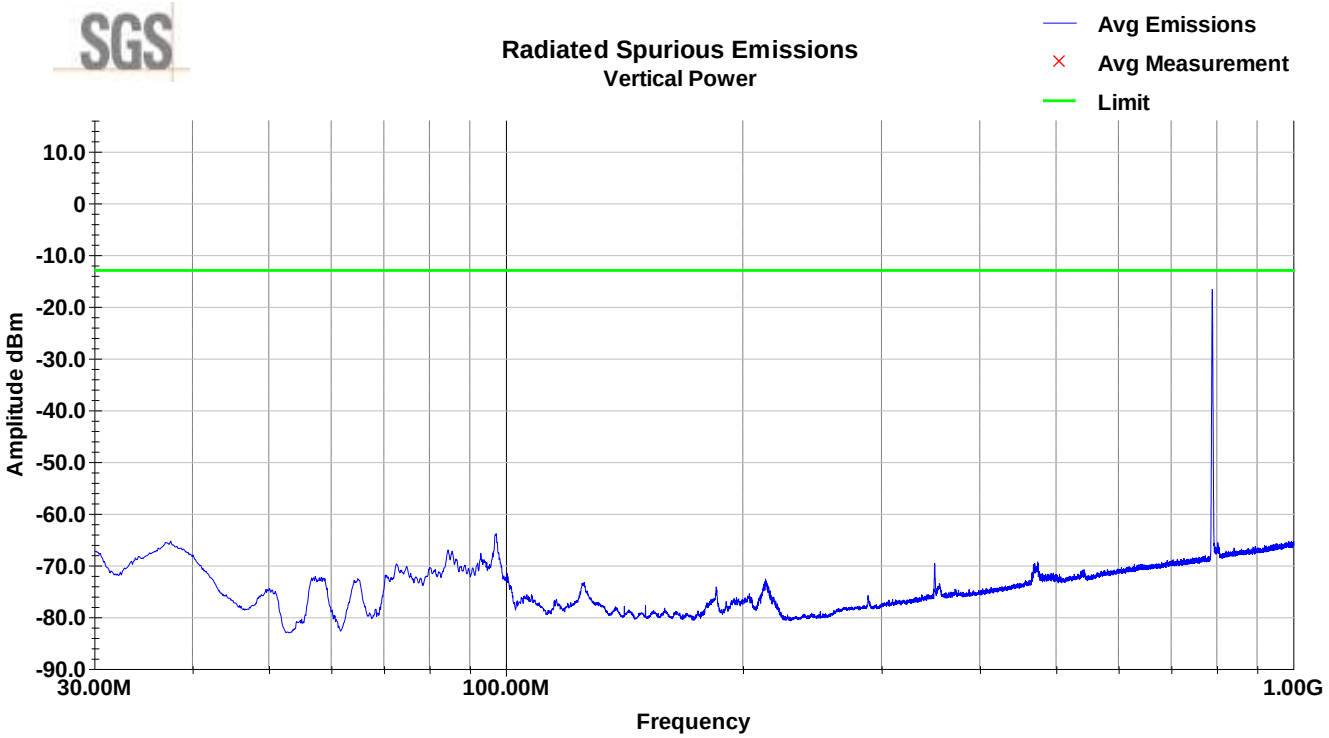


Horizontal Radiated Spurious Emissions Plot (1-10GHz)

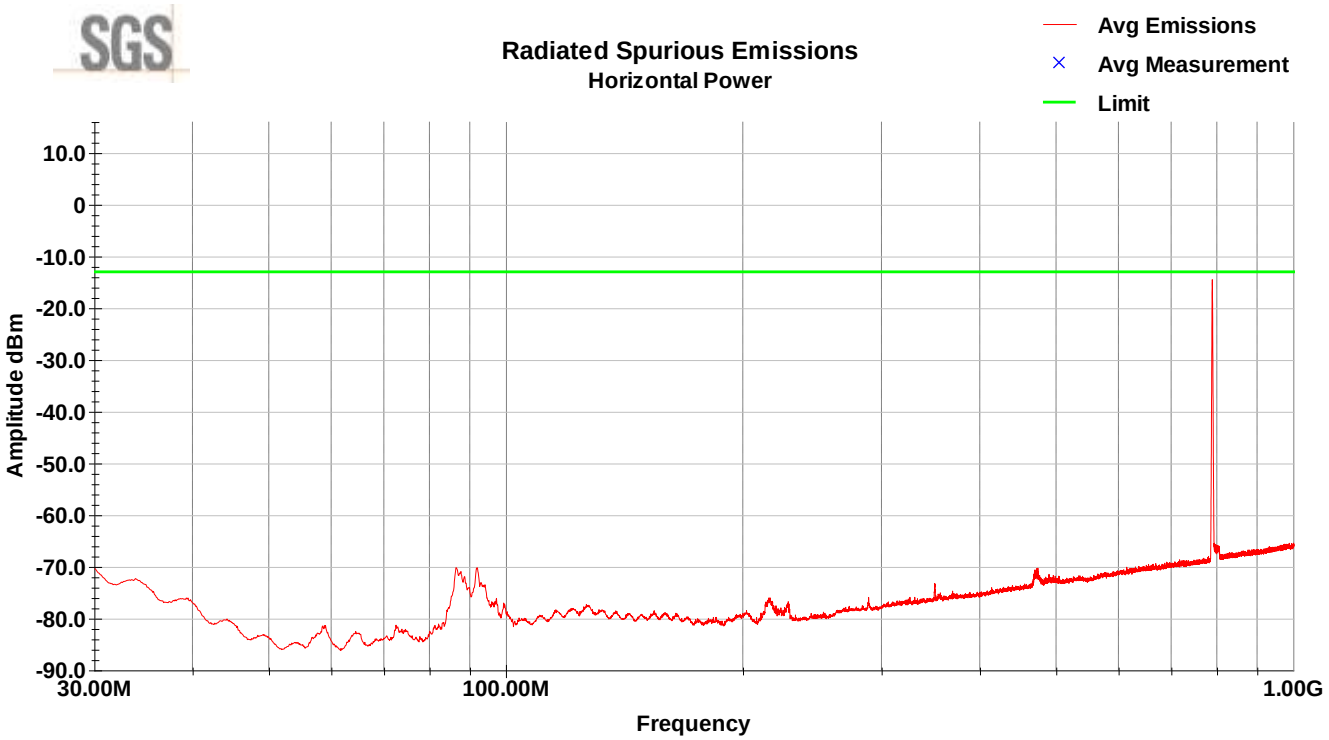


9.6 *Test Data – 700 MHz uplink*

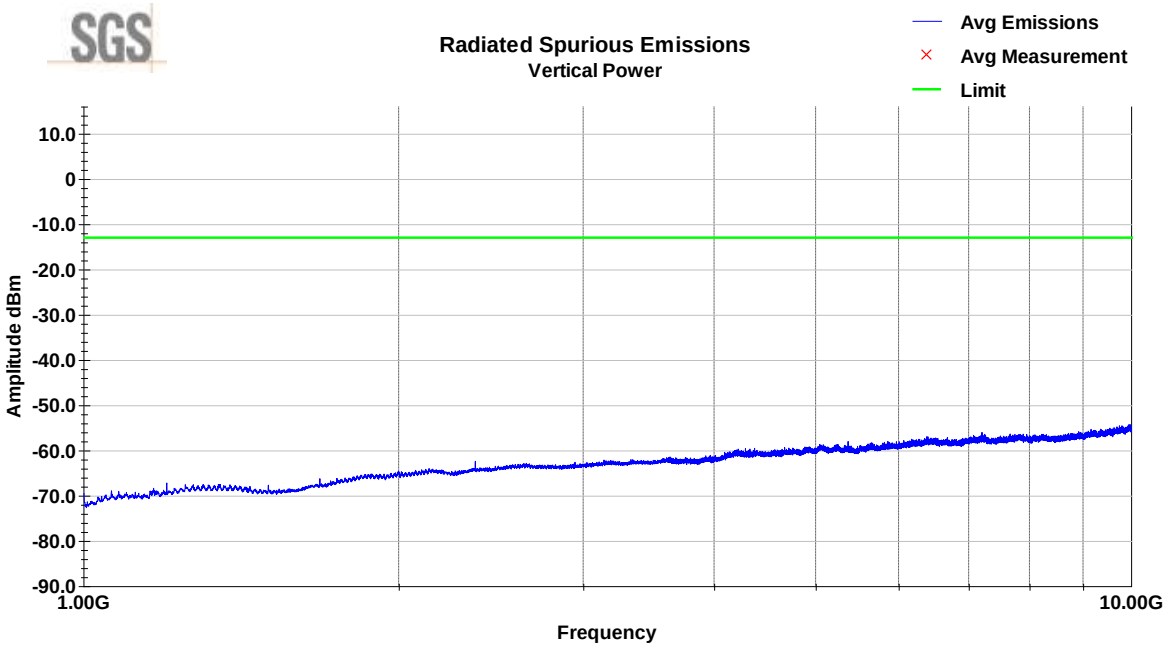
(700 MHz uplink) Tuned frequency: 788.0125
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



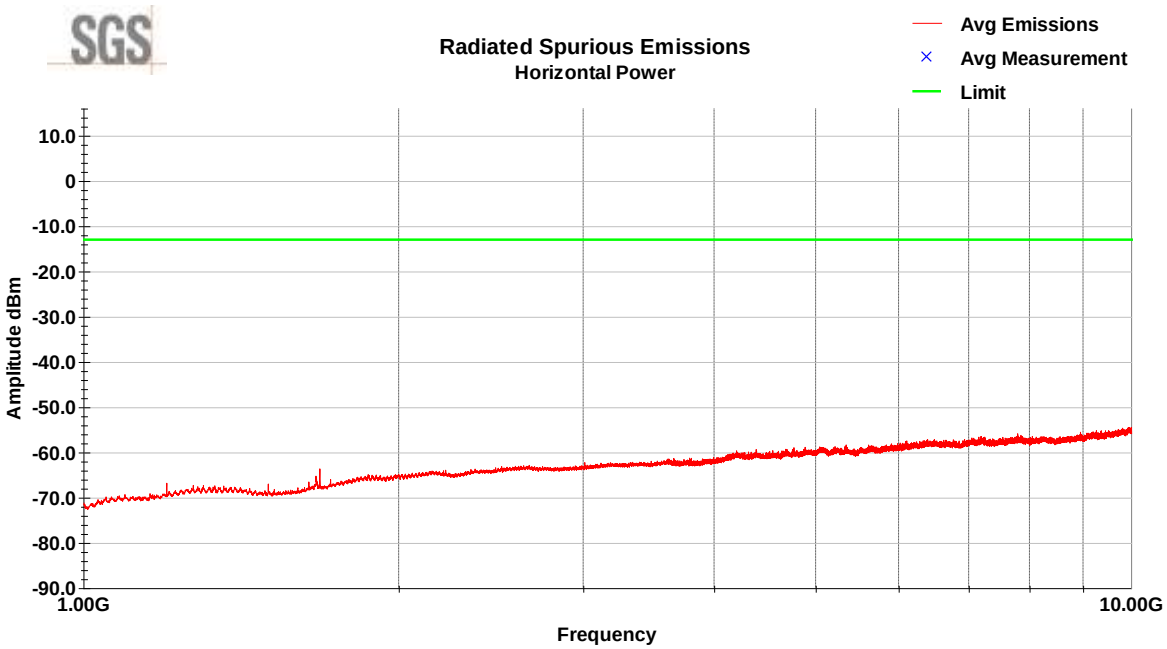
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



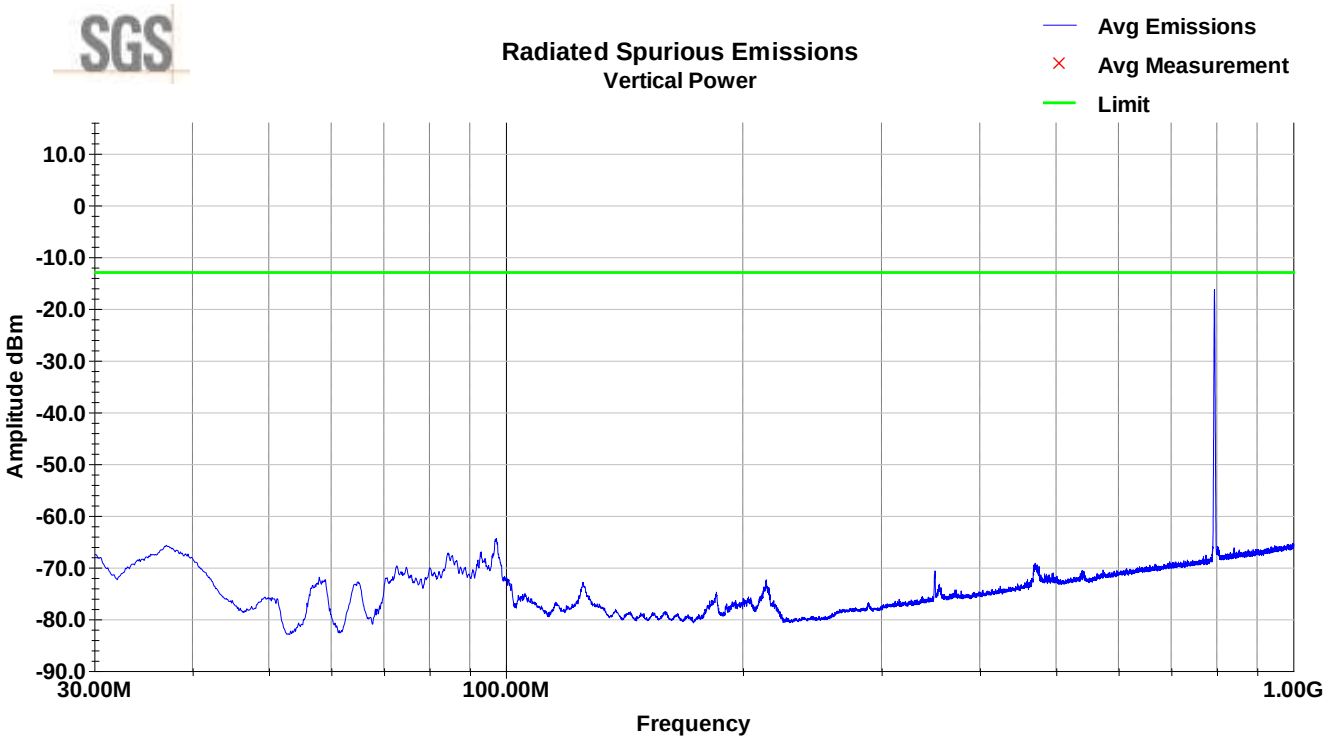
Vertical Radiated Spurious Emissions Plot (1-10GHz)



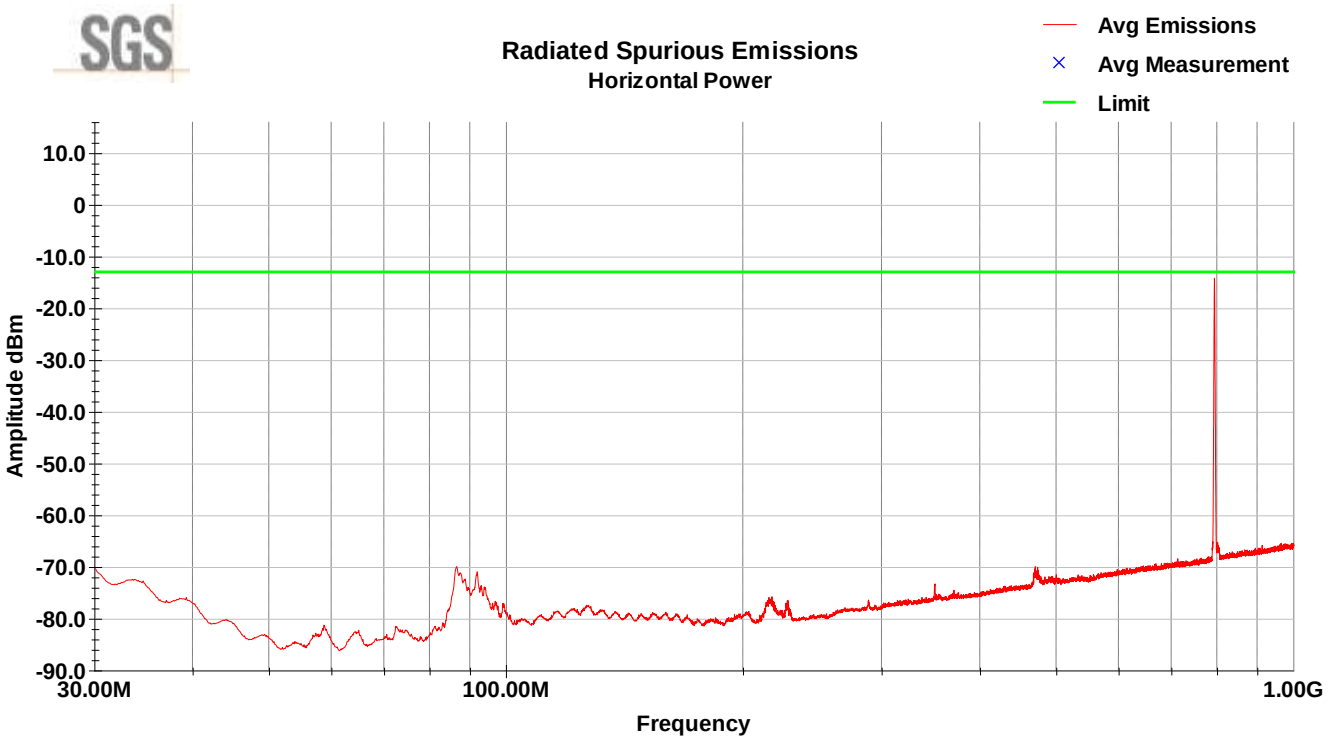
Horizontal Radiated Spurious Emissions Plot (1-10GHz)



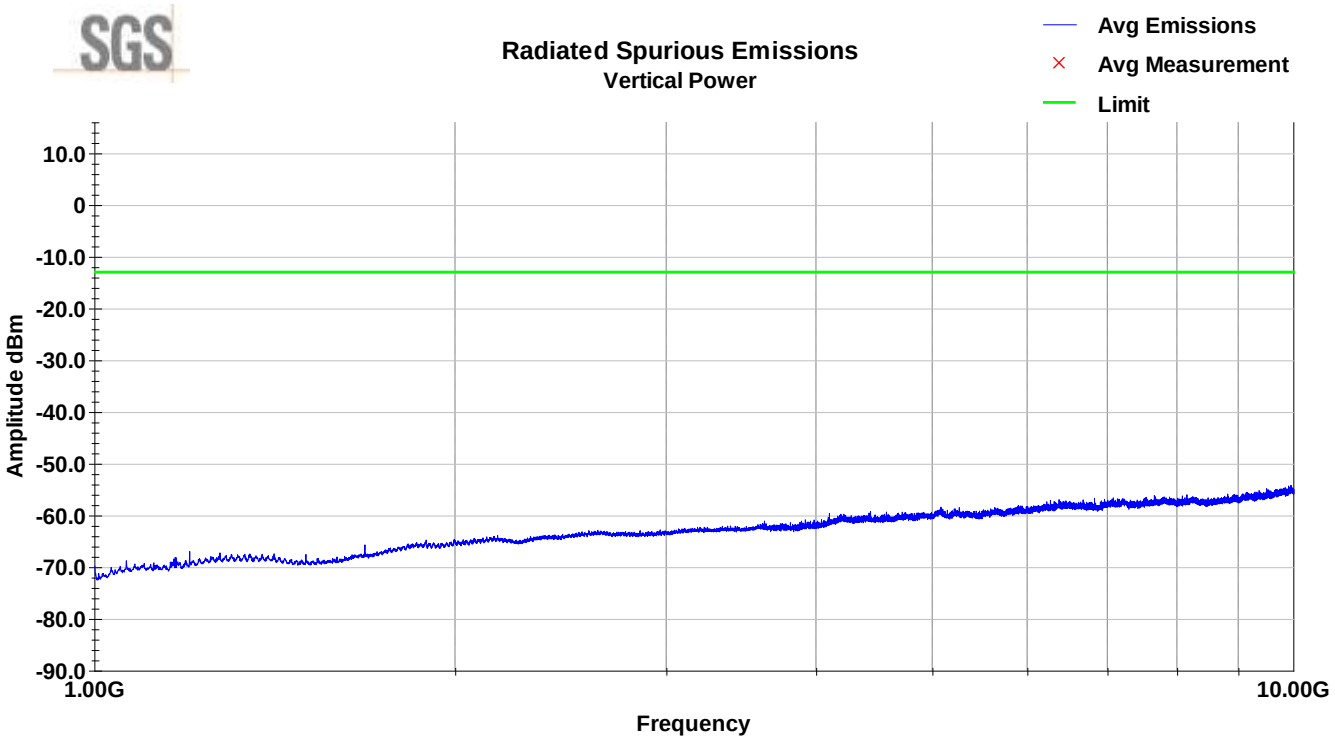
(700 MHz uplink) Tuned frequency: 793
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



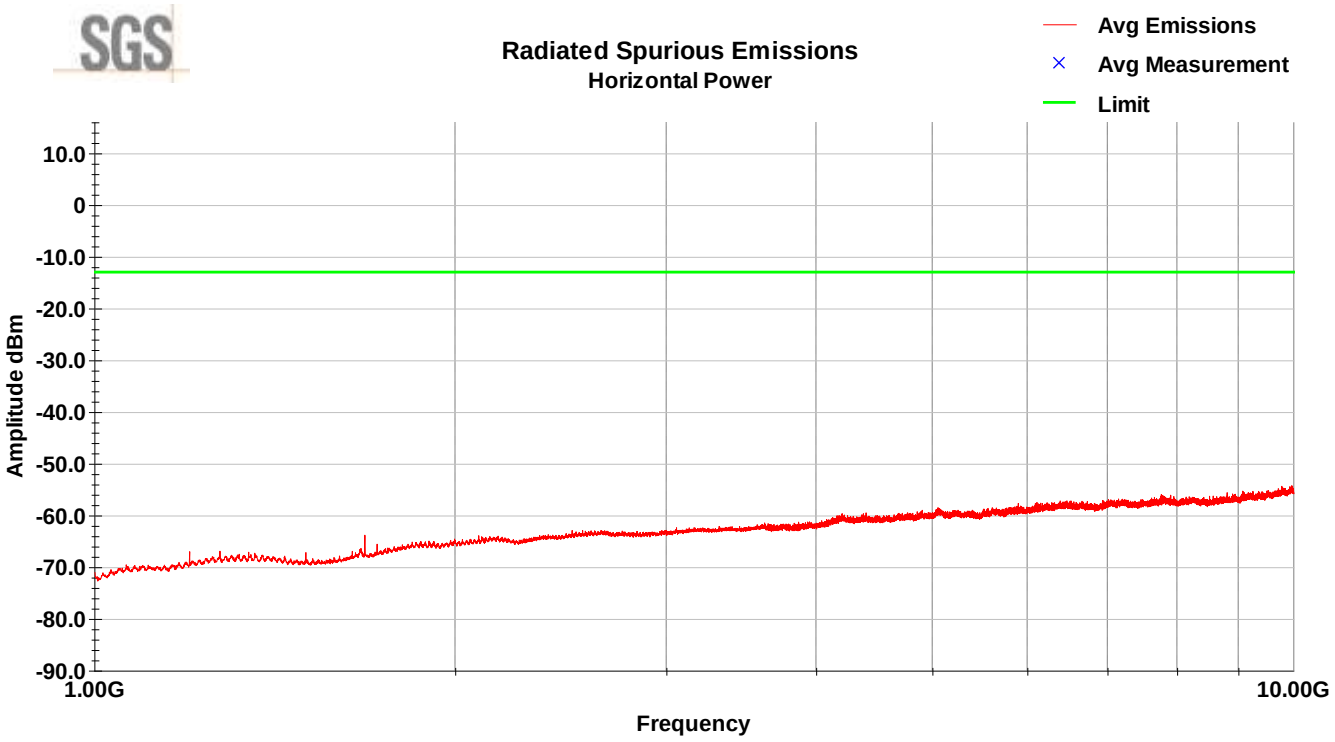
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



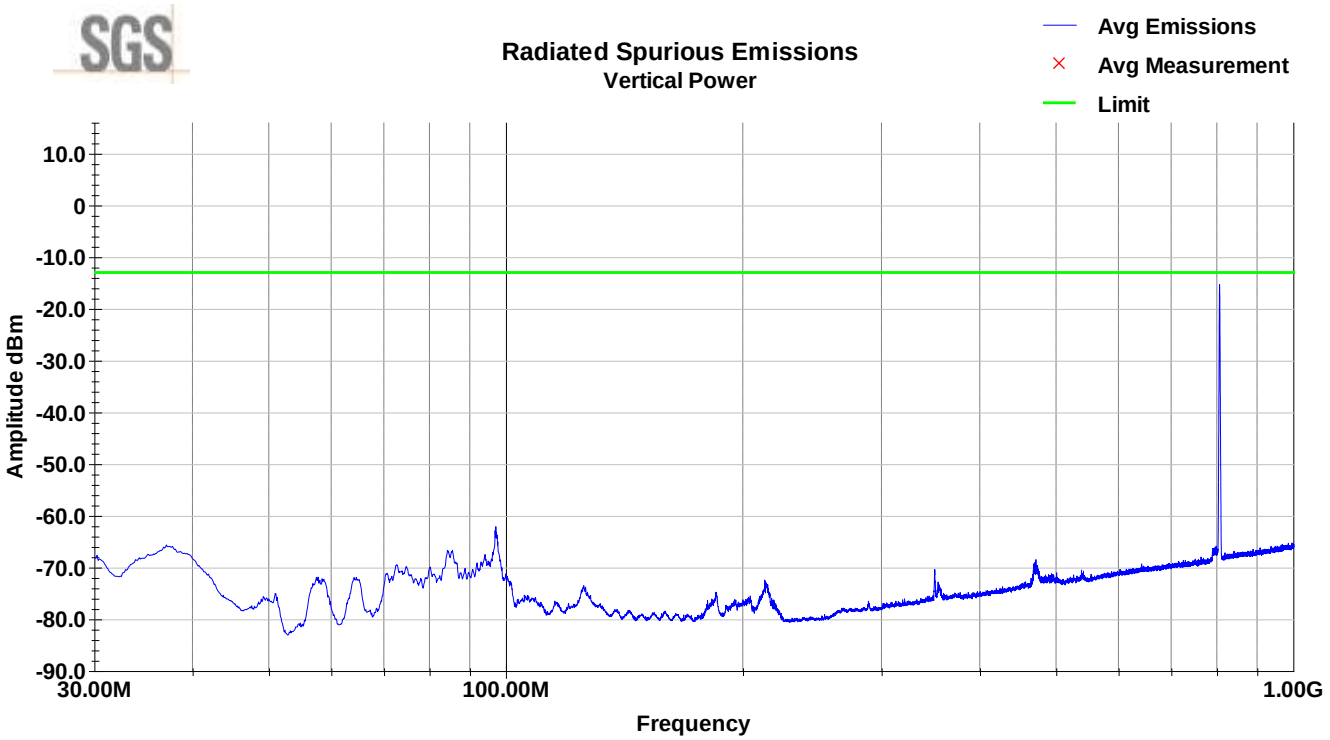
Vertical Radiated Spurious Emissions Plot (1-10GHz)



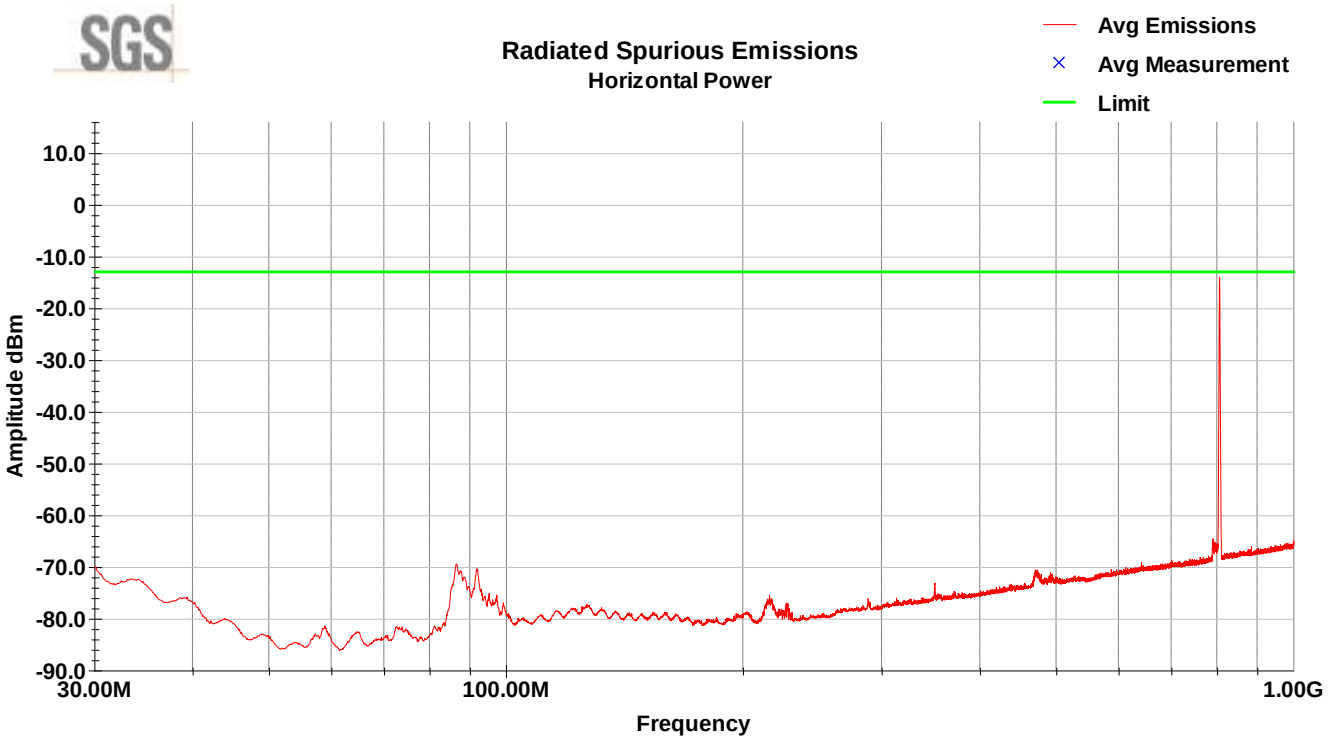
Horizontal Radiated Spurious Emissions Plot (1-10GHz)



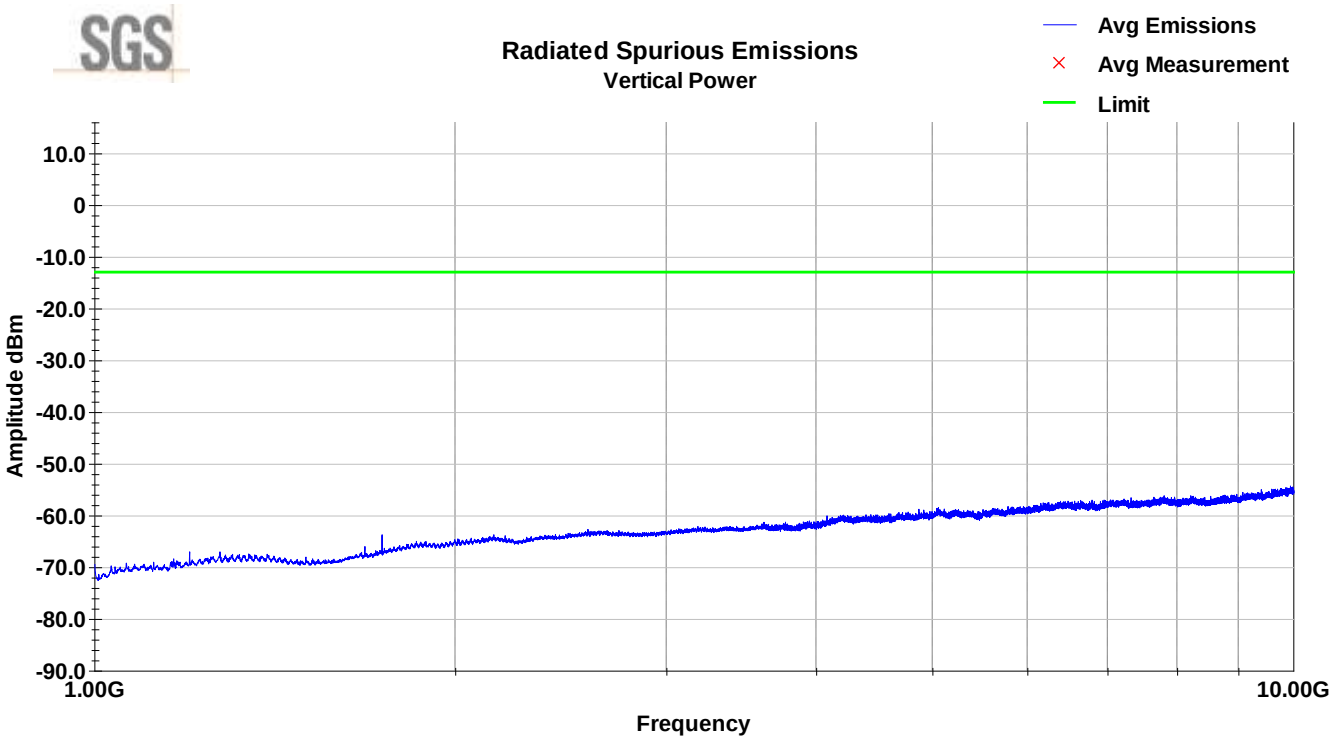
(700 MHz uplink) Tuned frequency: 804.9875
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



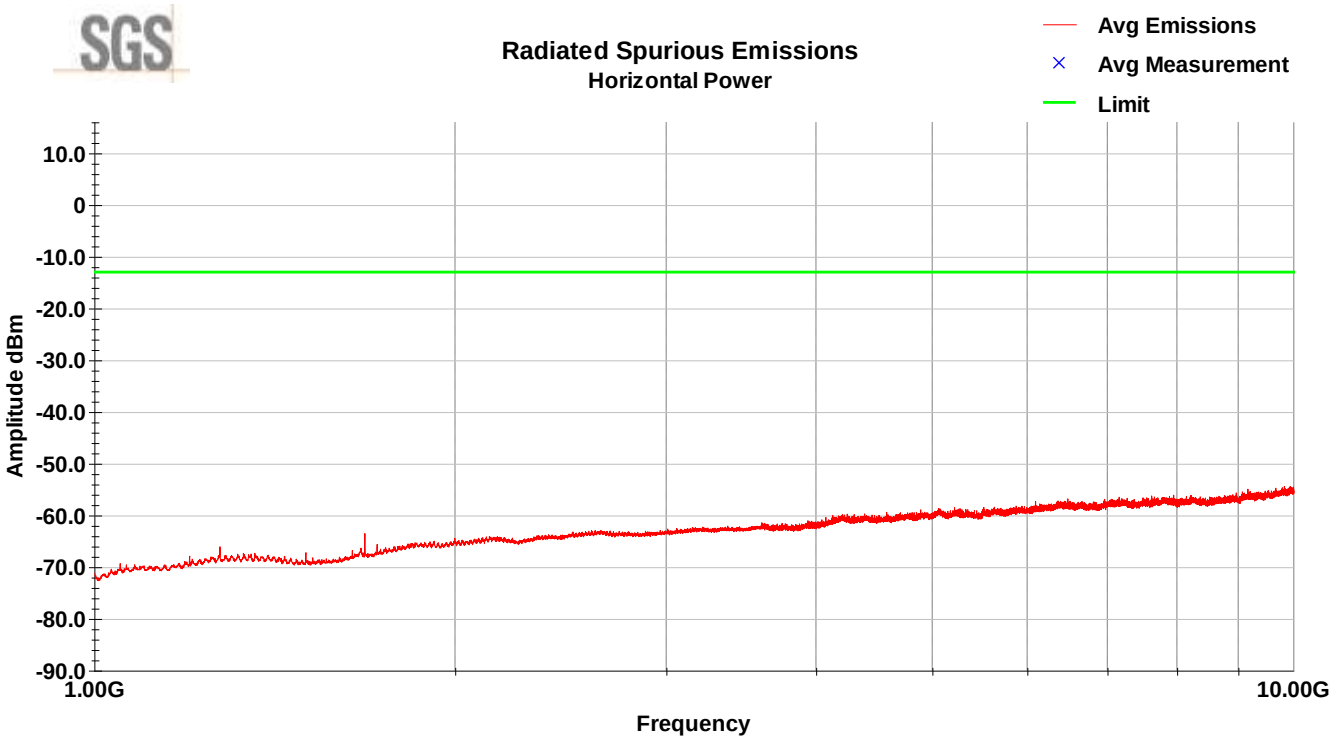
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



Vertical Radiated Spurious Emissions Plot (1-10GHz)

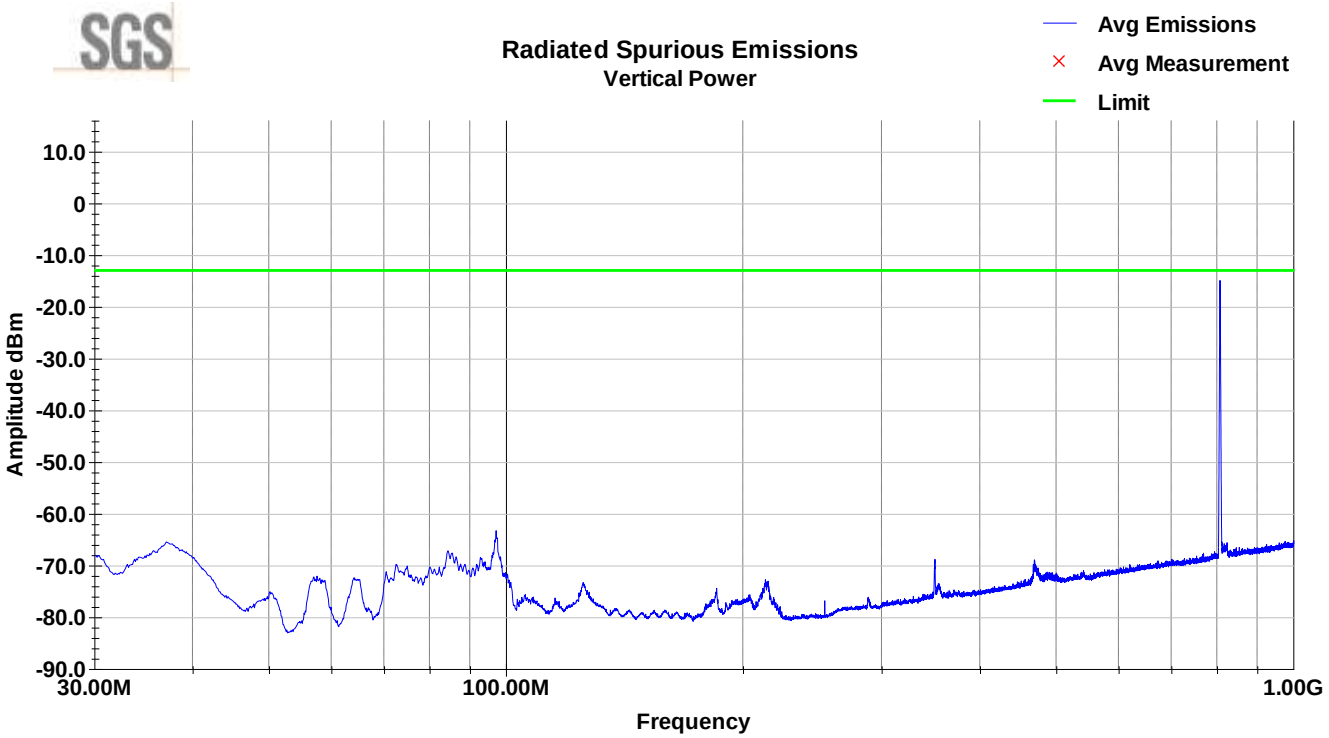


Horizontal Radiated Spurious Emissions Plot (1-10GHz)

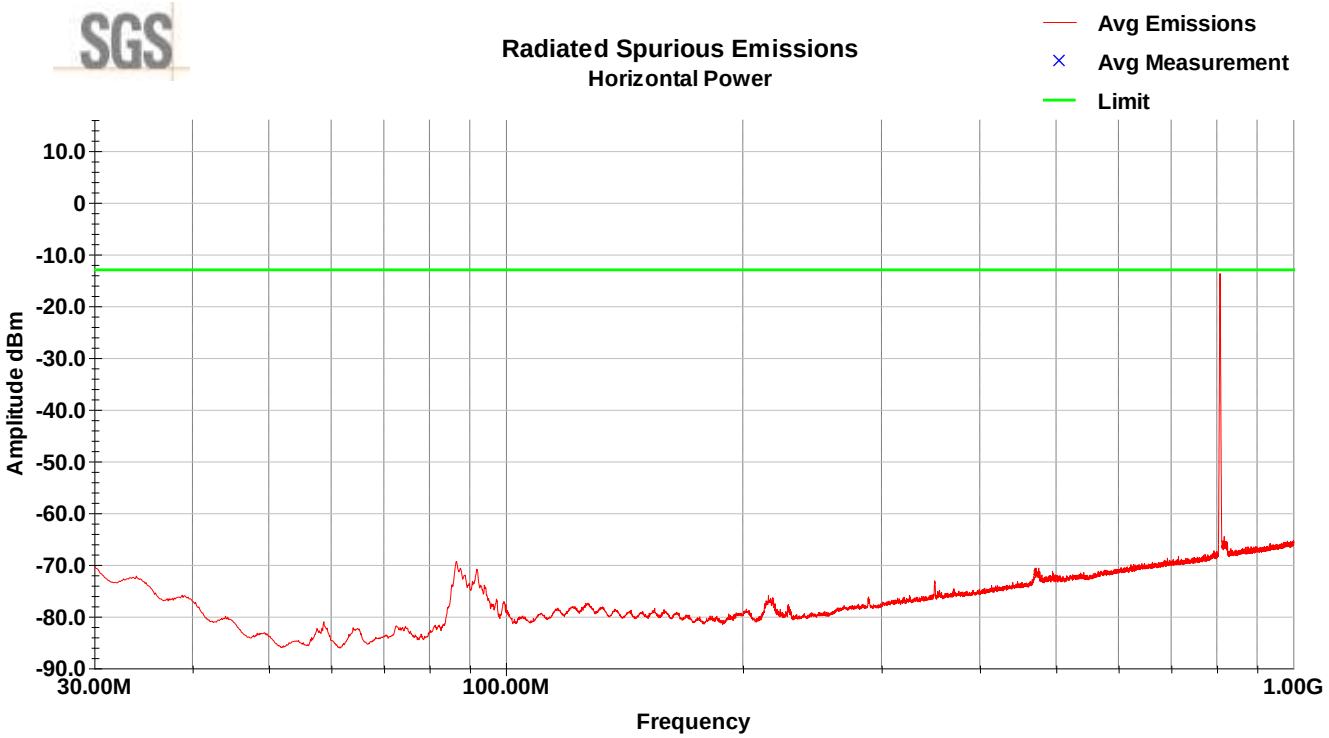


9.7 *Test Data – 800 MHz uplink*

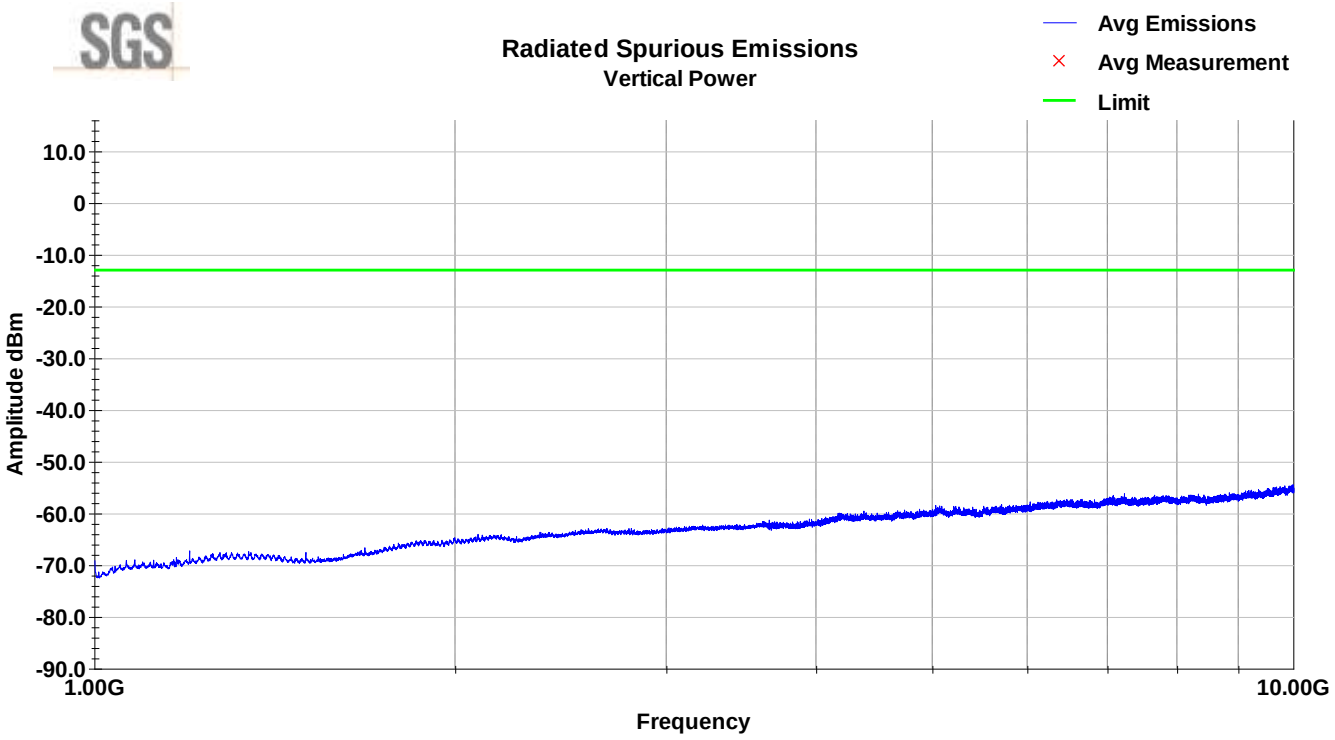
(800 MHz uplink) Tuned frequency: 806.0125
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



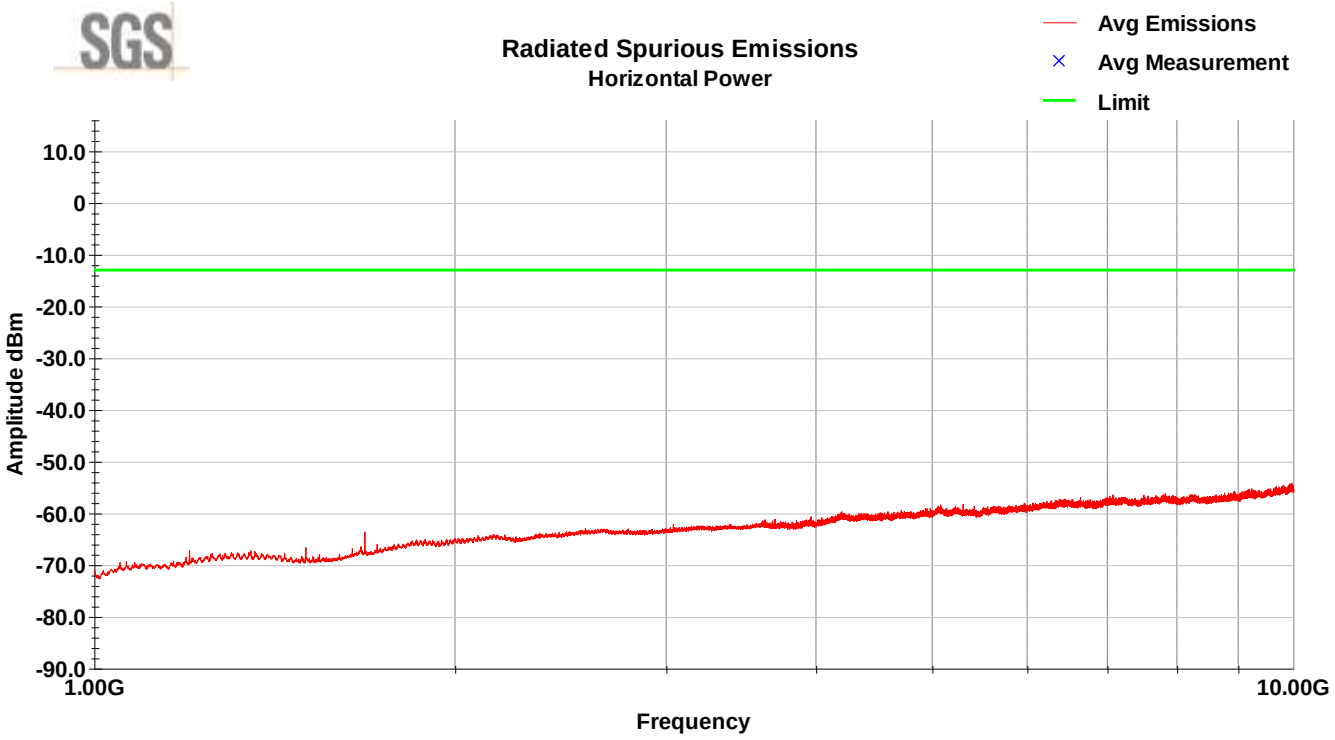
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



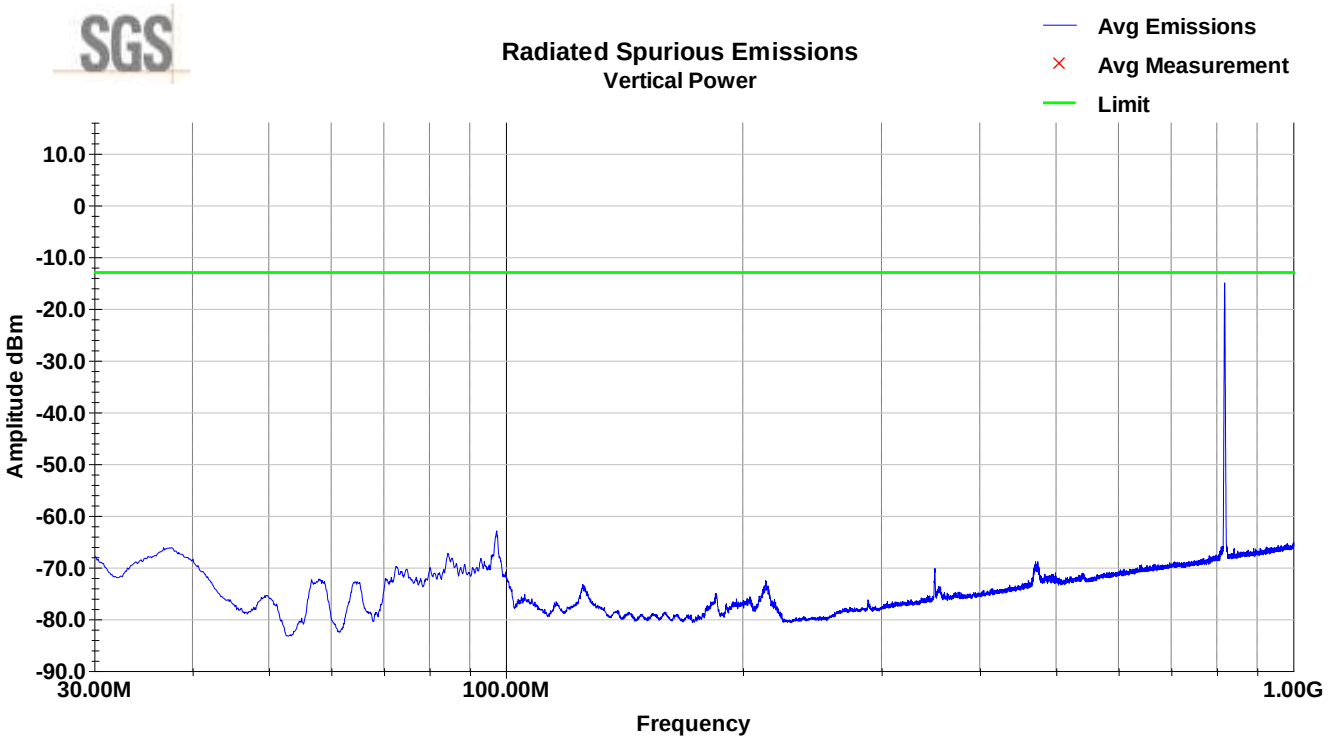
Vertical Radiated Spurious Emissions Plot (1-10GHz)



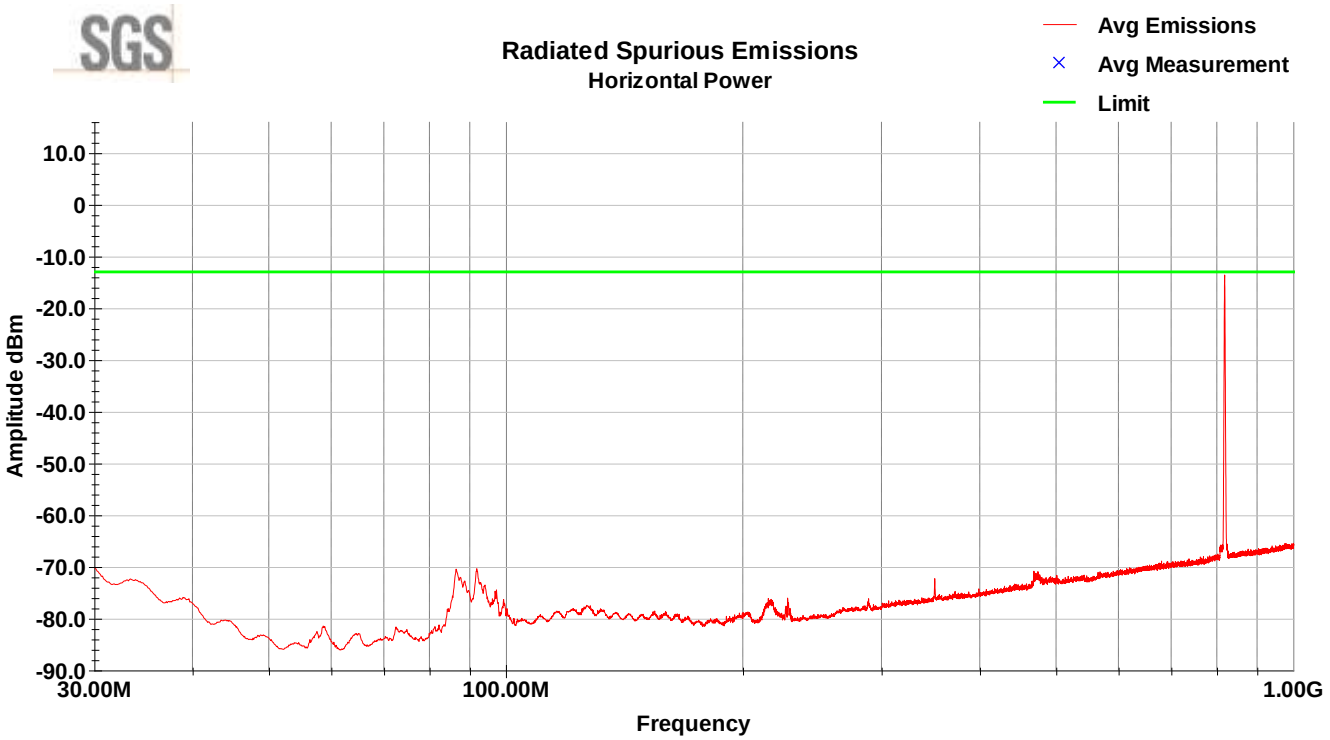
Horizontal Radiated Spurious Emissions Plot (1-10GHz)



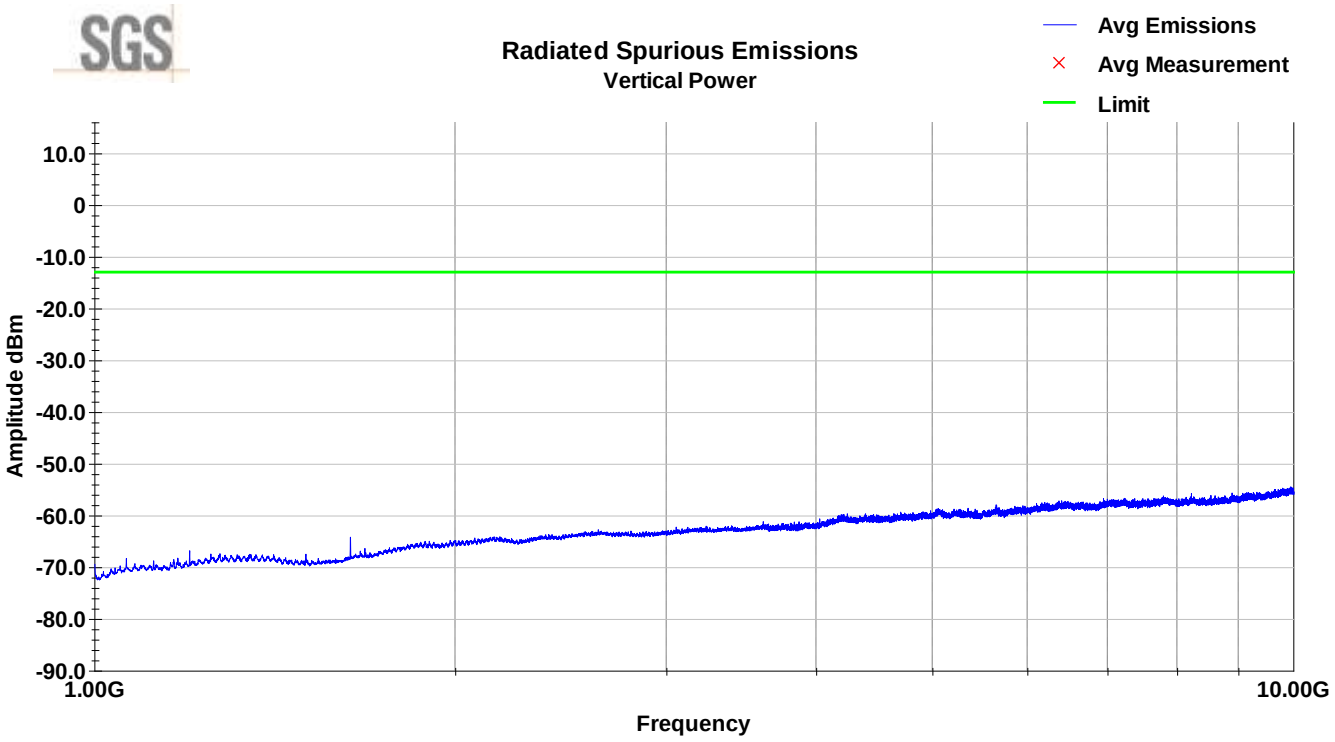
(800 MHz uplink) Tuned frequency: 816.9875
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



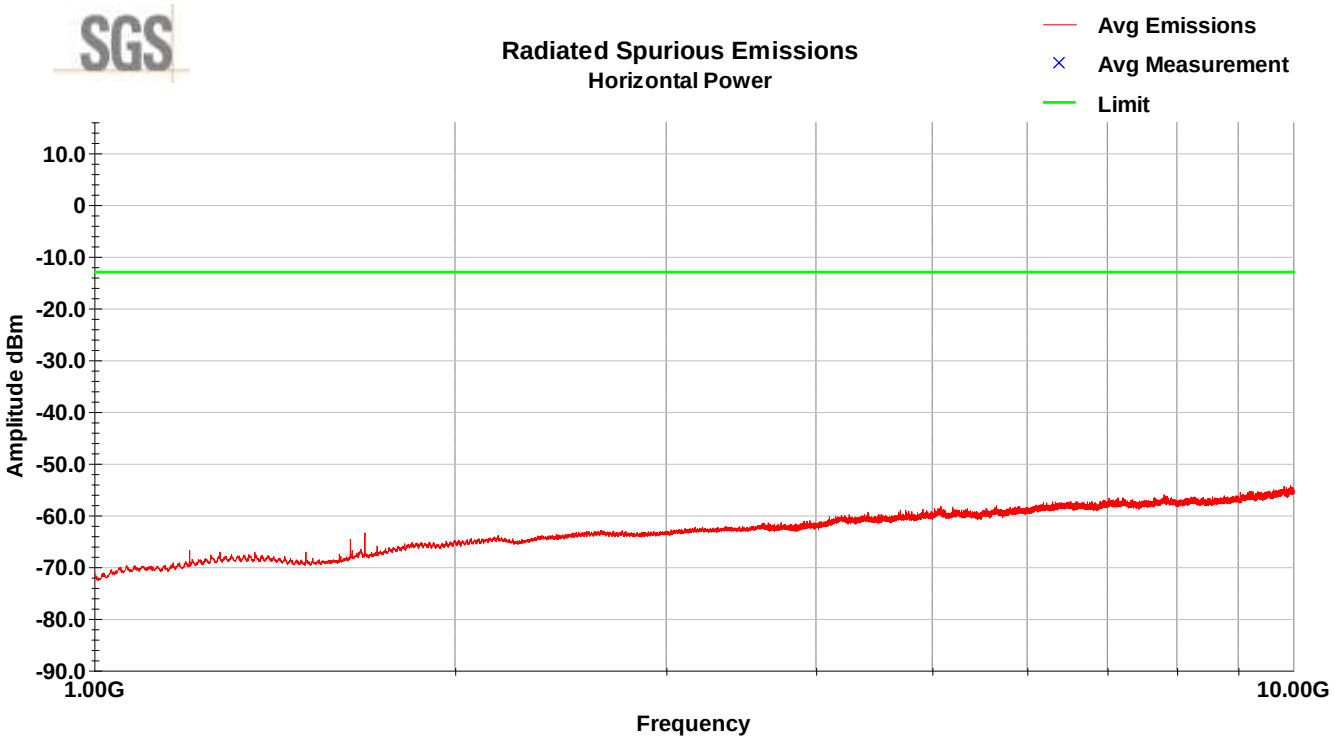
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



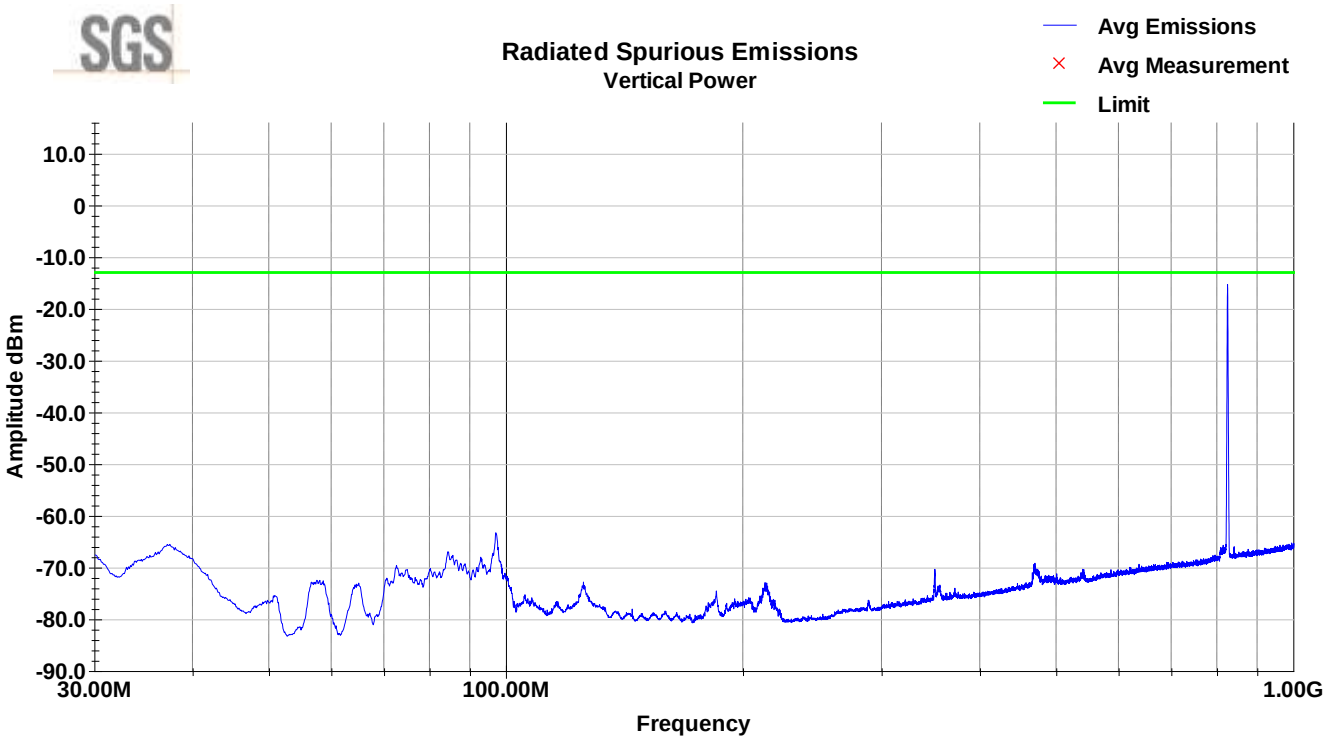
Vertical Radiated Spurious Emissions Plot (1-10GHz)



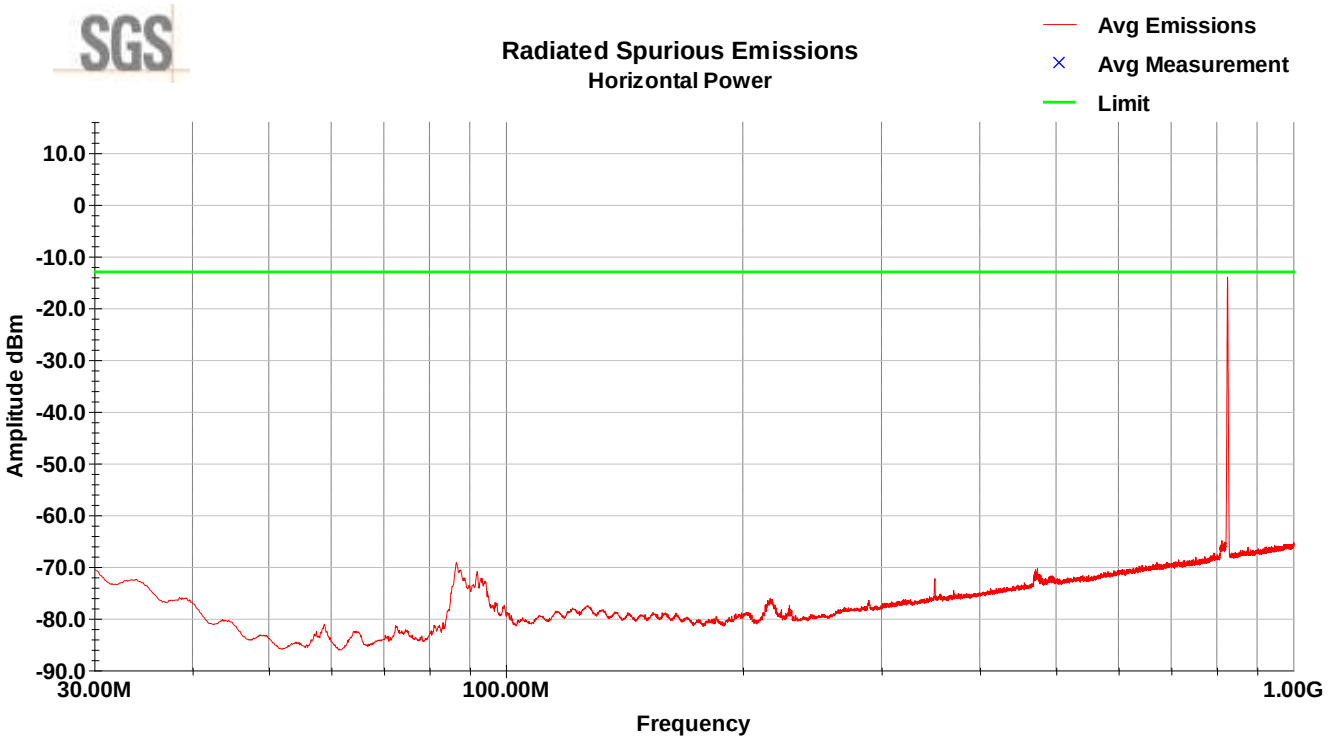
Horizontal Radiated Spurious Emissions Plot (1-10GHz)



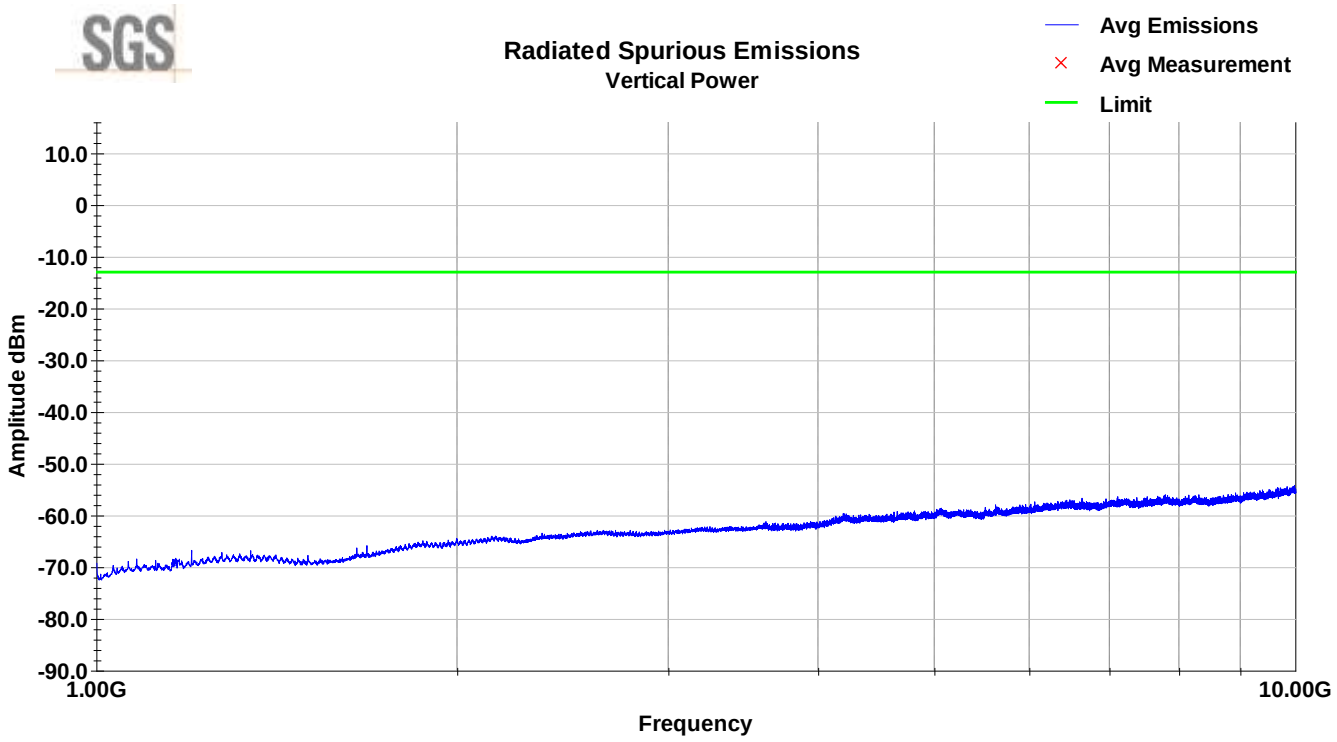
(800 MHz uplink) Tuned frequency: 823.9875
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



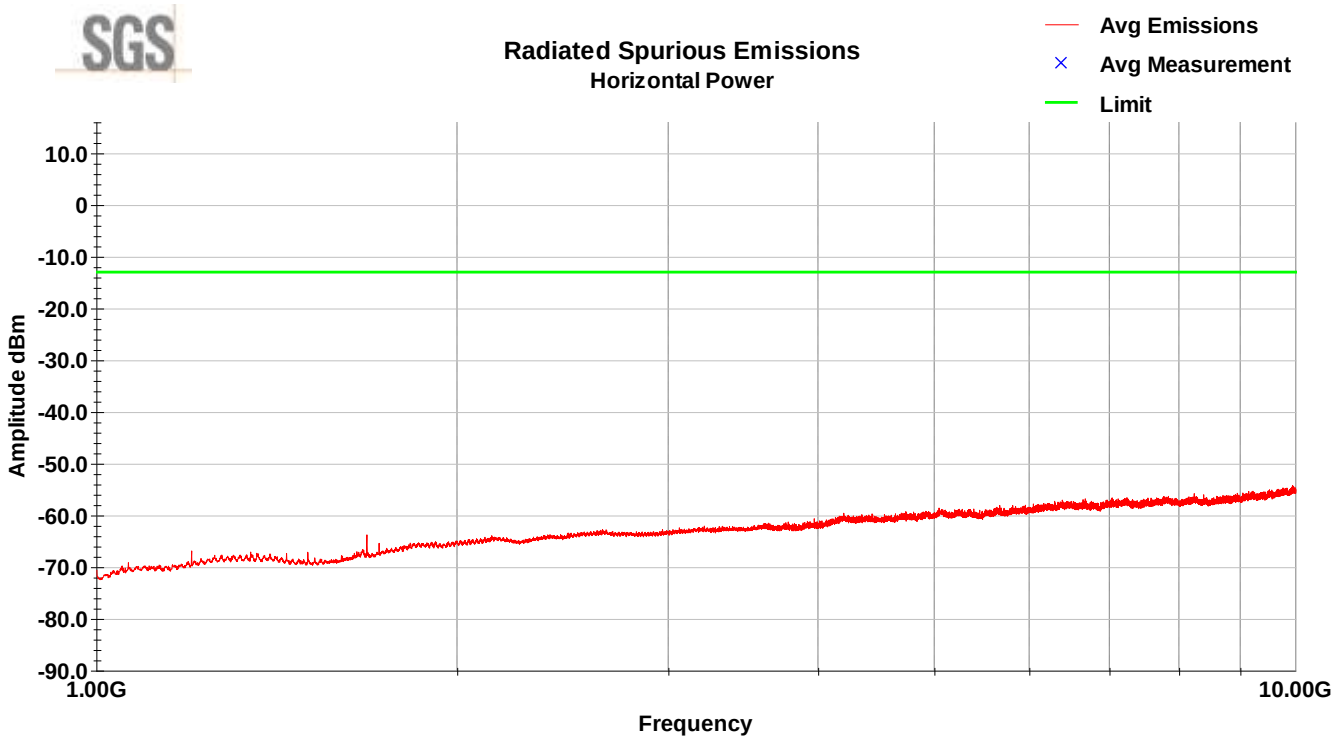
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



Vertical Radiated Spurious Emissions Plot (1-10GHz)

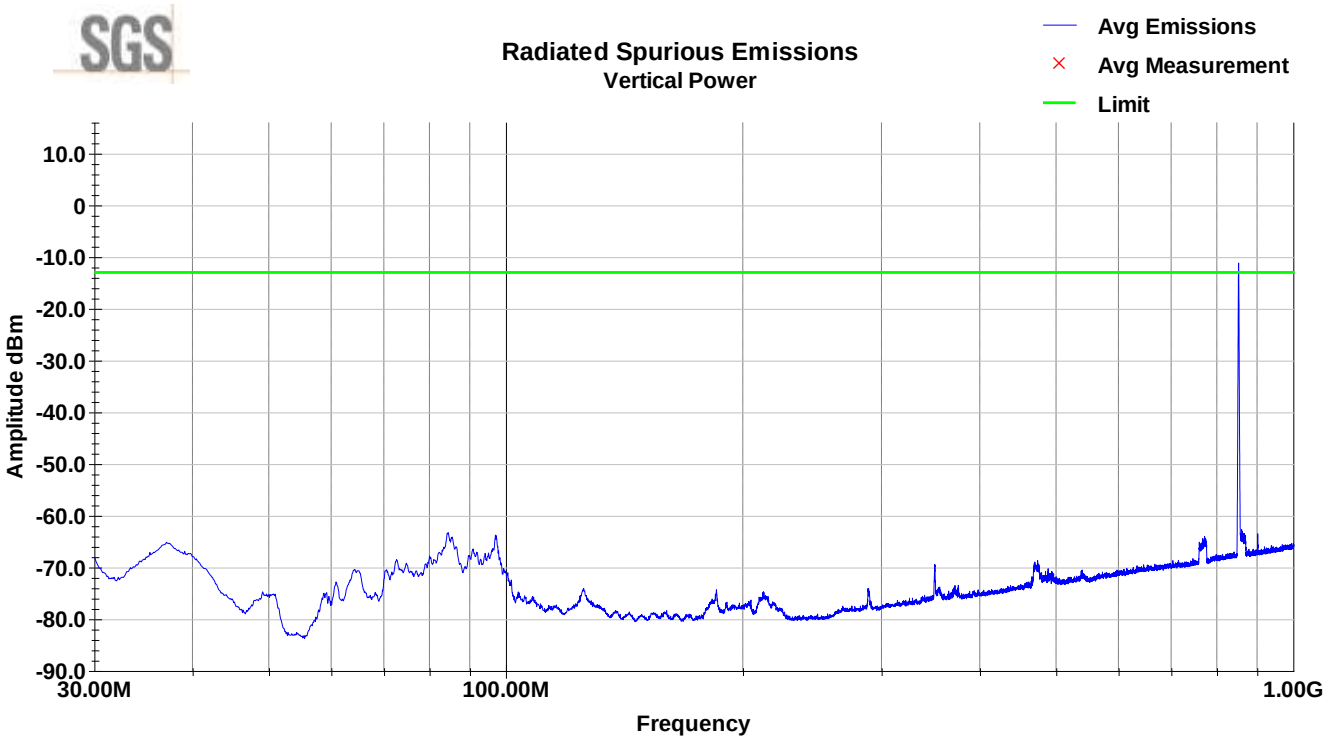


Horizontal Radiated Spurious Emissions Plot (1-10GHz)

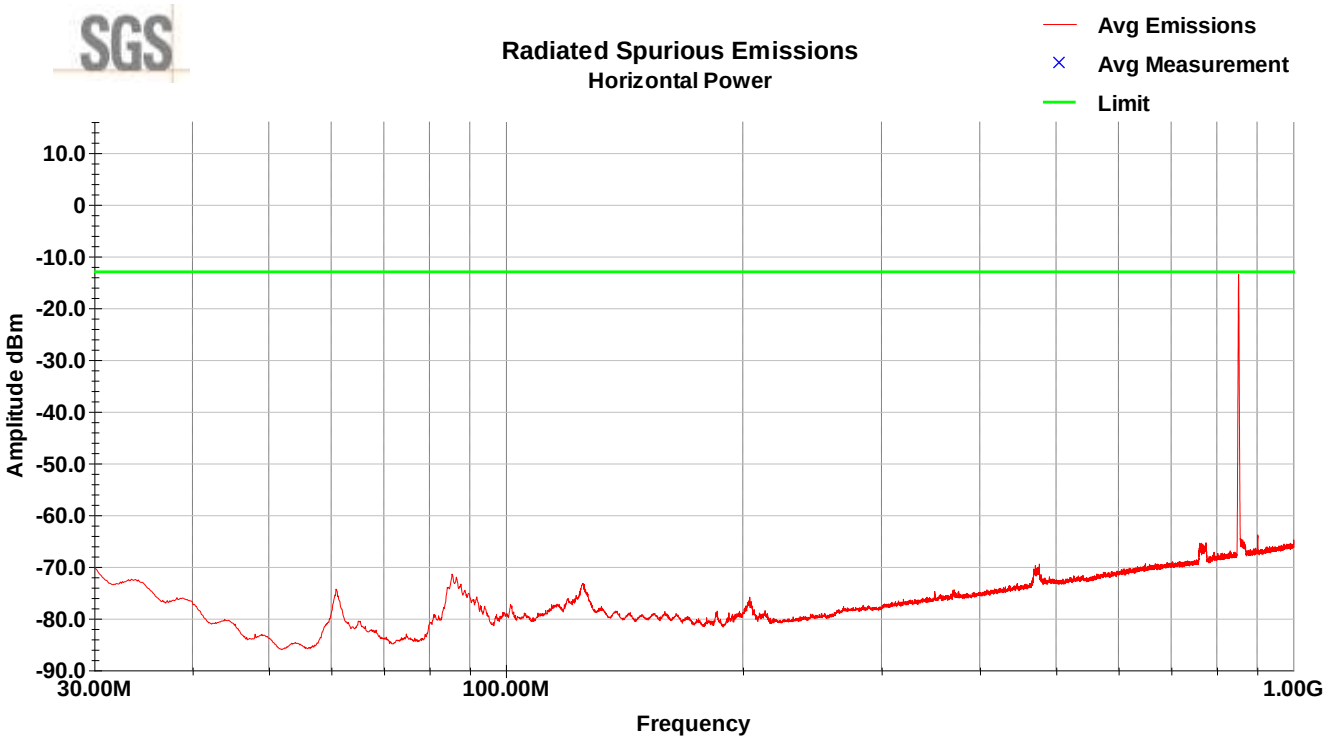


9.8 *Test Data – 800 MHz downlink*

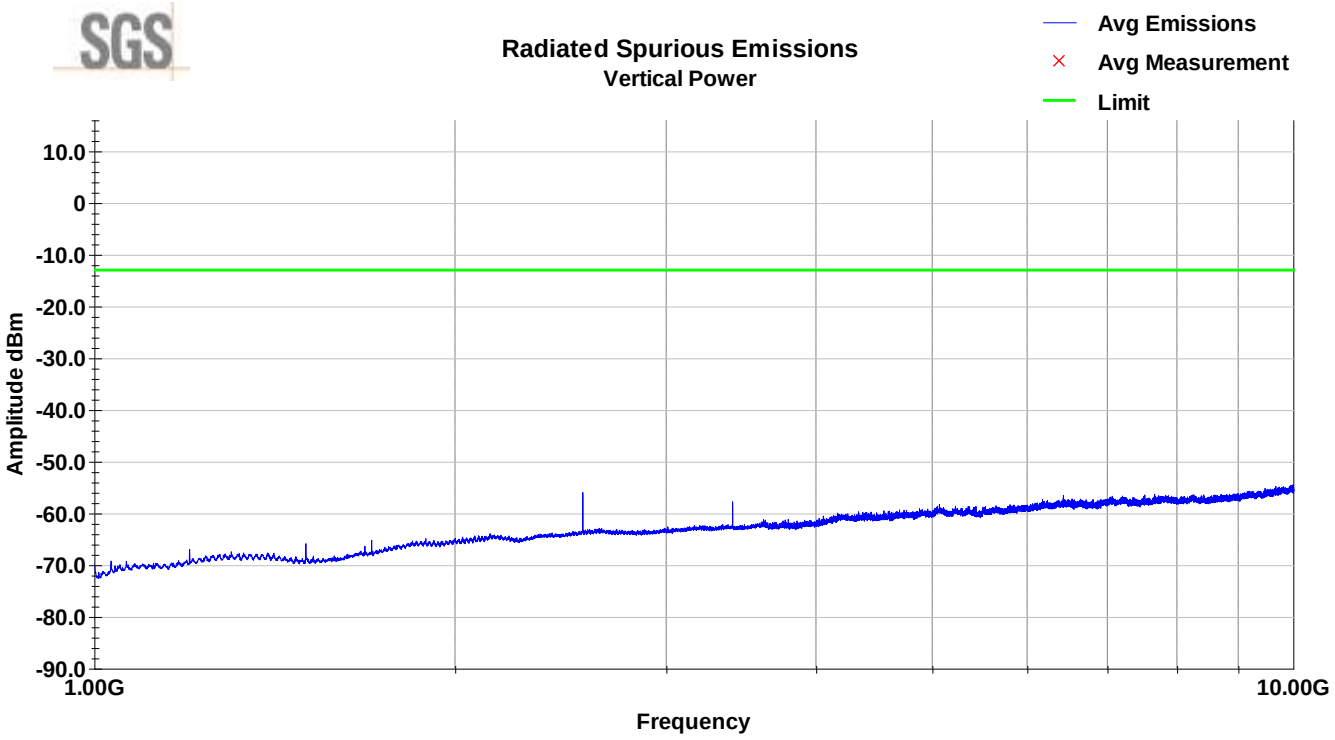
(800 MHz downlink) Tuned frequency: 851.0125
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



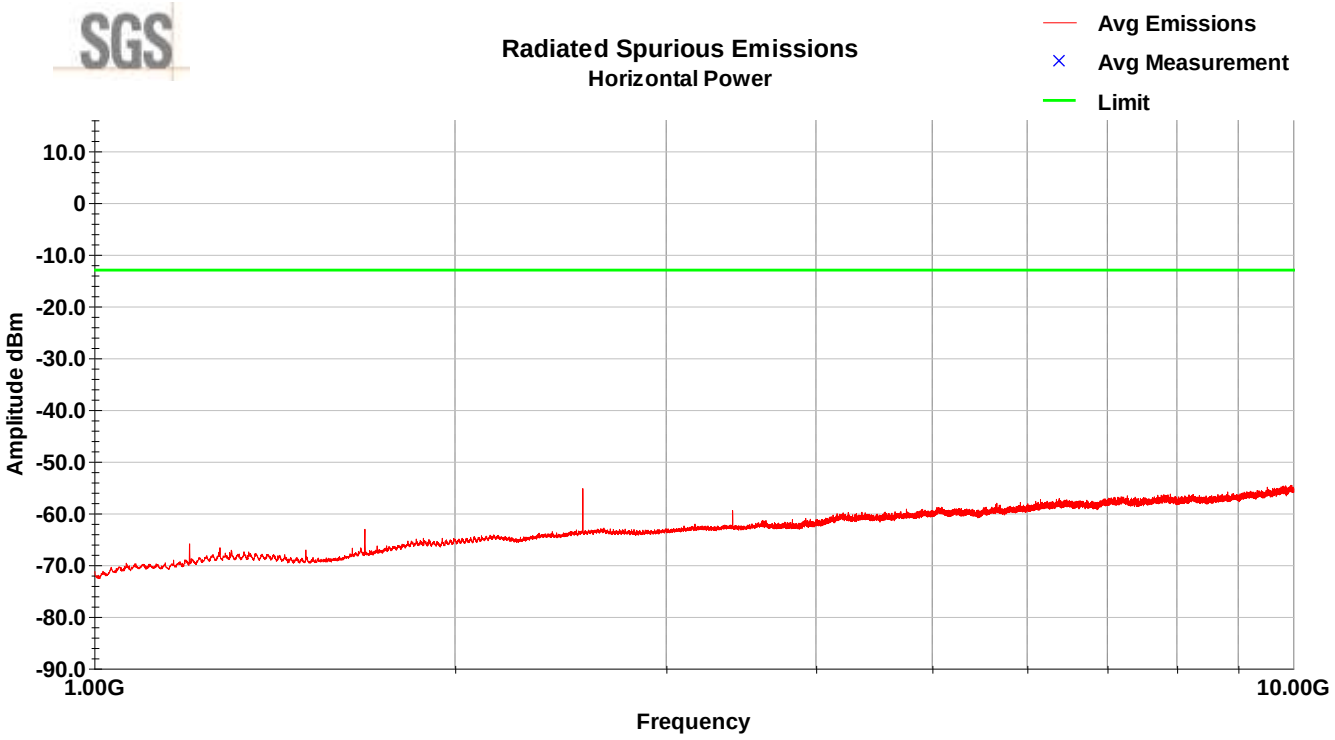
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



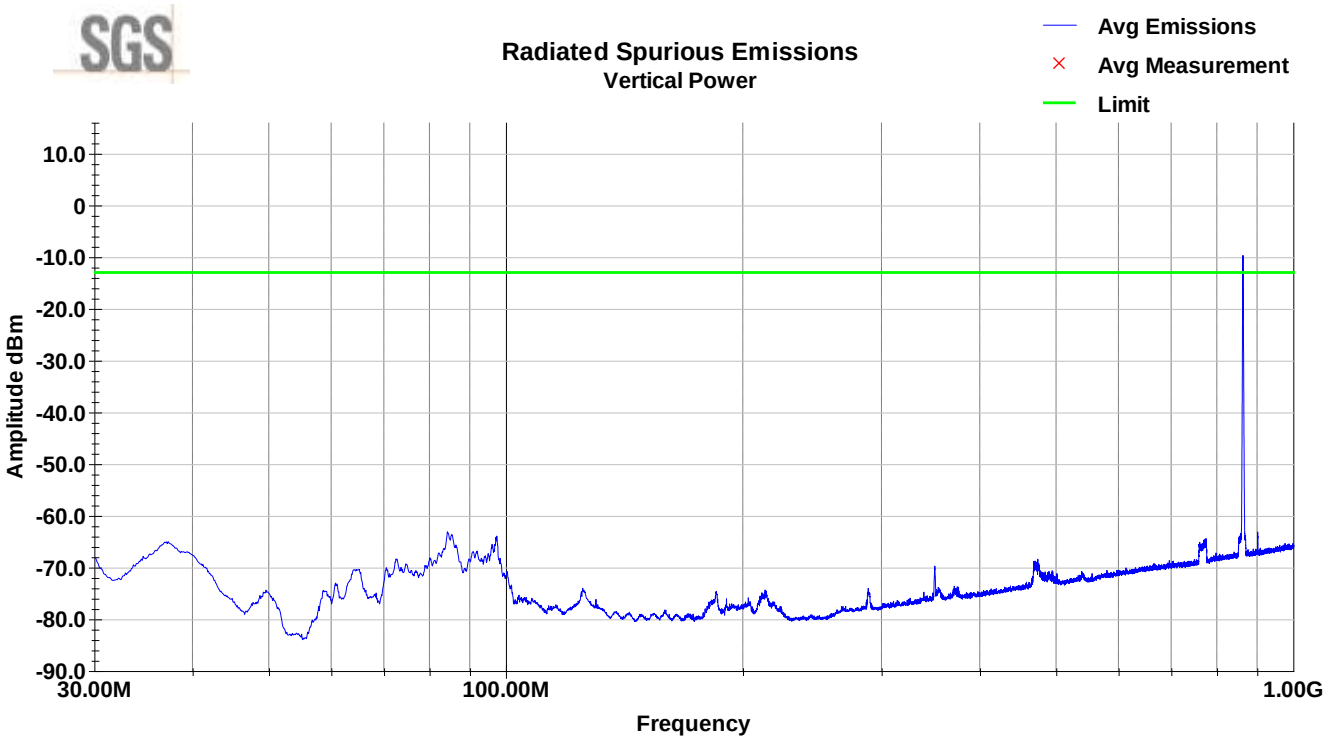
Vertical Radiated Spurious Emissions Plot (1-10GHz)



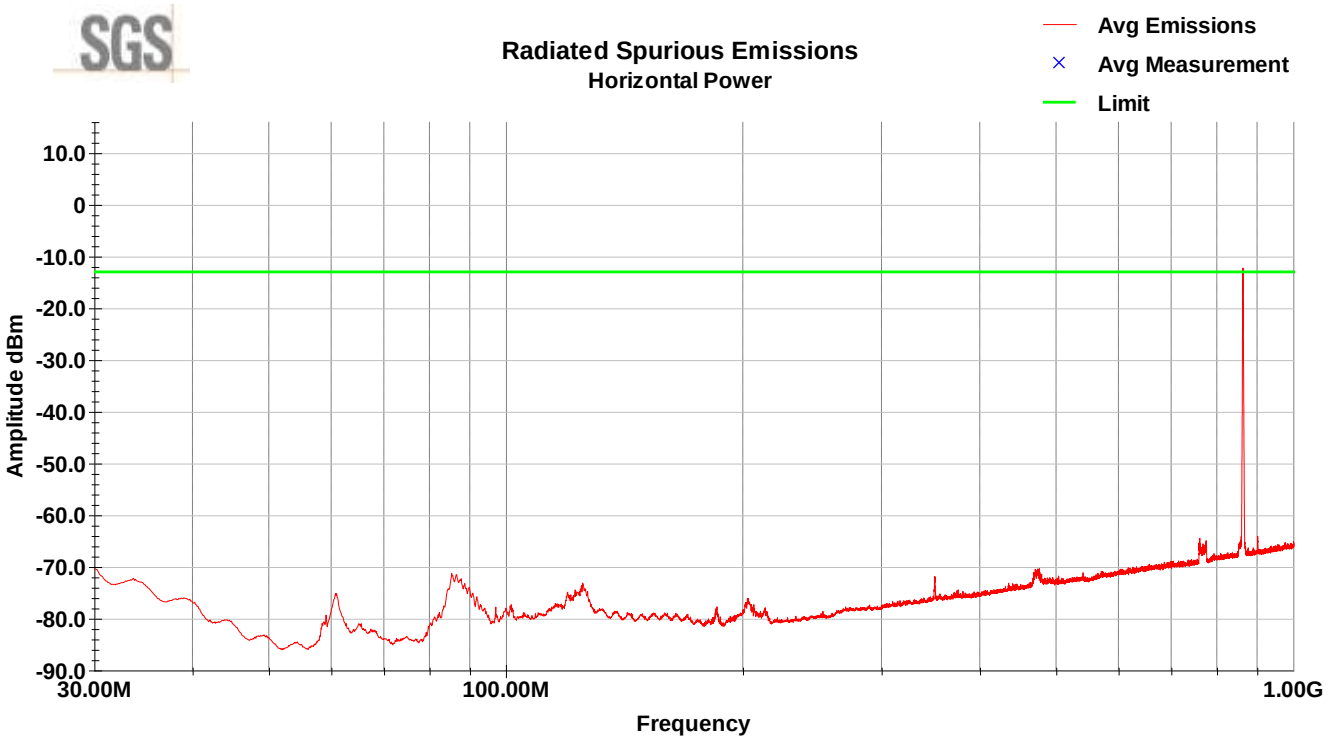
Horizontal Radiated Spurious Emissions Plot (1-10GHz)



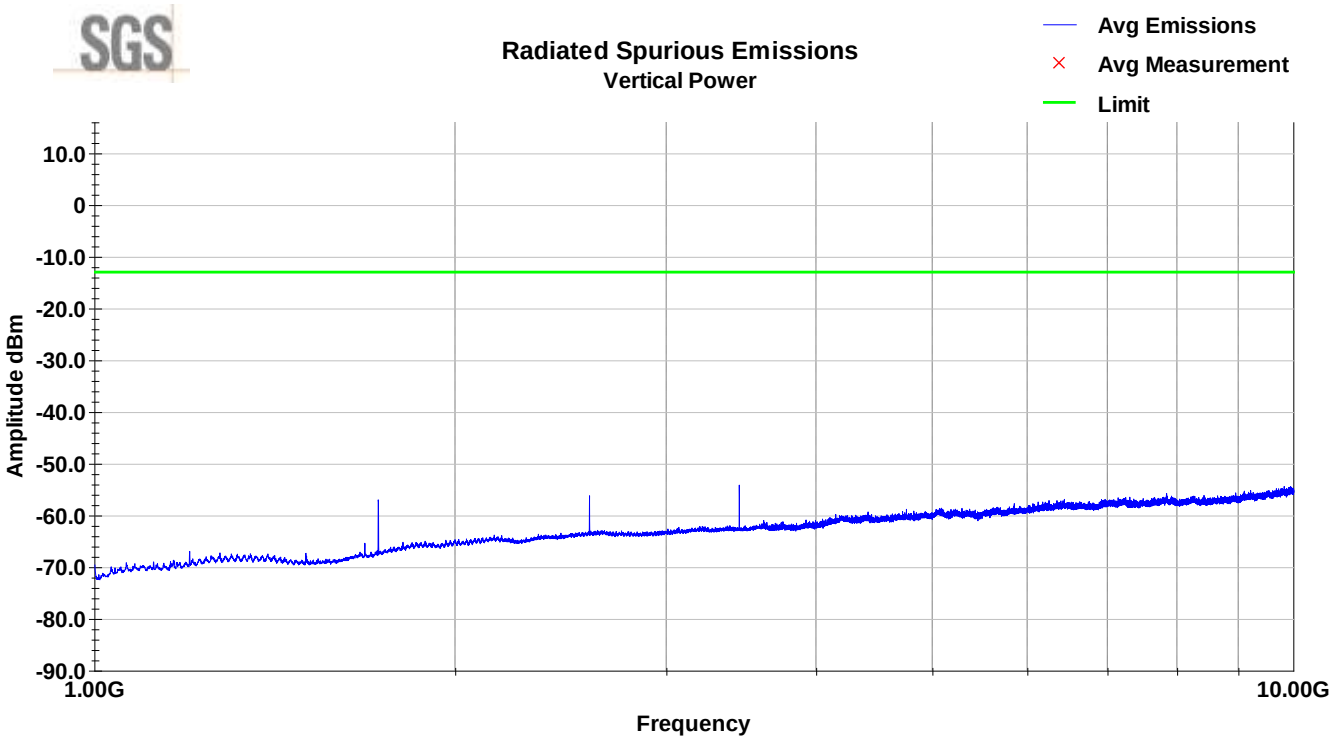
(800 MHz downlink) Tuned frequency: 861.9875
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



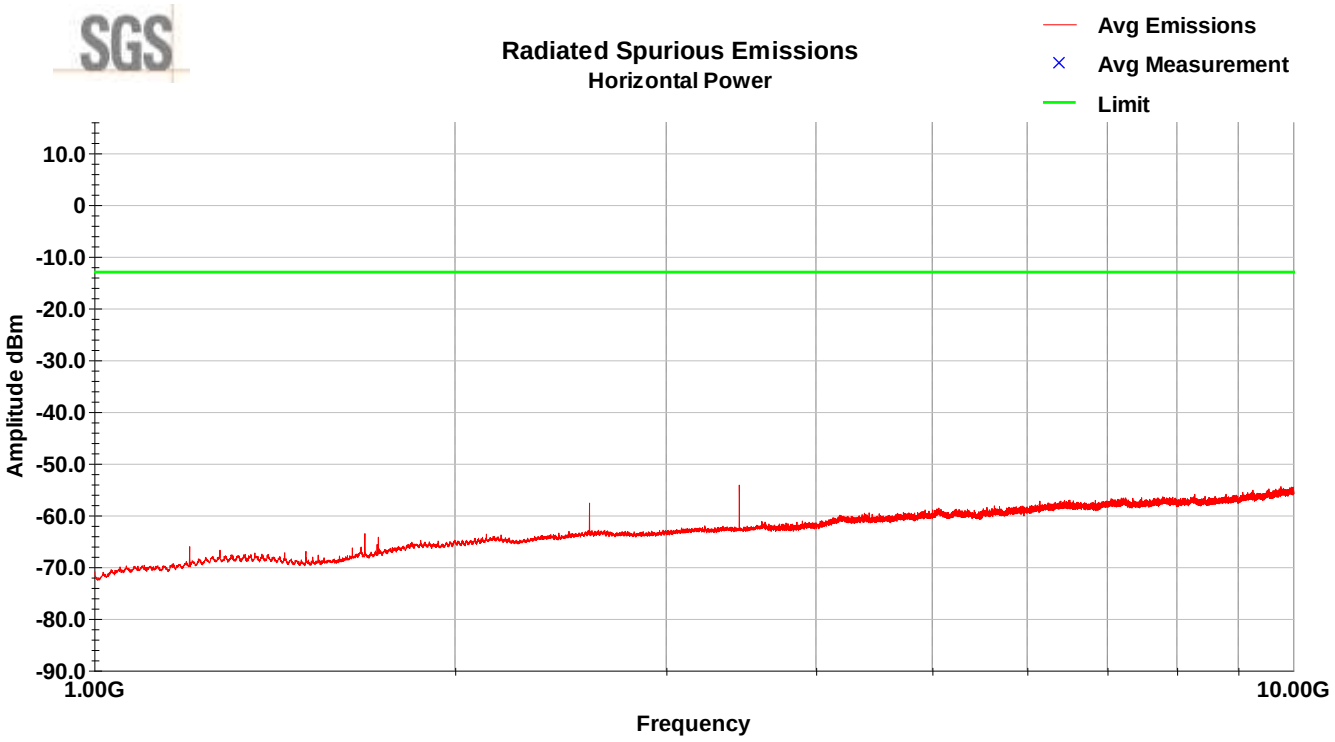
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



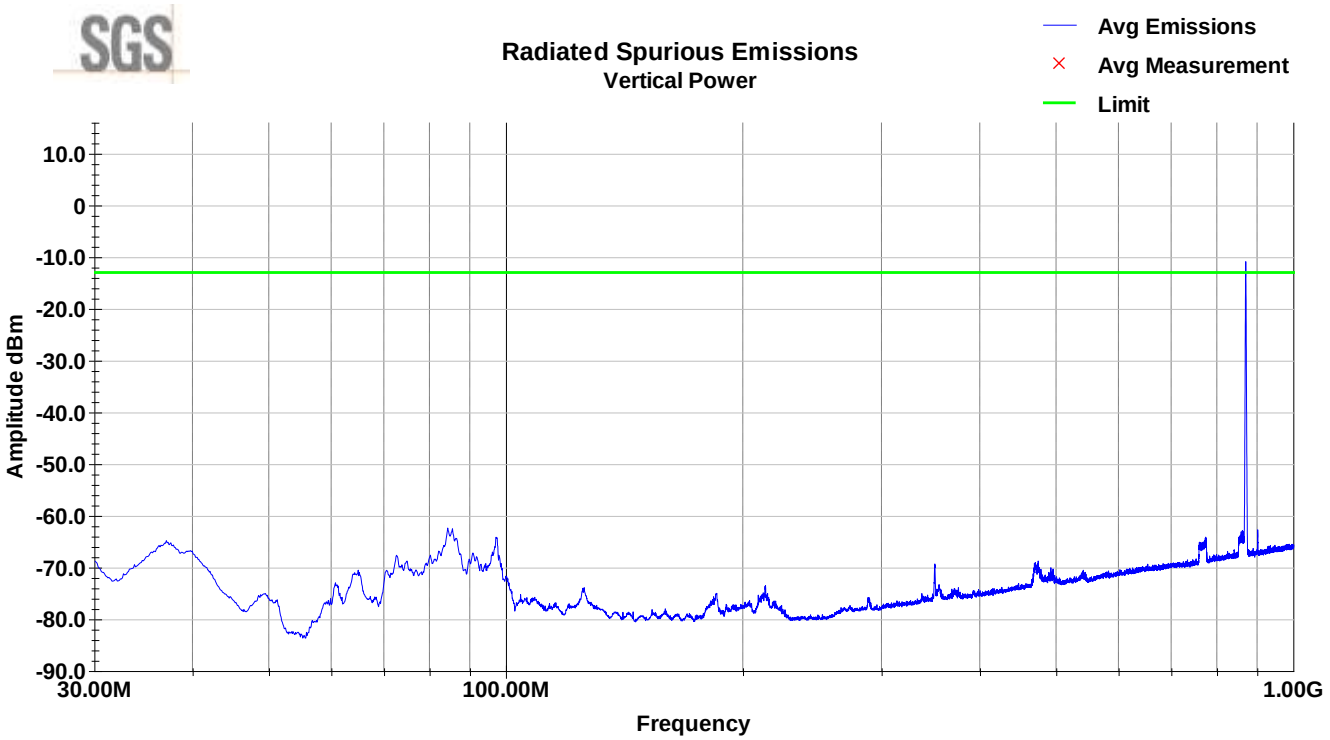
Vertical Radiated Spurious Emissions Plot (1-10GHz)



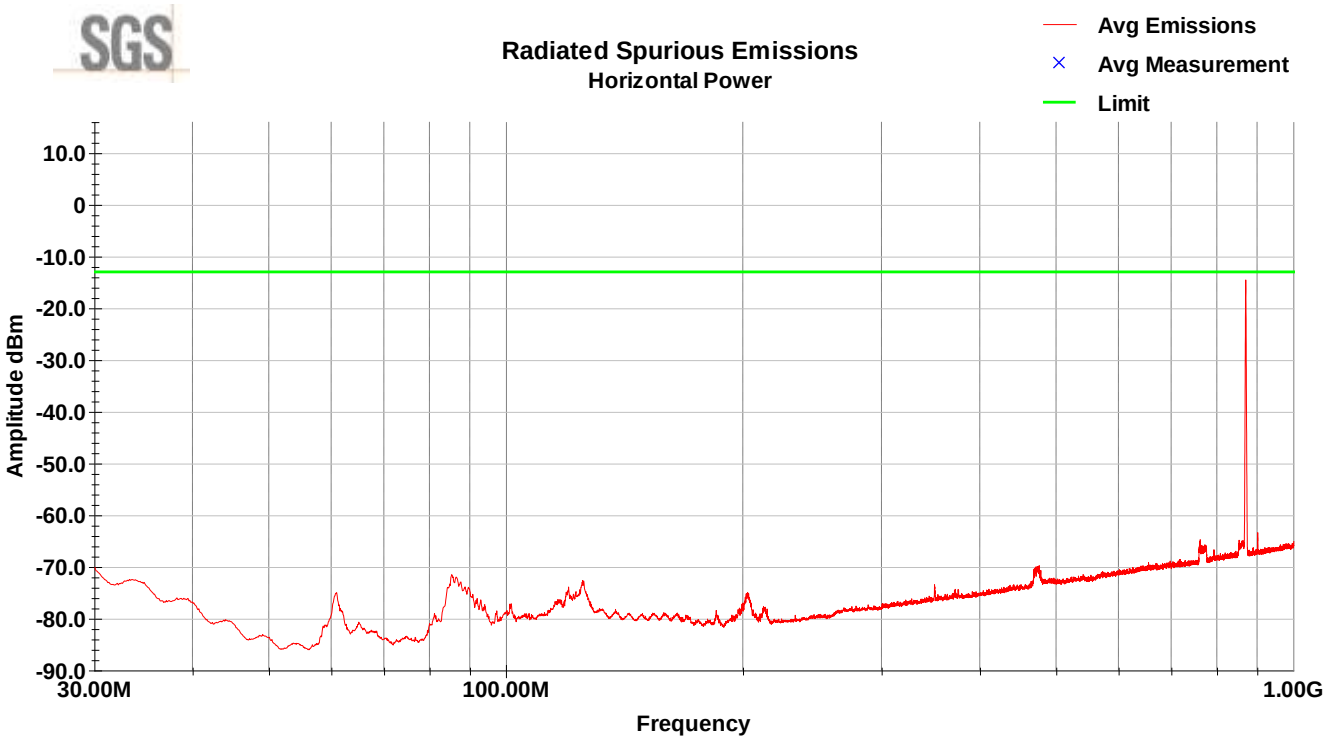
Horizontal Radiated Spurious Emissions Plot (1-10GHz)



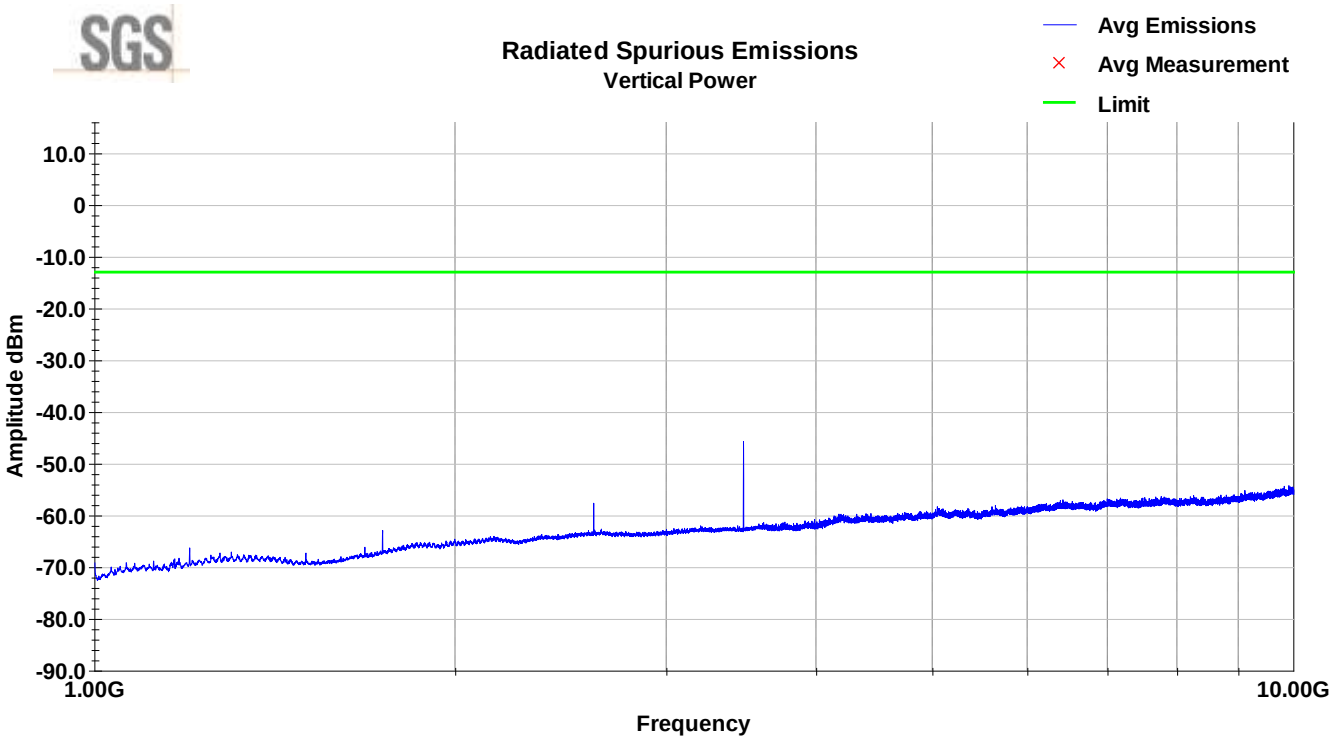
(800 MHz downlink) Tuned frequency: 868.9875
Vertical Radiated Spurious Emissions Plot (30-1000MHz)



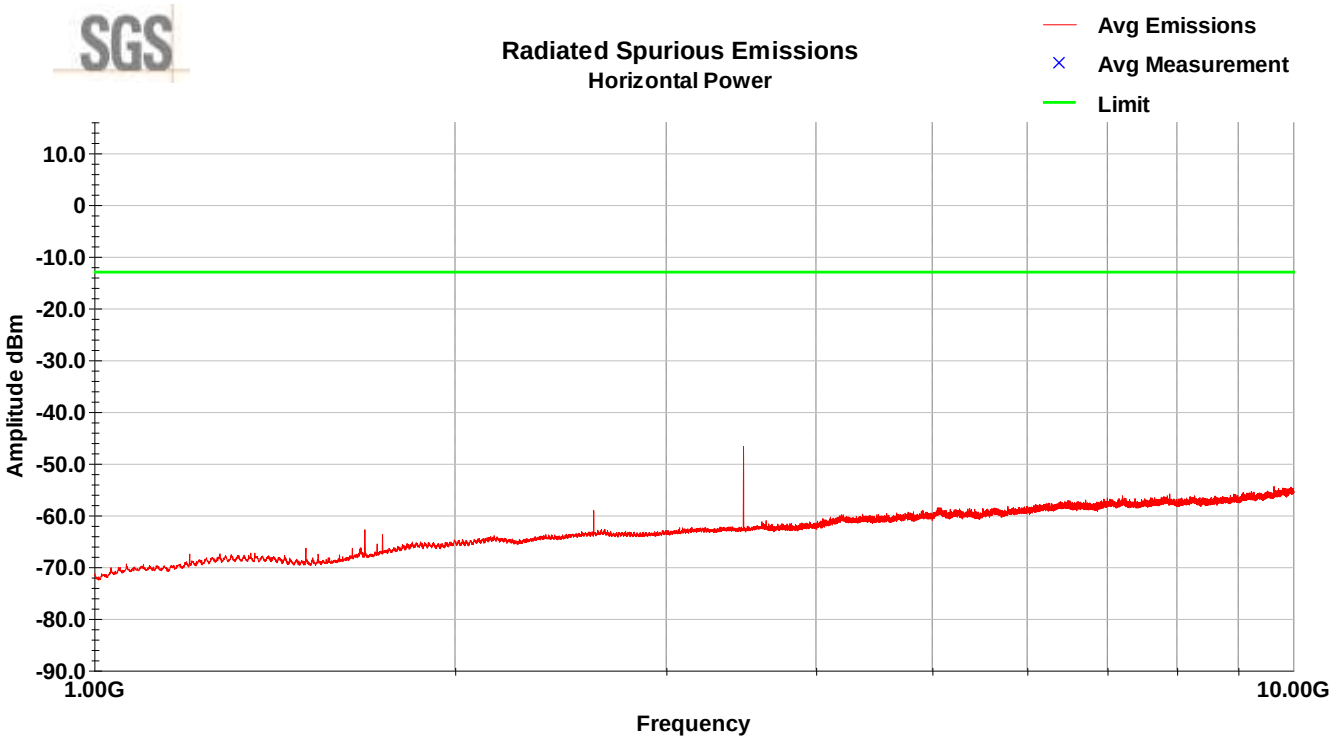
Horizontal Radiated Spurious Emissions Plot (30-1000MHz)



Vertical Radiated Spurious Emissions Plot (1-10GHz)



Horizontal Radiated Spurious Emissions Plot (1-10GHz)



10 Intermodulation Products

10.1 *Test Result*

Test Description	Test reference	Test Result
Intermodulation products	ANSI C63.26 FCC KDB 935210 D05	Pass

10.2 *Test Method*

Testing was performed according to KDB 935210 D05 Industrial Signal Boosters.

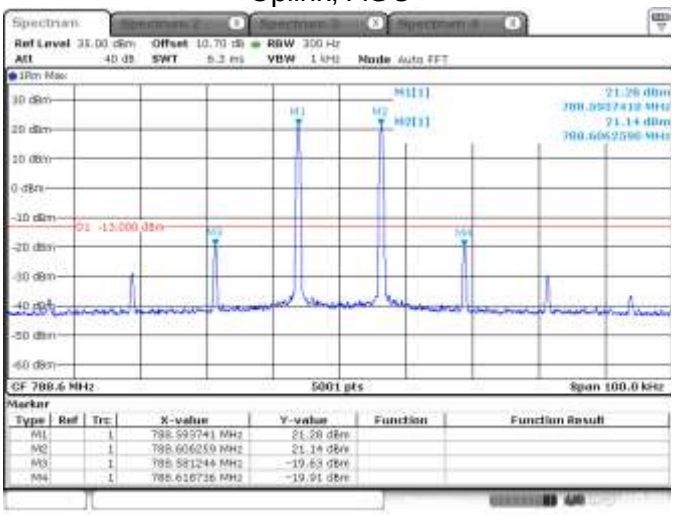
10.3 *Test Equipment*

Test End Date: 13-May-2021 Tester: JOP

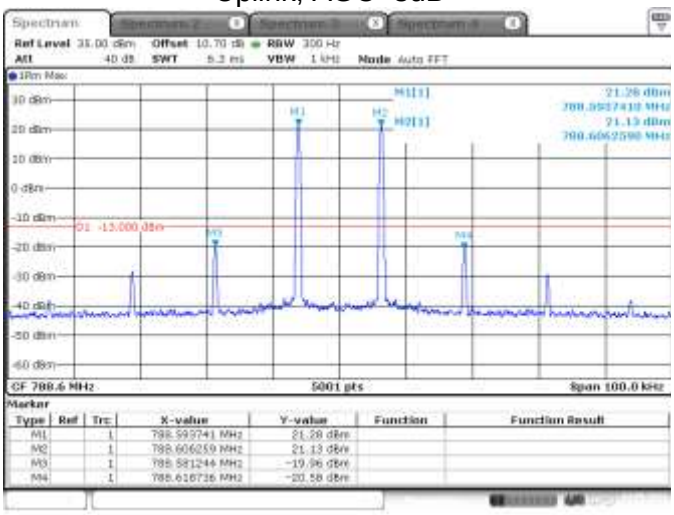
Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
VECTOR SIGNAL GENERATOR (TS8997)	SMBV 100A	ROHDE & SCHWARZ	15002	7-Jan-2019	7-Jan-2022
RF CABLE	UC-N-MM-78	MAURY MICROWAVE	17016	3-Sep-2020	3-Sep-2021
RF Cable right angle Nm to SMAm, 2-18GHz	90-102-039	TELEDYNE STORM MICROWAVE	20138	22-Mar-2021	22-Mar-2022
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	27-Dec-2019	27-Dec-2021
ATTENUATOR, 10DB	BW-S10W20+	Mini-Circuits	B095595	3-Sep-2020	3-Sep-2021

10.4 *Test Data – 700 MHz band*

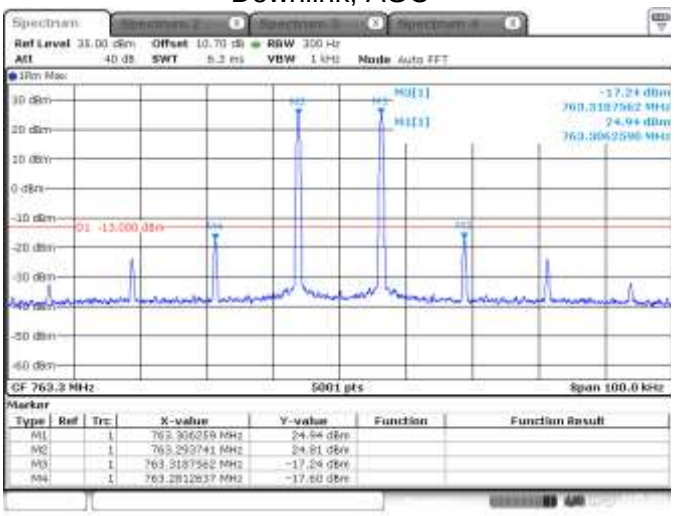
Uplink, AGC



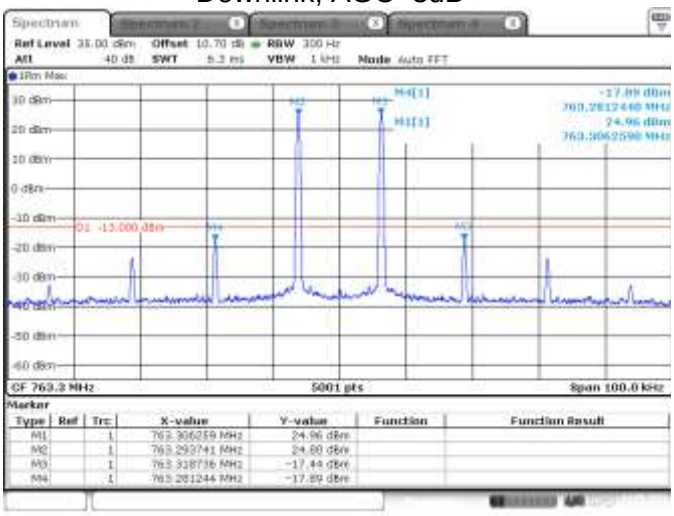
Uplink, AGC+3dB



Downlink, AGC

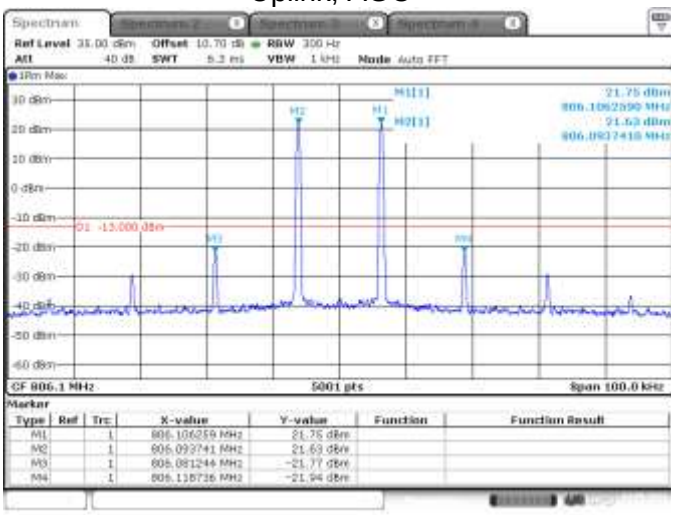


Downlink, AGC+3dB

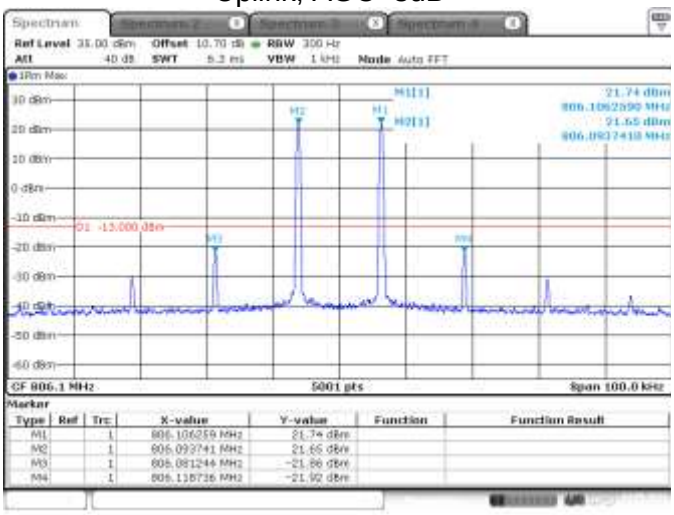


10.5 *Test Data – 800 MHz band*

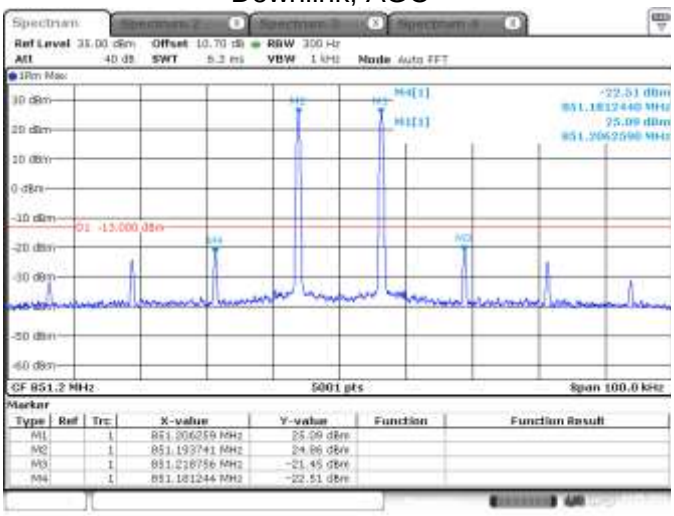
Uplink, AGC



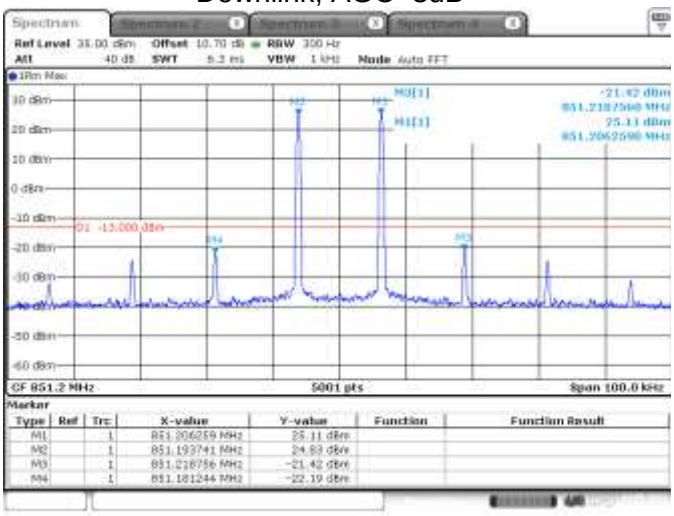
Uplink, AGC+3dB



Downlink, AGC



Downlink, AGC+3dB



11 Measurement Uncertainty

Parameter	Uncertainty
Conducted emissions	±0.8 dB
Radiated emissions, 9 kHz to 30 MHz	±3.5 dB
Radiated emissions, 30 to 200 MHz	±3.1 dB
Radiated emissions, 200 to 1000 MHz	±4.6 dB
Radiated emissions, 1 to 18 GHz	±5.4 dB
Radiated emissions, 18 to 40 GHz	±4.0 dB
Note: The uncertainties provided in this table represent an expanded uncertainty expressed at the ~%95 confidence level using a coverage factor of K=2.	

12 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	01 June 2021