



Test Report - FCC PART 90 Booster Class B (B9B)

Applicant: Atos

Approved for Release By:

Signature: Bruno Clavier

Name & Title: Bruno Clavier, General Manager

Date of Signature 03/21/2023

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1. Customer Information

Applicant: Atos
Address: C/O Atos, BDS MCS CCS DI Products & Projects
Av. Jean-jaures
Les-clayes-sous-bois, France 78340

1.1 Test Result Summary

The following test procedure and guidance were used for measuring FCC PART 90 (PRIVATE LAND MOBILE RADIO SERVICES) known as Licensed Land Mobile; ANSI C63.26-2015 and FCC KDB 935210 D05 v01r04 Industrial Signal Boosters. Full test results are available in this report.

No additions to the test methods were needed. There were no deviations, or exclusions from the test methods. No test results are from external providers or from the customer. The test results relate only to the items tested. Timco does not offer opinions and interpretations, only a pass/fail statement.

Applicable Clauses from Part 2		
FCC Part 2 Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
2.202	Bandwidth & Emission	Pass
2.1033 (c)(8)	Power at the Final Amplifier	Pass
2.1046 (a)	RF Output Power	Pass
2.1047	Modulation characteristics	n/a
2.1049	Occupied Bandwidth	Pass
2.1051	Spurious emissions at antenna terminals	Pass
2.1053	Field strength of spurious radiation	Pass
2.1055	Frequency stability	n/a



Applicable Clauses from Part 90 Subpart I		
FCC Part 90 Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
90.205	Transmitter Power	Pass
90.207	Types of Emissions	Pass
90.209	Bandwidth limitations	Pass
90.210	Emission masks, In-band	n/a
90.210	Emission masks, Out-of-band	Pass ²
90.213	Frequency stability	n/a
90.214	Transient Frequency Behavior	n/a
90.219 (d)(6)(i)	ERP of intermodulation products	n/a ¹
90.219 (d)(6)(ii)	ERP of noise within the passband	n/a ¹
90.219 (d)(6)(iii)	ERP of noise on spectrum < 1 MHz outside of the passband	n/a ¹
90.219 (d)(3)(i), (e)(1)	ERP of Radiated Power	n/a ¹
90.219 (e)(2)	Noise figure	Pass
90.219 (e)(3)	Spurious emissions	Pass
90.219 (e)(4)(i)(ii)(iii)	Retransmitted Signals	Pass
90.221	Adjacent channel power limits	Pass

Note 1: Requirements in Part 90.219 (d) apply at deployment of this EUT, therefore are not applicable at certification.

Note 2: Compliance was determined via 90.221 ACP per FCC 12-114

KDB 935210 D05 v01r04		
FCC KDB 935210 D05 Clauses	Description of the requirements	Result: (Pass, Fail, N/A)
4.1	Test Signals for PLMRS (Input Signals)	Pass
4.2	AGC Threshold	Reported
4.3	Out-of-Band Rejection	Reported
4.4	Input-versus-Output Signal Comparison	Pass
4.5	Output Power	Pass
4.5	Amplifier/Booster Gain (optional)	Reported
4.6	Noise Figure	Pass
4.7.2	Out-of-band/Out-of-block Conducted Emissions (Intermodulation Products)	Pass
4.7.3	EUT Spurious Conducted Emissions	Pass
4.8	Frequency Stability	n/a
4.9	Spurious Radiated Emissions	Pass



Timco Engineering, Inc., an IIA Company
 849 NW State Road 45, Newberry, Florida 32669
 (352) 472-5500 / testing@timcoengr.com

2. Location of Testing

2.1 Test Laboratory

Timco Engineering Inc. is a subsidiary of Industrial Inspection & Analysis, Inc. ("IIA").
 Testing was performed at Timco's permanent laboratory located at 849 NW State Road 45, Newberry, Florida 32669

FCC test firm # 578780
 FCC Designation # US1070
 FCC site registration is under A2LA certificate # 0955.01
 ISED Canada test site registration # 2056A
 EU Notified Body # 1177
 For all designations see A2LA scope # 0955.01

2.2 Testing was performed, reviewed by

Dates of Testing: 11/10/2022 – 1/12/2023

Signature: _____



Sr. EMC Engineer
 EMC-003838-NE



Name & Title: Tim Royer, EMC Engineer

Date of Signature 3/21/2023



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3. Test Sample(s) (EUT/DUT)

The test sample was received: 11/10/2022

3.1 Definitions

Signal booster: A device or system that automatically receives, amplifies, and retransmits signals from wireless stations into and out of building interiors, tunnels, shielded outdoor areas and other locations where these signals would otherwise be too weak for reliable communications. Signal booster systems may contain both Class A and Class B signal boosters as components.

Class A signal booster: A signal booster designed to retransmit signals on one or more specific channels. A signal booster is deemed to be a Class A signal booster if none of its passbands exceed 75 kHz.

Class B signal booster: A signal booster designed to retransmit any signals within a wide frequency band. A signal booster is deemed to be a Class B signal booster if it has a passband that exceeds 75 kHz.



3.2 Description of the EUT

A description as well as unambiguous identification of the EUT(s) tested. Where more than one sample is required for technical reasons (such as the use of connected units for the purpose of conducted output power testing where the product units will have integral antennas), each specific test shall identify which unit was tested.

Identification	
FCC ID:	2A289BRTF51
Brief Description	800 MHz Tetra Repeater
Model(s) #	BRTF51
Firmware version	v2.20
Software version	1.1.0.618
Serial Number	K11156BRTF51/015

Technical Characteristics	
Frequency Range	851 - 869MHz
RF O/P Power (Max.)	16 dBm / 0.0398 W
Modulation	Tetra pi/4 DQPSK
Bandwidth & Emission Class	D7W
Antenna Connector	N
Voltage Rating (AC or Batt.)	110v AC

Antenna Characteristics			
Antenna	Frequency Range	Mode / BW	Antenna Gain
1	n/a	n/a	0 dBi

- Note: Information such as antenna gain, firmware/software numbers are provided by manufacturer and cannot be validated by the test lab.



3.3 Configuration of EUT

Test Modes		
Band (MHz)	Link Direction	Test Frequencies (MHz)
851 - 869MHz	Downlink	852MHz
		860MHz
		868MHz

Operating conditions during Testing:

No other modifications of the device under test (including firmware, specific software settings, and input/output signal levels to the EUT) were made.

Peripherals used during Testing:

Software was provided by the manufacturer was used to program the EUT.

3.4 Test Setup of EUT

Equipment, antenna, and cable arrangement. The setup of the equipment and cable or wire placement on the test site that produces the highest radiated and the highest ac power line conducted emissions shall be shown clearly and described. Information on the orientation of portable equipment during testing shall be included. Drawings or photographs may be used for this purpose.

Test Setups are included in the test report.



4. Test methods & Applicable Regulatory Limits

4.1 Test methods/Standards/Guidance:

Test procedures and guidance for measuring Licensed Part 90 Licensed device:

- 1) ANSI C63.26-2015
- 2) FCC KDB 935210 D05 v01r04 Industrial Signal Boosters

4.2 Applied Limits and Regulatory Limits:

- 1) FCC CFR 47 Part 90 Subpart I, 90.219

5. Measurement Uncertainty

Parameter	Uncertainty (dB)
Conducted Emissions	± 3.14 dB
Radiated Emissions (9kHz – 30 MHz)	± 3.08 dB
Radiated Emissions (30 – 200 MHz)	± 2.16 dB
Radiated Emissions (200 – 1000 MHz)	± 2.15 dB
Radiated Emissions (1 GHz – 18 GHz)	± 2.14 dB
Radiated Emissions (18 GHz – 40 GHz)	± 2.31 dB
Note: The uncertainties provided in this table represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of K=2.	

6. Environmental Conditions

6.1 Temperature & Humidity

Measurements performed at the test site did not exceed the following:

Parameter	Measurement
Temperature	23 C +/- 5%
Humidity	55% +/- 5%
Barometric Pressure	30.05 in Hg
Note: Specific environmental conditions that are applicable to a specific test are available in the test result section.	



7. List of Test Equipment and Test Facility

The test equipment used identified by type, manufacturer, serial number, or other identification and the date on which the next calibration or service check is due.

Description of the firmware or software used to operate EUT for testing purposes.

A complete list of all test equipment used shall be included with the test report. The manufacturer's model and serial numbers, and date of last calibration, and calibration interval shall be included. Measurement cable loss, measuring instrument bandwidth and detector function, video bandwidth, if appropriate, and antenna factors shall also be included where applicable.

7.1 List of Test Equipment

Test Equipment						
Type	Device	Manufacturer	Model	SN#	Current Cal	Cal Due
Antenna	Biconical 1057	Eaton	94455-1	1057	10/16/20	10/16/2023
Antenna, NSA	Log-Periodic 1243	Eaton	96005	1243	5/4/21	5/3/2024
Antenna	Double-Ridged Horn/ETS Horn 1	ETS-Lindgren	3117	00035923	2/25/20	2/24/2023
CHAMBER	CHAMBER	Panashield	3M	N/A	3/12/19	12/21/2023
Pre-amp	Pre-amp	RF-LAMBDA	RLNA00M45GA	NA	2/27/19	7/26/2025
Receiver	EMI Test Receiver R&S ESU 40	Rohde & Schwarz	ESU 40	100320	5/27/21	5/26/2024
Receiver	EMI Test Receiver R&S ESW44	Rohde & Schwarz	ESW44	103049	10/13/21	10/12/2024
Function Generator	Function Generator	Standford	DS340	25200	1/13/21	1/13/2024
Signal Generator	Signal Generator HP 8648C	HP	8648C	35537A01679	3/29/19	8/03/2025



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Software			
Software	Author	Version	Validation on
ESU Firmware	Rohde & Schwarz	4.43 SP3; BIOS v5.1-24-3	2018
RSCCommander	Rohde & Schwarz	1.6.4	2014
ScopeExplorer	LeCroy	v2.25.0.0	2009
Field Strength	Timco	v4.10.7.0	2016



8. Test Results

The results of the test are usually indicated in the form of tables, spectrum analyzer plots, charts, sample calculations, as appropriate for each test procedure.

A description and/or a block diagram of the test setup is usually provided.

The measurement results, along with the appropriate limits for comparison, may be presented in tabular or graphical form. In addition, any variation in the measurement environment may be reported if applicable (e.g., a significant change of temperature that could affect the cable loss and amplifier response).

Unless noted otherwise in the referenced standard, the measurements of **ac power-line conducted emissions and conducted power output** will be reported in units of dBμV. Unless noted otherwise in the referenced standard, the measurements of **radiated emissions** will be reported in units of decibels, referenced to one microvolt per meter (dBμV/m) for electric fields, or to one ampere per meter (dBA/m) for magnetic fields, at the distance specified in the appropriate standards or requirements. The measurements of antenna-conducted power for receivers may be reported in units of dBμV if the impedance of the measuring instrument is also reported. Otherwise, antenna-conducted power will be reported in units of decibels referenced to one milliwatt (dBm). All formulas for data conversions and conversion factors, if used, will be included in this measurement report.

Example:

Freq (MHz)	Meter Reading	+ ACF	+CL	= FS
33	20 dBμV	+ 10.36 dB/m	+0.40 dB	=30.36 dBμV/m @ 3m

$$EIRP = P_{cond} \text{ (dBm)} + dBi$$



8.1 Power at the Final Amplifier

Limits from FCC Part 2.1033 (c)(8).

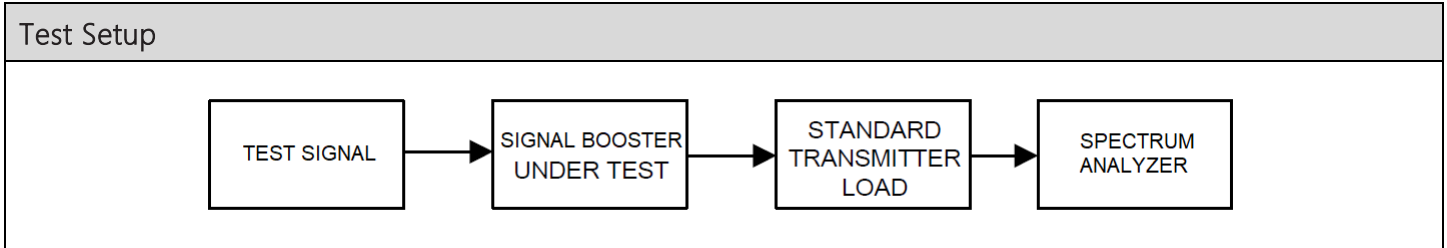
No method of measurement is specified. The result has been calculated based on all available information.

Test Results		
EUT Operating Voltage (V)	EUT Current (A)	Power at the Final Amplifier (W)
110	0.36	40



8.2 RF Output Power & Gain

Limits from FCC Parts 2.1046(a), and 90.205 and test procedure from ANSI C63.26-2015 and FCC KDB 935210 D05 v01r04 Industrial Signal Boosters.

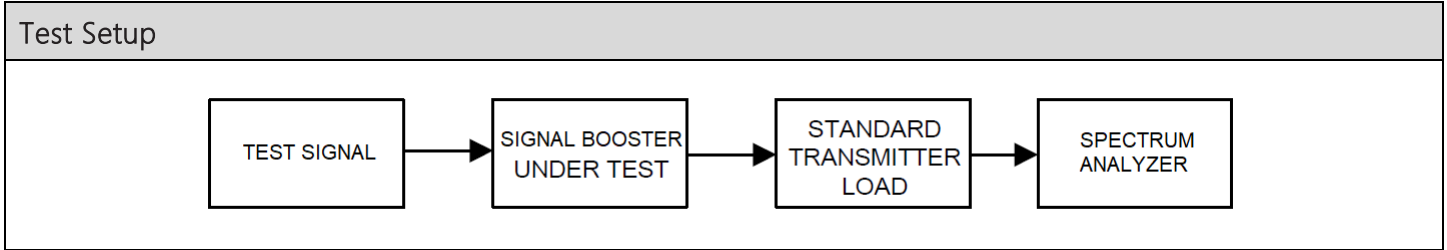


Test Results, Power Output			
Frequency (MHz)		Max Power Output (dBm)	Max Power Output (W)
852	AGC	16.52	0.045
	AGC +3	16.51	0.045
860	AGC	16.84	0.048
	AGC +3	16.87	0.048
868	AGC	16.48	0.044
	AGC +3	16.46	0.044

Max Gain = 21.92 dB

8.3 Out-of-band Rejection

Limits and test method from FCC KDB 935210 D05 v01r04 Industrial Signal Boosters.



This radio will only function with named Base stations. Signals outside of the operating band will never be present.



Out-of-band Rejection, Spectrum Plots

8.4 Bandwidth & Emission

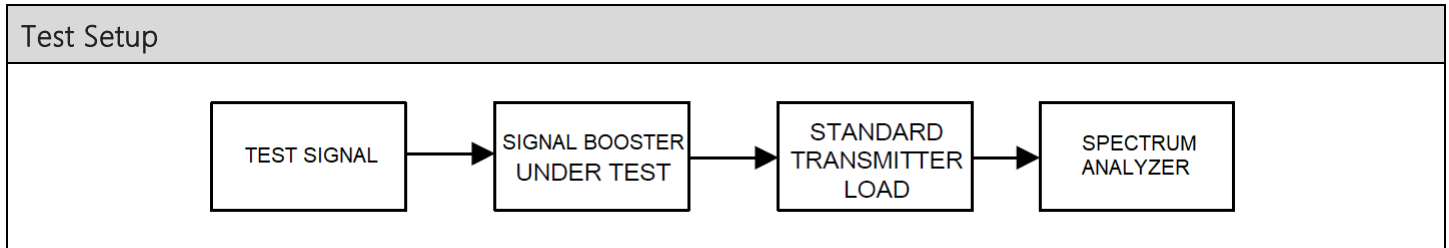
Limits from FCC Parts 90.209 and FCC KDB 935210 D05 v01r04 Industrial Signal Boosters.

Authorized Bandwidth		
Rule Part	Operating Range	Authorized Bandwidth (kHz)
Part 90	851 – 869 MHz	20

Applicable Input Signals		
Signal	Occupied Bandwidth (kHz)	Representative Emission Designator(s)
Tetra	20.9	D7W

8.5 Input VS Output Signal Comparison

Limits from FCC Parts 90.210 and test procedure from ANSI C63.26-2015 and FCC KDB 935210 D05 v01r04 Industrial Signal Boosters.



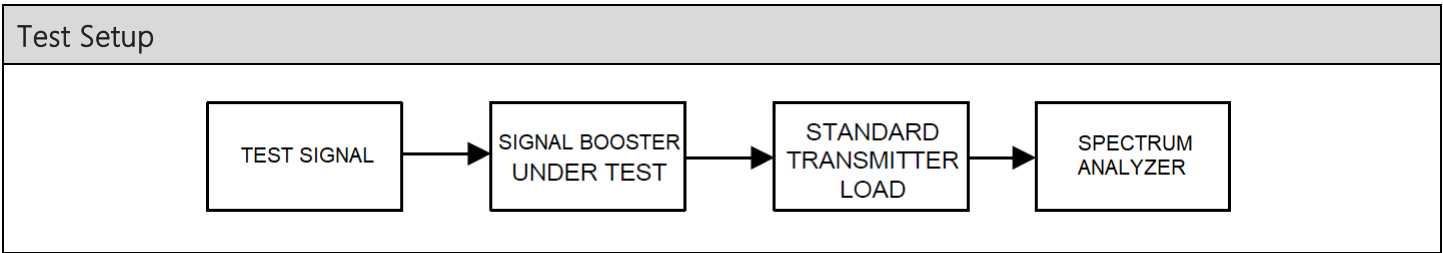
Note: Limits from FCC Part 90.221 (1) TETRA emissions (authorized bandwidth up to 22kHz) may alternately meet ACP limit instead of FCC Part 90 210 Emission Mask. See Section 8.13 of this report.



Input VS Output, Input Spectrum Plots

8.6 Noise Figure

Limits from FCC KDB 935210 D05 v01r04 Industrial Signal Boosters. Test method from "Noise Figure Measurement Accuracy: The Y-Factor Method" by Keysight Technologies.

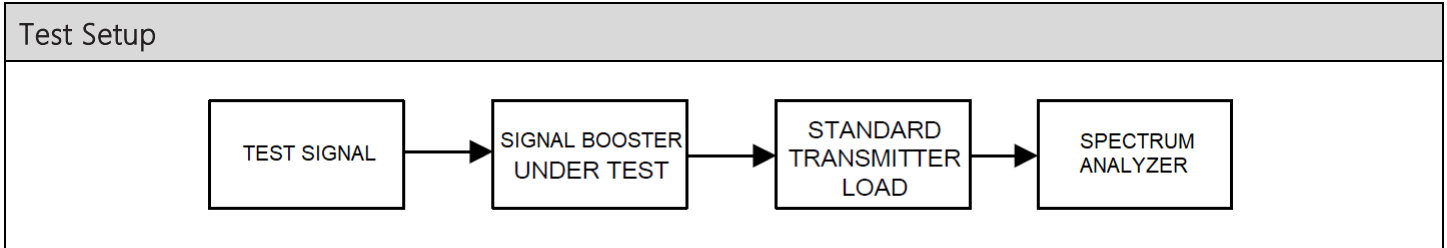


Test Results, Out-of-band Rejection and Class of Operation

Operating Band (MHz)	Link Direction	Noise Figure (dB)	Limit (dB)
860 MHz	Downlink	-3.26	< 9 dB

8.7 Out-of-Band/Out-of-Block Emissions (Intermodulation Products)

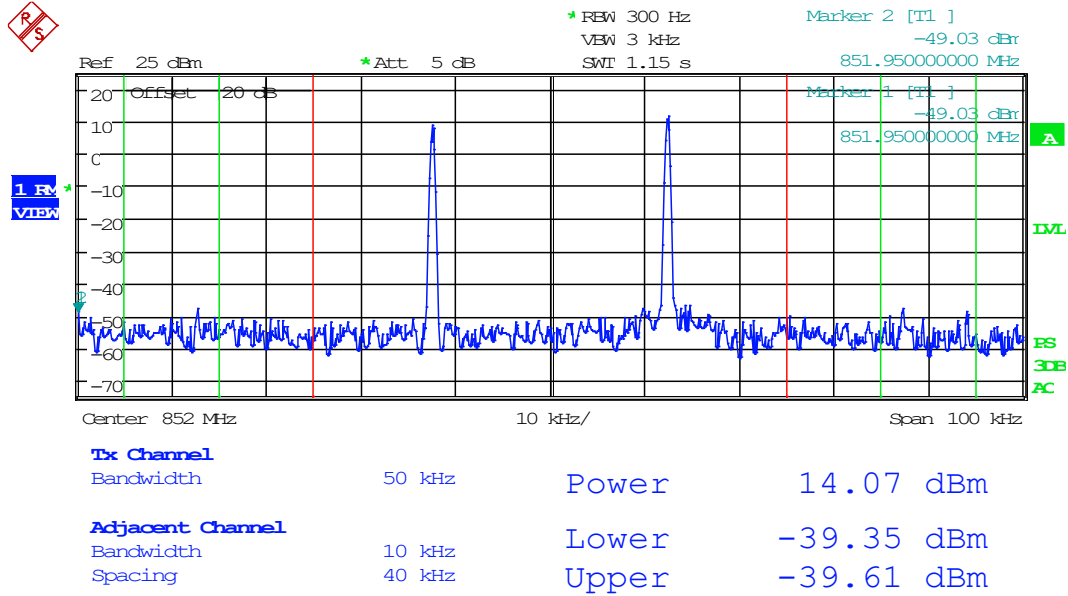
Limits from FCC Parts 2.1051, FCC Pt. 90.219(d)(6)(i), FCC Pt. 90.219(e)(3) and test procedure from ANSI C63.26-2015 and FCC KDB 935210 D05 v01r04 Industrial Signal Boosters.





Intermodulation Products Spectrum Plots

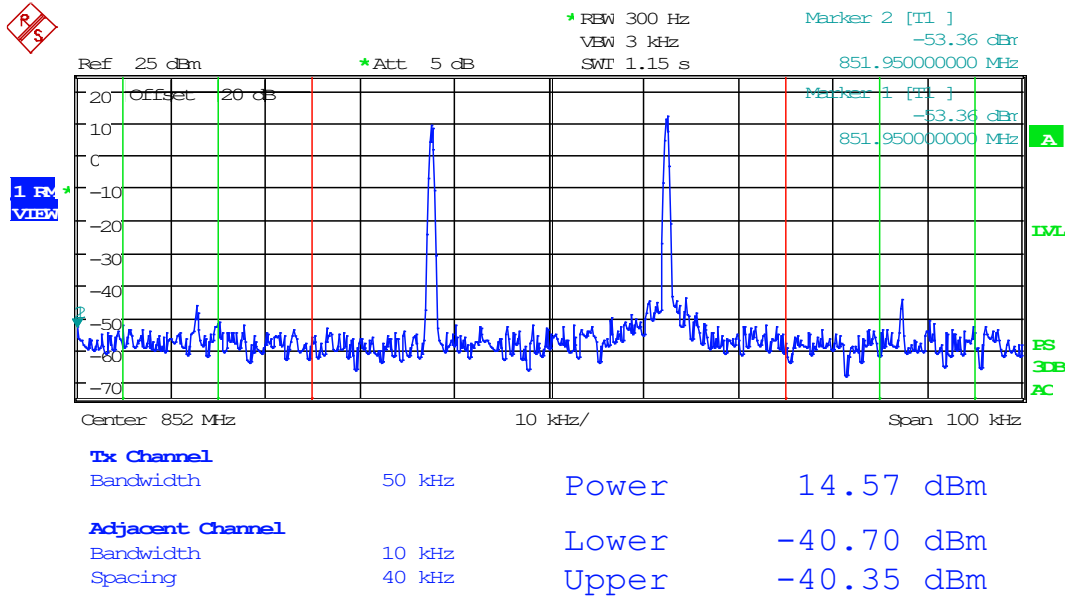
8.7.1 25 kHz Signal, Downlink, AGC, 852 MHz



Date: 10.JAN.2023 15:31:06



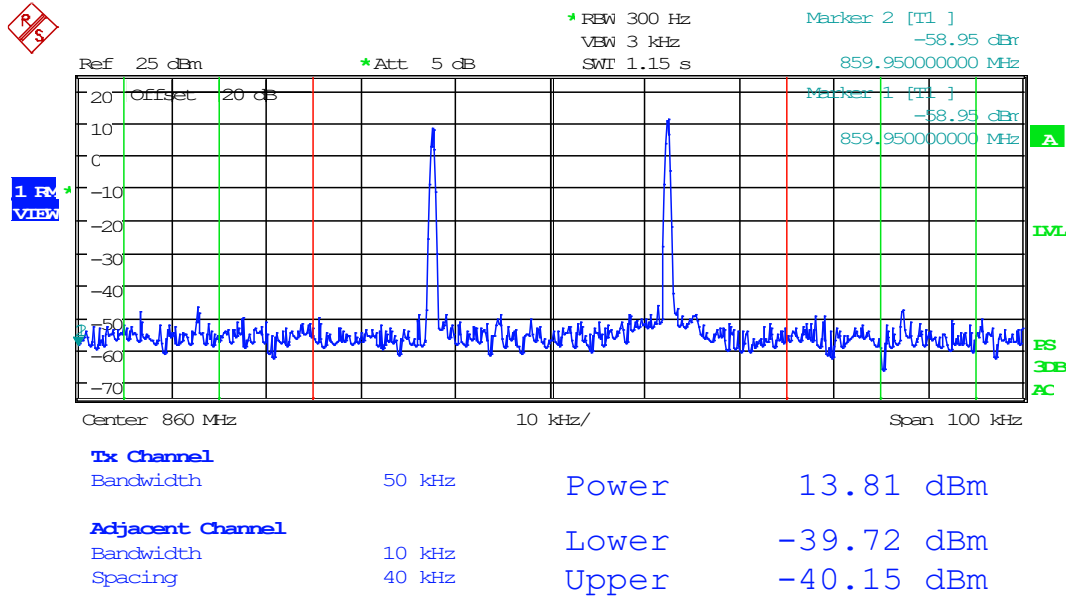
8.7.2 25 kHz Signal, Downlink, AGC+3, 852 MHz



Date: 10.JAN.2023 15:32:02



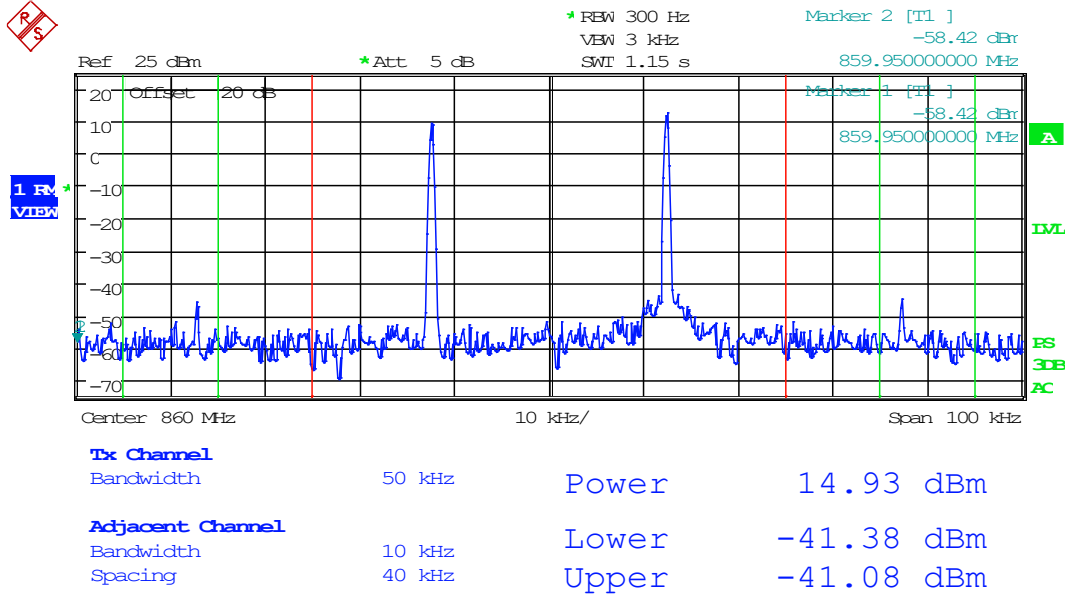
8.7.1 25 kHz Signal, Downlink, AGC, 860 MHz



Date: 10.JAN.2023 15:36:01



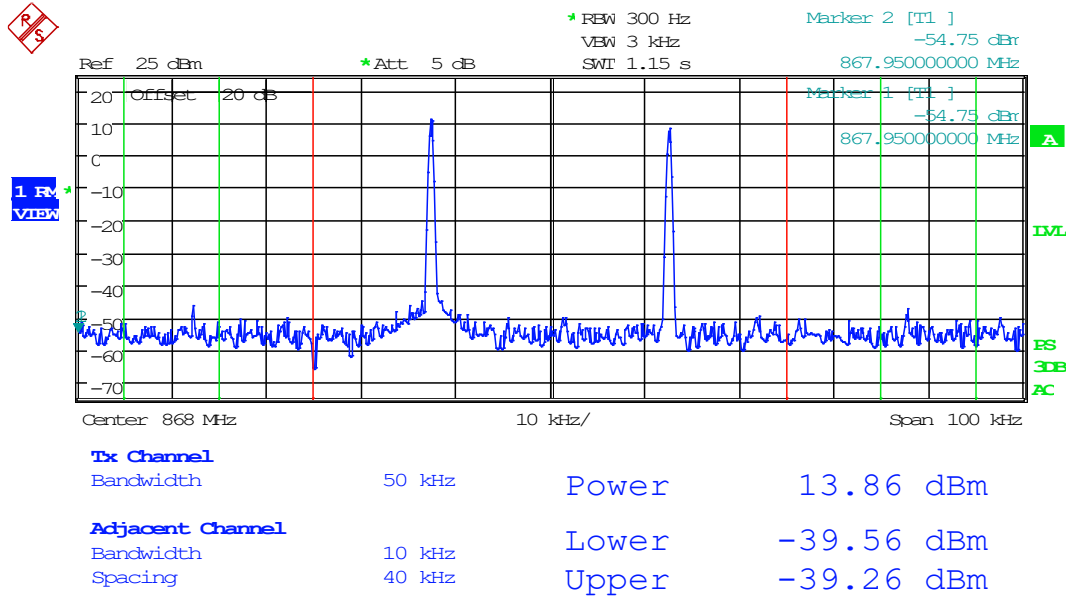
8.7.2 25 kHz Signal, Downlink, AGC+3, 860 MHz



Date: 10.JAN.2023 15:35:43



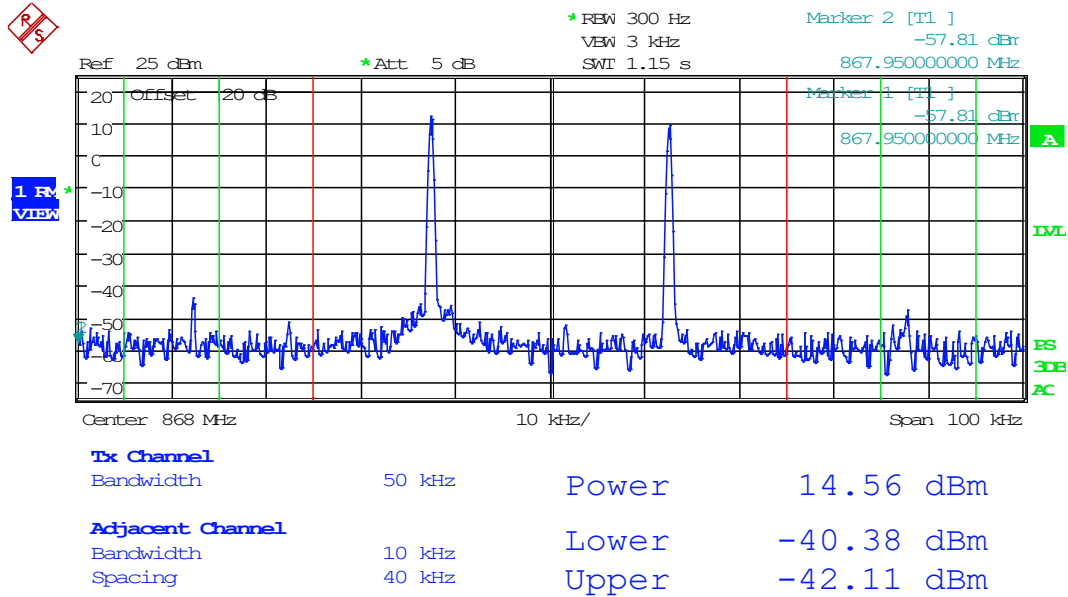
8.7.1 25 kHz Signal, Downlink, AGC, 868 MHz



Date: 10.JAN.2023 15:36:36



8.7.1 25 kHz Signal, Downlink, AGC+3, 868 MHz

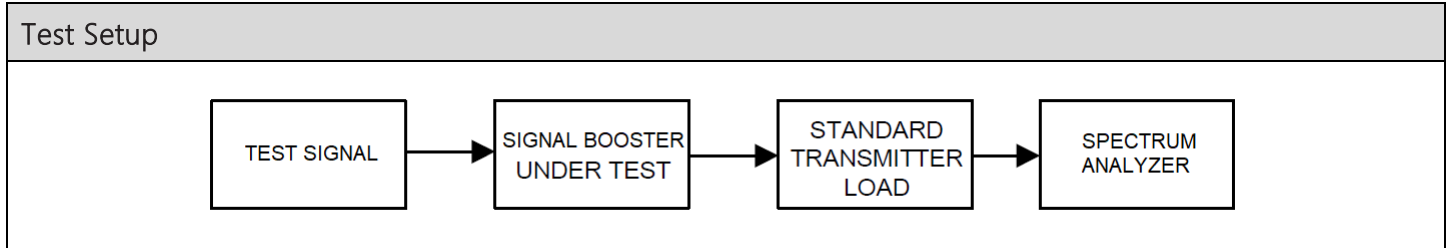


Date: 10.JAN.2023 15:36:53



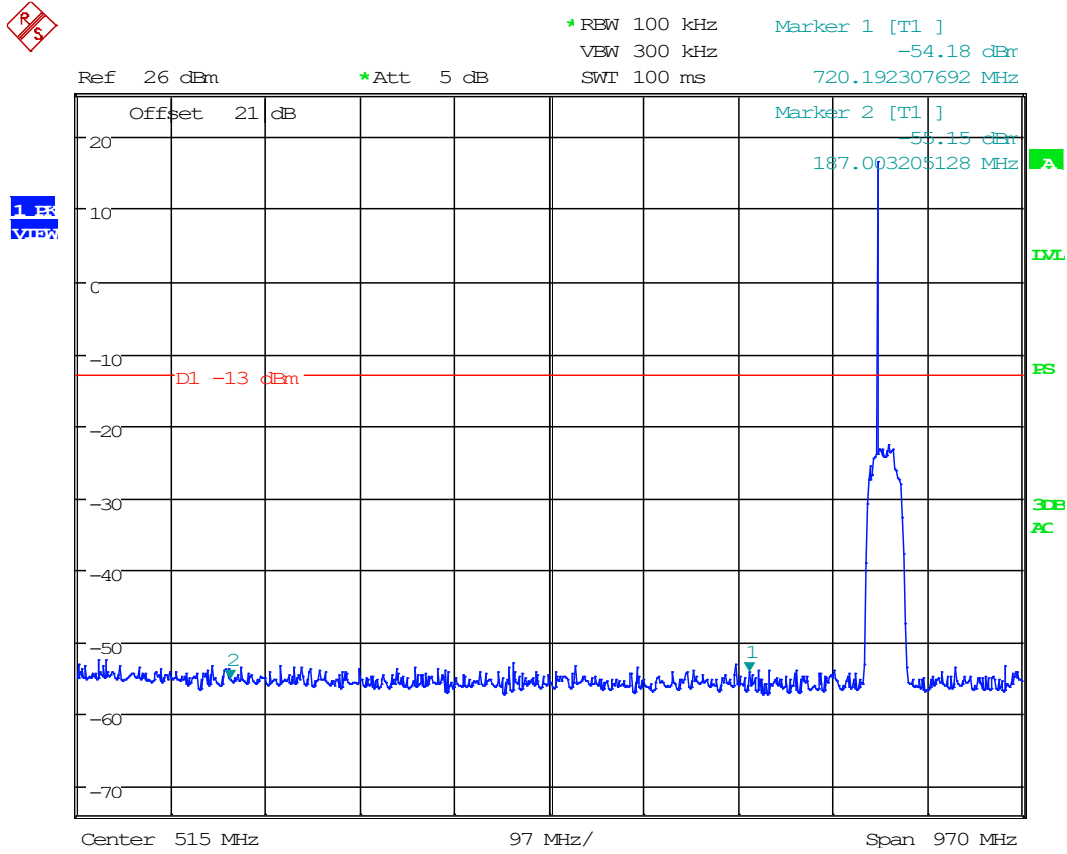
8.8 Emission Mask, Out-of-Band

Limits from FCC Parts 2.1051, 90.210 and test procedure from ANSI C63.26-2015 and FCC KDB 935210 D05 v01r04 Industrial Signal Boosters.



Conducted Emissions Spectrum Plots

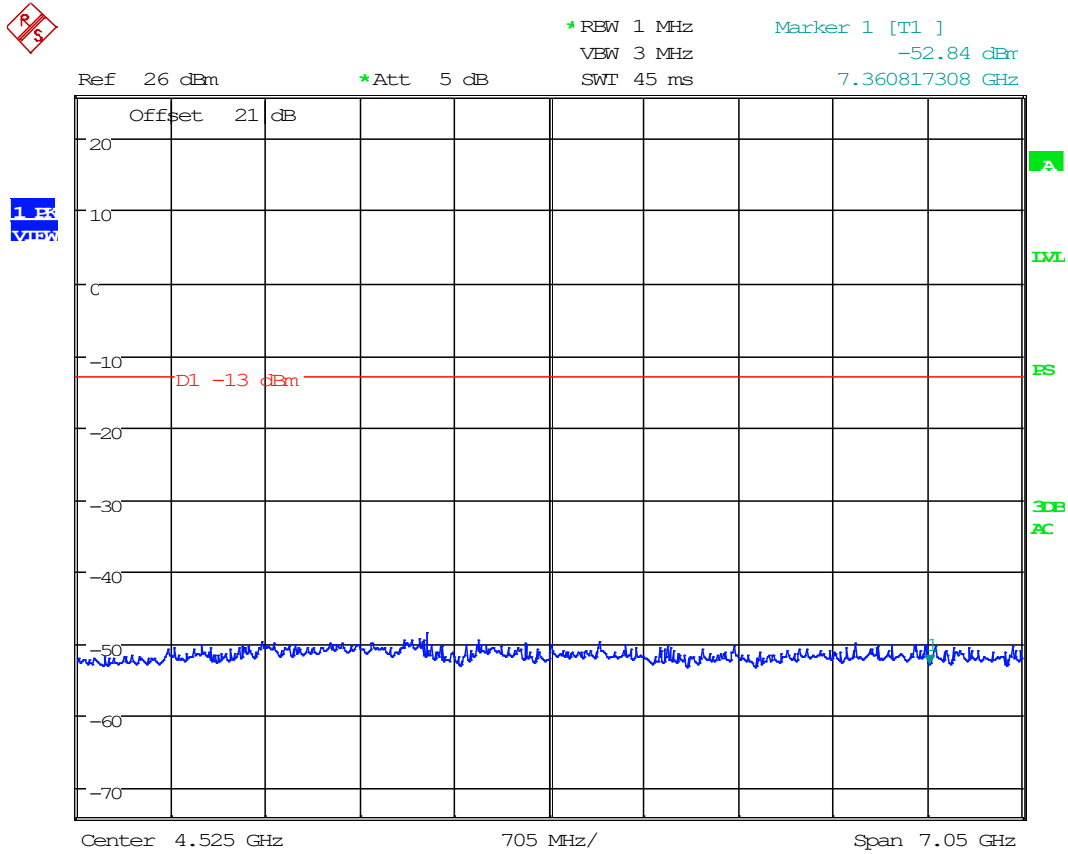
8.8.1 30 MHz to 1 GHz, 852 MHz



Date: 10.JAN.2023 10:23:38



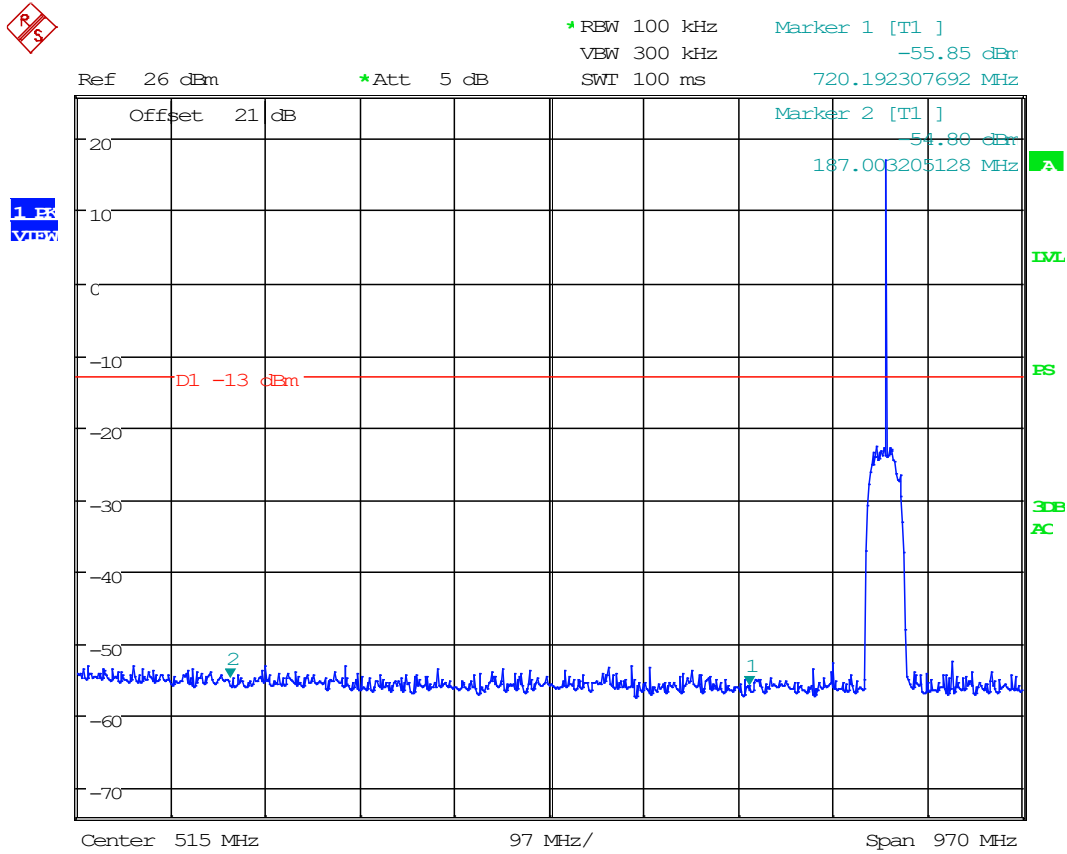
8.8.2 1 GHz to 10th Harmonic, 852 MHz



Date: 10.JAN.2023 10:24:52



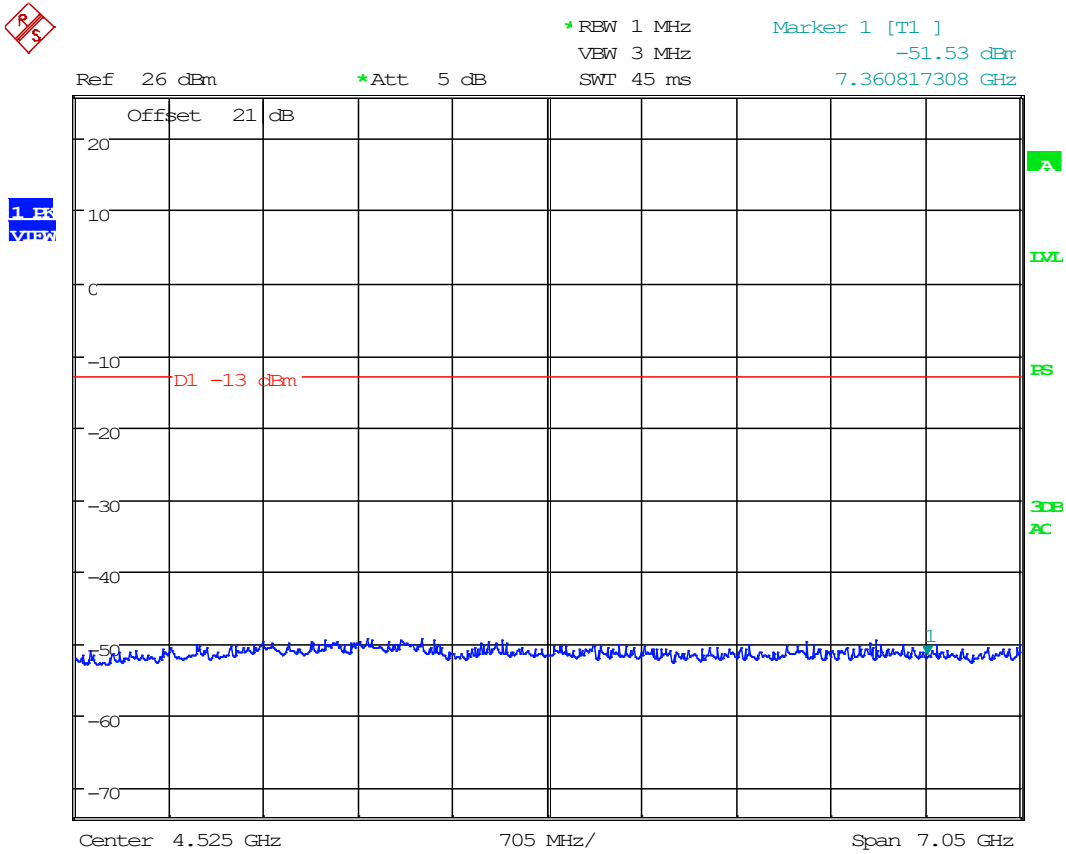
8.8.3 30 MHz to 1 GHz, 860 MHz



Date: 10.JAN.2023 10:23:11



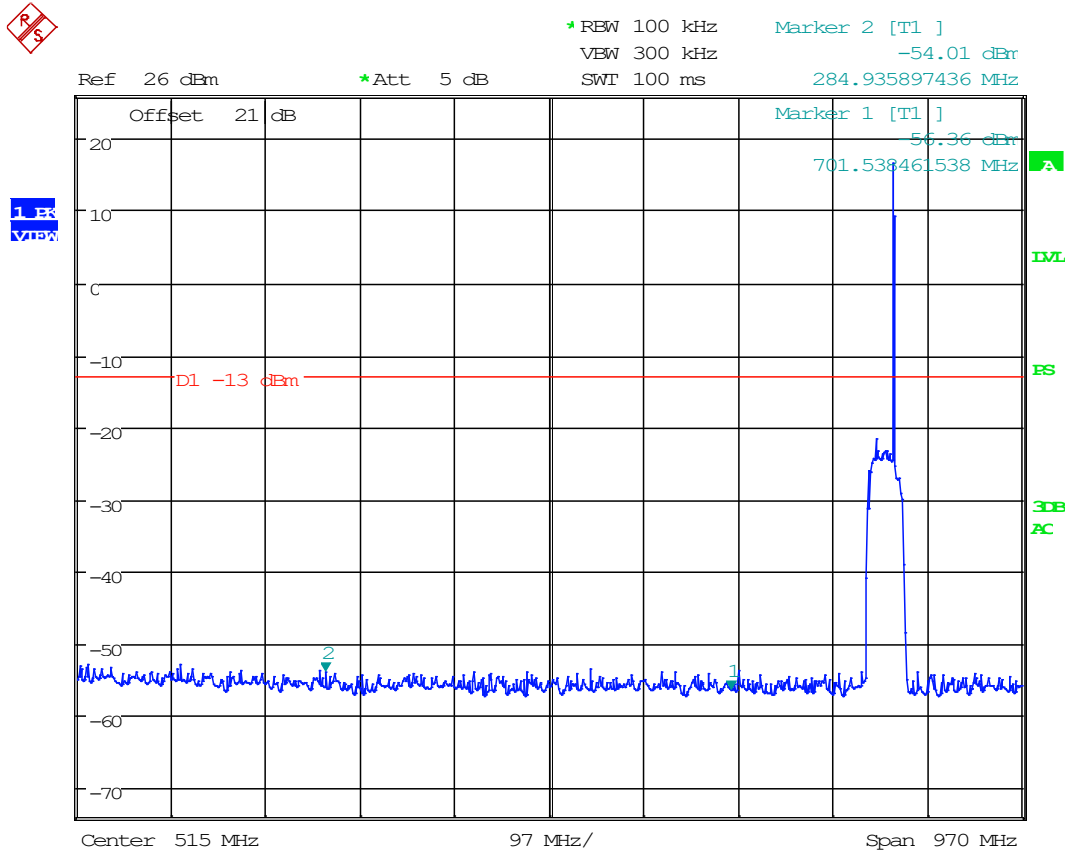
8.8.4 1 GHz to 10th Harmonic, 860 MHz



Date: 10.JAN.2023 10:25:14

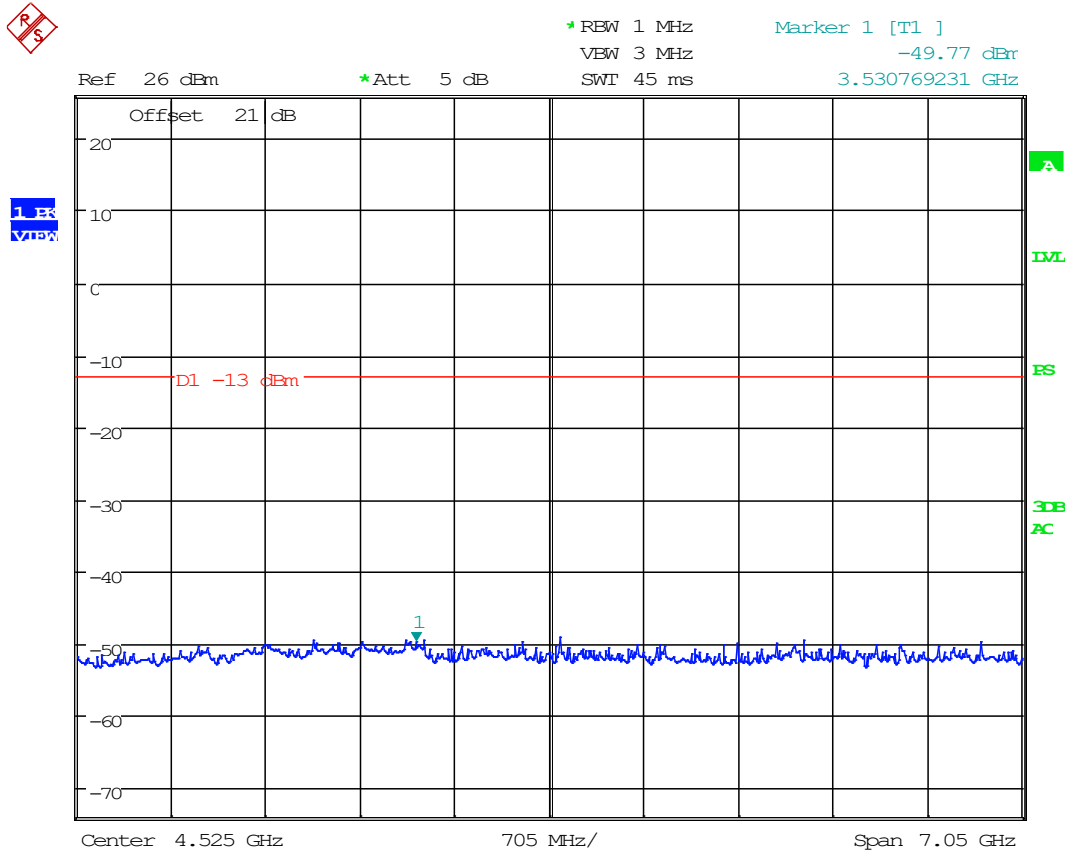


8.8.5 30 MHz to 1 GHz, 868 MHz



Date: 10.JAN.2023 10:33:29

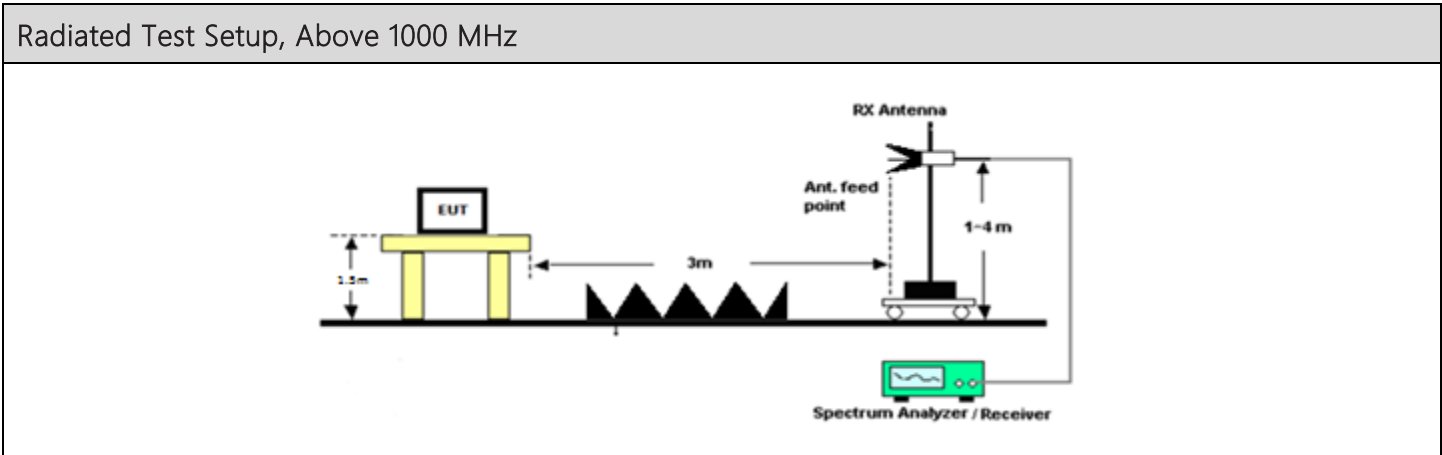
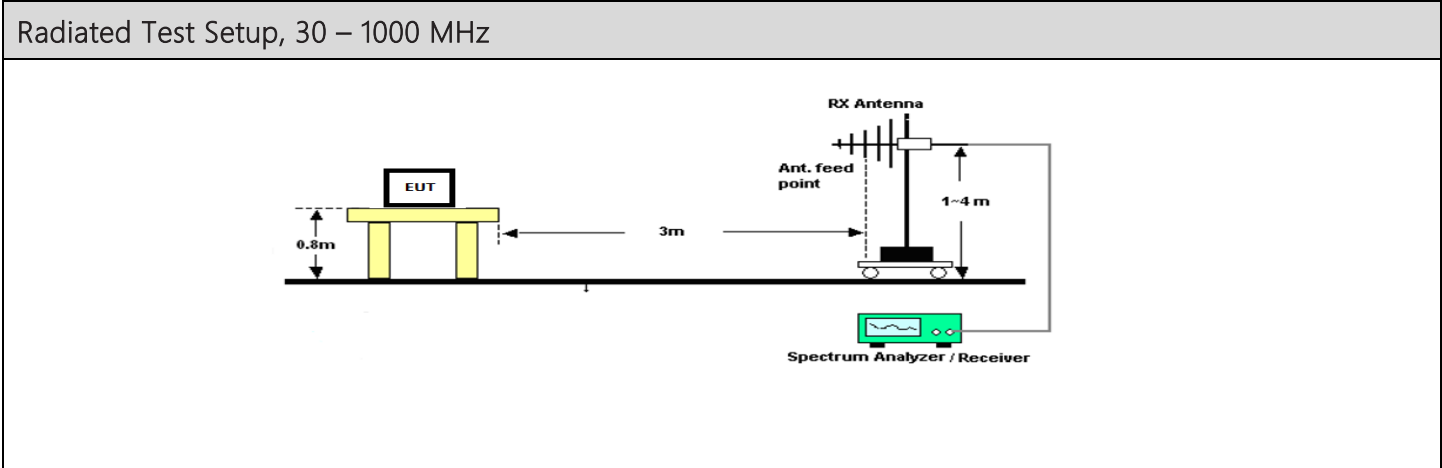
8.8.6 1 GHz to 10th Harmonic, 868 MHz



Date: 10.JAN.2023 10:27:06

8.9 Spurious Radiated Emissions

Limits from FCC Parts 2.1053, 90.210 and test procedure from ANSI C63.26-2015 and FCC KDB 935210 D05 v01r04 Industrial Signal Boosters.





Radiated Emissions, Tabular Data

8.9.1 Downlink, 852 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBµV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
852.00	1704.00	PK	12.16	H	4.79	29.12	3.00	46.07	-51.31	-13.00	38.31
852.00	1704.00	PK	11.98	V	4.79	29.12	3.00	45.89	-51.49	-13.00	38.49
852.00	2556.00	PK	13.56	H	5.70	32.58	3.00	51.85	-45.53	-13.00	32.53
852.00	2556.00	PK	13.58	V	5.70	32.58	3.00	51.87	-45.51	-13.00	32.51
852.00	3408.00	PK	15.16	H	6.81	32.64	3.00	54.61	-42.77	-13.00	29.77
852.00	3408.00	PK	15.23	V	6.81	32.64	3.00	54.68	-42.70	-13.00	29.70
852.00	4260.00	PK	15.90	H	7.25	33.36	3.00	56.51	-40.87	-13.00	27.87
852.00	4260.00	PK	15.91	V	7.25	33.36	3.00	56.52	-40.86	-13.00	27.86
852.00	5112.00	PK	15.11	H	7.89	34.09	3.00	57.09	-40.29	-13.00	27.29
852.00	5112.00	PK	14.84	V	7.89	34.09	3.00	56.82	-40.56	-13.00	27.56
852.00	5964.00	PK	15.87	H	8.56	35.07	3.00	59.50	-37.88	-13.00	24.88
852.00	5964.00	PK	15.31	V	8.56	35.07	3.00	58.94	-38.44	-13.00	25.44
852.00	6816.00	PK	15.88	H	9.23	35.86	3.00	60.97	-36.41	-13.00	23.41
852.00	6816.00	PK	15.19	V	9.23	35.86	3.00	60.28	-37.10	-13.00	24.10
852.00	7668.00	PK	15.20	H	10.07	35.92	3.00	61.19	-36.19	-13.00	23.19
852.00	7668.00	PK	14.98	V	10.07	35.92	3.00	60.97	-36.41	-13.00	23.41
852.00	8520.00	PK	14.53	H	10.23	35.95	3.00	60.72	-36.66	-13.00	23.66
852.00	8520.00	PK	14.56	V	10.23	35.95	3.00	60.75	-36.63	-13.00	23.63

8.9.2 Downlink, 860 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBµV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
860.00	1720.00	PK	12.12	H	4.81	29.33	3.00	46.26	-51.12	-13.00	38.12
860.00	1720.00	PK	11.82	V	4.81	29.33	3.00	45.96	-51.42	-13.00	38.42
860.00	2580.00	PK	13.81	H	5.75	32.49	3.00	52.05	-45.33	-13.00	32.33
860.00	2580.00	PK	13.10	V	5.75	32.49	3.00	51.34	-46.04	-13.00	33.04
860.00	3440.00	PK	14.36	H	6.88	32.61	3.00	53.84	-43.53	-13.00	30.53
860.00	3440.00	PK	14.23	V	6.88	32.61	3.00	53.71	-43.66	-13.00	30.66
860.00	4300.00	PK	15.41	H	7.48	33.46	3.00	56.35	-41.03	-13.00	28.03
860.00	4300.00	PK	16.99	V	7.48	33.46	3.00	57.93	-39.45	-13.00	26.45
860.00	5160.00	PK	15.09	H	7.87	34.11	3.00	57.07	-40.31	-13.00	27.31
860.00	5160.00	PK	15.50	V	7.87	34.11	3.00	57.48	-39.90	-13.00	26.90
860.00	6020.00	PK	15.29	H	8.66	35.15	3.00	59.10	-38.27	-13.00	25.27
860.00	6020.00	PK	15.19	V	8.66	35.15	3.00	59.00	-38.37	-13.00	25.37
860.00	6880.00	PK	15.39	H	9.22	35.90	3.00	60.51	-36.87	-13.00	23.87
860.00	6880.00	PK	15.31	V	9.22	35.90	3.00	60.43	-36.95	-13.00	23.95
860.00	7740.00	PK	15.51	H	10.12	35.87	3.00	61.50	-35.88	-13.00	22.88
860.00	7740.00	PK	15.64	V	10.12	35.87	3.00	61.63	-35.75	-13.00	22.75
860.00	8600.00	PK	13.20	H	10.13	36.04	3.00	59.37	-38.01	-13.00	25.01
860.00	8600.00	PK	13.19	V	10.13	36.04	3.00	59.36	-38.02	-13.00	25.02



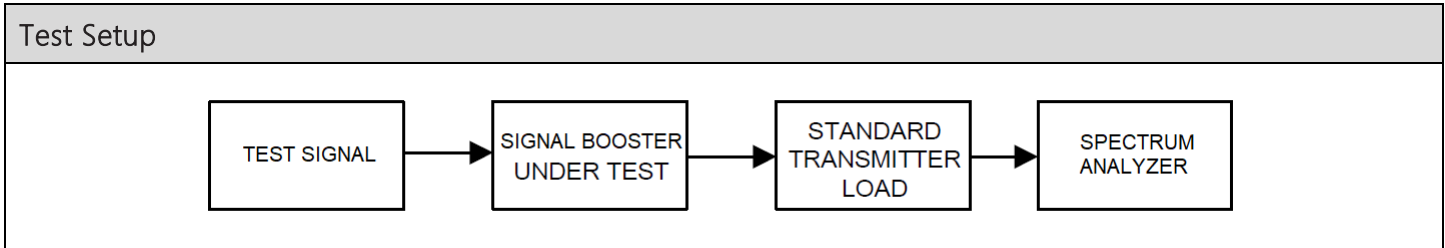
8.9.3 Downlink, 868 MHz

Tuned Frequency (MHz)	Emission Frequency (MHz)	Detector	Meter Reading (dBuV)	Antenna Polarity	Coax Loss (dB)	Antenna Correction Factor (dB/m)	Distance (m)	Field Strength (dBuV/m)	ERP (dBm)	Spurious Limit (dBm)	Margin (dB)
868.00	1736.00	PK	12.07	H	4.83	29.54	3.00	46.44	-50.94	-13.00	37.94
868.00	1736.00	PK	12.37	V	4.83	29.54	3.00	46.74	-50.64	-13.00	37.64
868.00	2604.00	PK	13.72	H	5.80	32.41	3.00	51.93	-45.45	-13.00	32.45
868.00	2604.00	PK	13.59	V	5.80	32.41	3.00	51.80	-45.58	-13.00	32.58
868.00	3472.00	PK	15.21	H	6.90	32.64	3.00	54.75	-42.63	-13.00	29.63
868.00	3472.00	PK	14.36	V	6.90	32.64	3.00	53.90	-43.48	-13.00	30.48
868.00	4340.00	PK	15.71	H	7.45	33.55	3.00	56.71	-40.67	-13.00	27.67
868.00	4340.00	PK	15.36	V	7.45	33.55	3.00	56.36	-41.02	-13.00	28.02
868.00	5208.00	PK	15.45	H	7.85	34.20	3.00	57.49	-39.89	-13.00	26.89
868.00	5208.00	PK	14.97	V	7.85	34.20	3.00	57.01	-40.37	-13.00	27.37
868.00	6076.00	PK	15.41	H	8.64	35.20	3.00	59.25	-38.13	-13.00	25.13
868.00	6076.00	PK	15.75	V	8.64	35.20	3.00	59.59	-37.79	-13.00	24.79
868.00	6944.00	PK	15.13	H	9.21	36.09	3.00	60.44	-36.94	-13.00	23.94
868.00	6944.00	PK	15.29	V	9.21	36.09	3.00	60.60	-36.78	-13.00	23.78
868.00	7812.00	PK	15.38	H	10.12	35.85	3.00	61.35	-36.03	-13.00	23.03
868.00	7812.00	PK	15.66	V	10.12	35.85	3.00	61.63	-35.75	-13.00	22.75
868.00	8680.00	PK	13.38	H	10.51	35.99	3.00	59.88	-37.50	-13.00	24.50
868.00	8680.00	PK	13.89	V	10.51	35.99	3.00	60.39	-36.99	-13.00	23.99

Radiated Emissions, Tabular Data

8.10 Modulation Characteristics

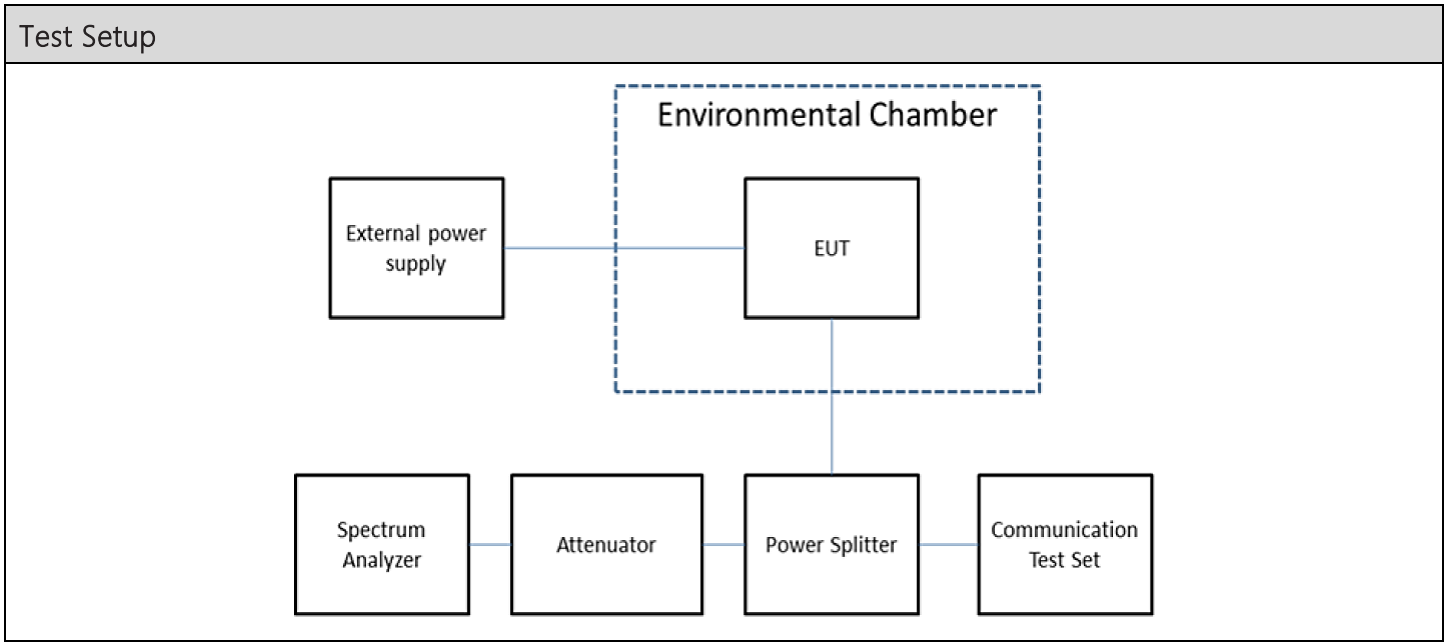
Limits from FCC Parts 2.1047, and test procedure from ANSI C63.26-2015.



N/A. The EUT does not have any means to modulate the incoming signal.

8.11 Frequency Stability

Limits from FCC Parts 2.1055, 90.213 (a); and test procedure from ANSI C63.26-2015 and FCC KDB 935210 D05 v01r04 Industrial Signal Boosters.



Test Results, Mode 1		
Tuned Frequency (MHz)	Max Deviation (kHz)	Limit (ppm)
n/a	n/a	n/a

N/A. The EUT does not alter the input signal in any way.



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849 NW State Road 45, Newberry, Florida 32669
(352) 472-5500 / testing@timcoengr.com

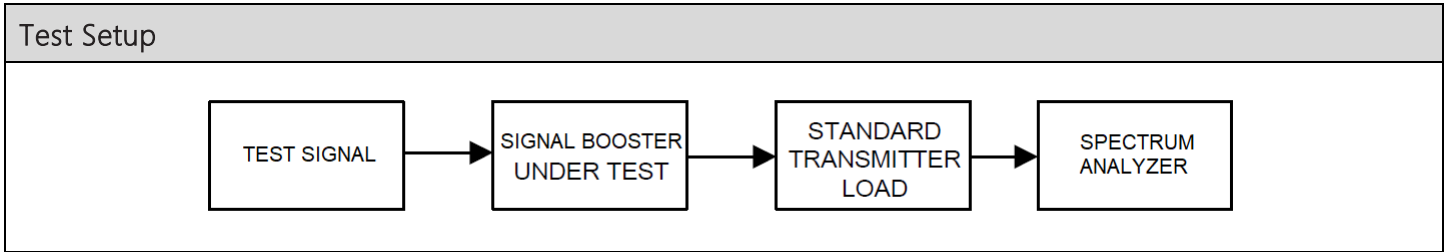
8.12 Transient Frequency Behavior

Limits from FCC Part 90.214; and test procedure from ANSI C63.26-2015.

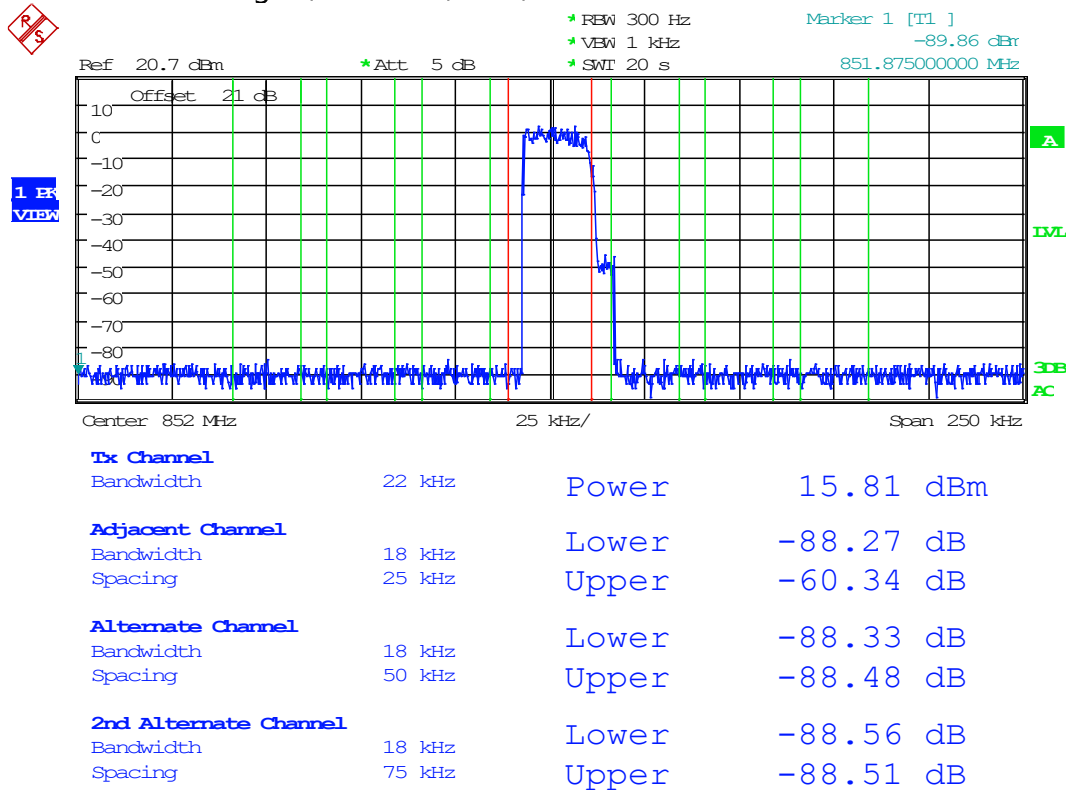
N/A. The EUT does not "key-on" or "key off", and instead transmits indefinitely.

8.13 Adjacent channel power limits

Limits from FCC Part 90.221, and test procedure from ANSI C63.26-2015.

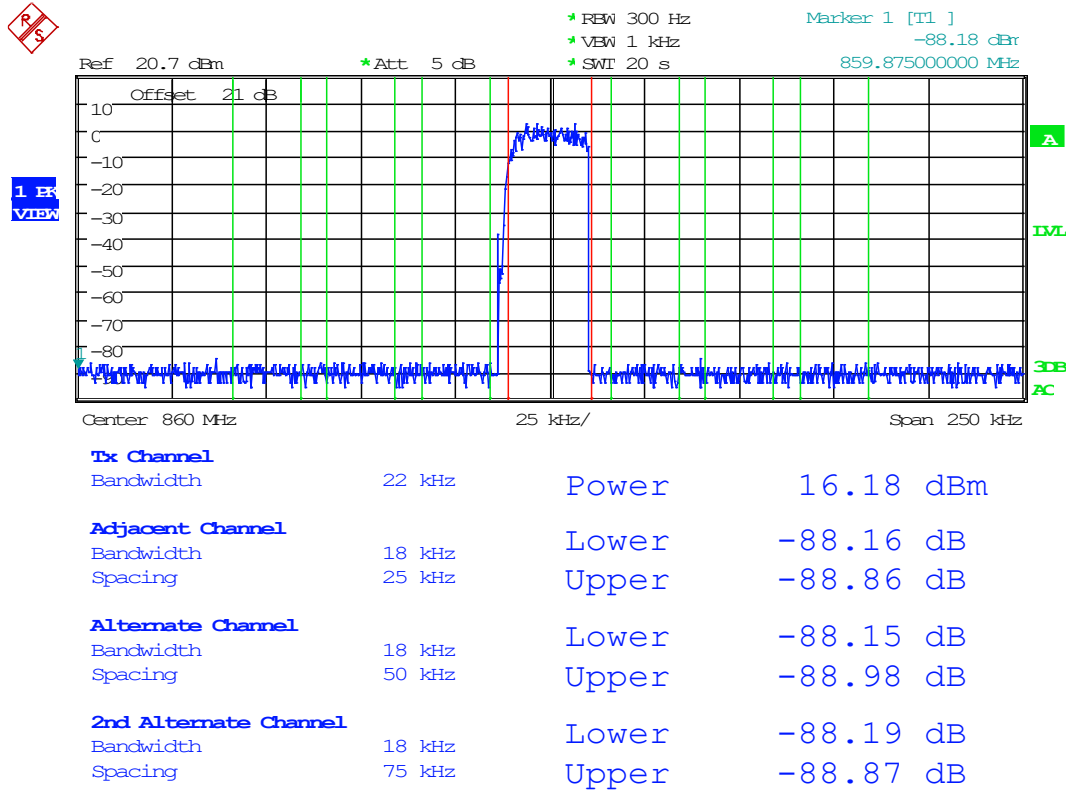


8.13.1 25 kHz Signal, Downlink, AGC, 852 MHz



Date: 10.JAN.2023 12:54:14

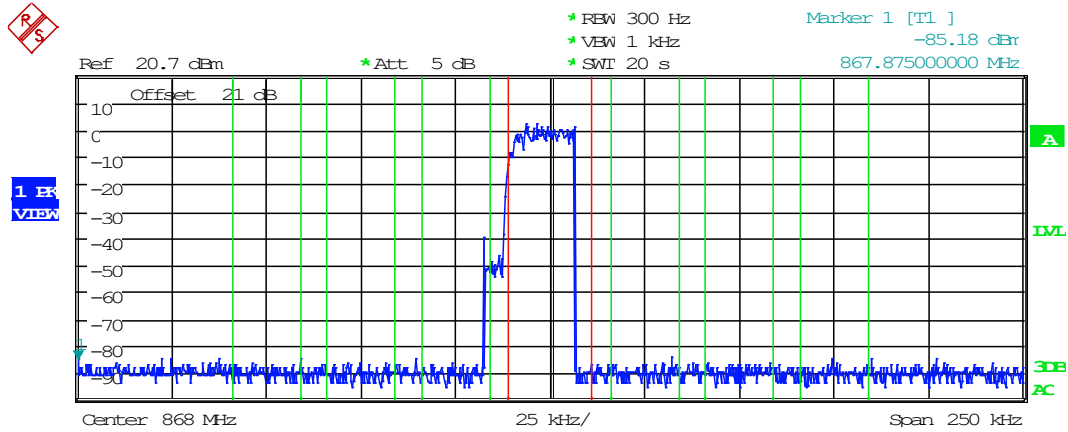
8.13.2 25 kHz Signal, Downlink, AGC, 860 MHz



Date: 10.JAN.2023 12:55:36



8.13.3 25 kHz Signal, Downlink, AGC, 868 MHz



Tx Channel			
Bandwidth	22 kHz	Power	15.79 dBm
Adjacent Channel			
Bandwidth	18 kHz	Lower	-56.02 dB
Spacing	25 kHz	Upper	-88.12 dB
Alternate Channel			
Bandwidth	18 kHz	Lower	-88.52 dB
Spacing	50 kHz	Upper	-87.72 dB
2nd Alternate Channel			
Bandwidth	18 kHz	Lower	-88.20 dB
Spacing	75 kHz	Upper	-88.38 dB

Date: 10.JAN.2023 12:57:03



9. ANNEX-A - Photographs of the EUT

Photographs of the EUT and any manufacturer supplied accessories to be used with the EUT are in separate supplementary documents labelled EXTERNAL PHOTOS and INTERNAL PHOTOS.

10. ANNEX-B – Test Setup Photographs

Test setup photographs are located in a separate supplementary ANNEX-B document.

11. History of Test Report Changes

Test Report #	Revision #	Description	Date of Issue
TR_6001-23_FCC 90_Booster Class B_	1	Initial release	03/21/2023



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END OF TEST REPORT
