



Test Report Serial Number:

45462018 1.0

Test Report Date:

3 September 2025

Project Number:

1986

## EMC Test Report -C2PC

Applicant:



**President Electronics USA**  
**1007 Collier Center Way**  
**Naples, FL, 34110**  
**USA**

FCC ID:

**2AEOCP209**

Product Model Number / HVIN

**RANDY III FCC**

Product Name / PMN

**RANDY III FCC**

In Accordance With:

### **FCC 47 CFR Part 95 Subpart D, Part 15 Subpart B**

Licensed Non-Broadcast Station Transmitter (TNB)

Approved By:

---

**Ben Hewson, President**  
Celltech Labs Inc.  
21-364 Lougheed Rd.  
Kelowna, BC, V1X 7R8  
Canada



Test Lab Certificate: 2470.01



**Industry  
Canada**

IC Registration 3874A



FCC Registration: CA3874

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**1.0 REVISION HISTORY**

<b>Revision History</b>				
<b>Samples Tested By:</b>		<b>Date(s) of Evaluation:</b>		
<b>Report Prepared By:</b>		<b>Report Reviewed By:</b>		
<b>Report Revision</b>	<b>Description of Revision</b>	<b>Revised Section</b>	<b>Revised By</b>	<b>Revision Date</b>
1.0	Initial Release	n/a	Art Voss	3 September 2025

**2.0 CLIENT AND DUT INFORMATION**

Client Information	
<b>Applicant Name (FCC)</b>	President Electronics USA
<b>Applicant Address (FCC)</b>	1007 Collier Center Way Naples, FL, 34110 USA
DUT Information	
<b>Device Identifier(s):</b>	<b>FCC ID:</b> 2AEOCPC209
<b>Device Type:</b>	Portable / Mobile 1W / 4W AM / FM CBRS Transceiver
<b>Device Model(s) / HVIN:</b>	RANDY III FCC
<b>Device Marketing Name / PMN:</b>	RANDY III FCC
<b>Firmware Version ID Number / FVIN:</b>	-
<b>Host Marketing Name / HMN:</b>	-
<b>Test Sample Serial No.:</b>	TA Sample No. 1
<b>Equipment Class (FCC):</b>	Licensed Non-Broadcast Station Transmitter (TNB)
<b>Transmit Frequency Range:</b>	26.965MHz - 27.405MHz
<b>Test Channels:</b>	40 Channels
<b>Manuf. Max. Rated Output Power:</b>	1W (30dBm) or 4W (36dBm) DSB
<b>Manuf. Max. Rated BW/Data Rate:</b>	8kHz DSB
<b>Antenna Make and Model:</b>	n/a
<b>Antenna Type and Gain:</b>	0dBi (Typical), 3dBi (Max)
<b>Modulation:</b>	AM / FM
<b>Mode:</b>	Simplex
<b>DUT Power Source:</b>	12VDC
<b>DUT Dimensions [WxLxH]</b>	65mm x 155mm x50mm
<b>Deviation(s) from standard/procedure:</b>	None
<b>Modification of DUT:</b>	None

### 3.0 SCOPE

**Preface:**

This Certification Report was prepared on behalf of:

**President Electronics USA**

,(the '*Applicant*"), in accordance with the applicable Federal Communications Commission (FCC) CFR 47 and Innovation, Scientific and Economic Development (ISED) Canada rules parts and regulations (the '*Rules*'). The scope of this investigation was limited to only the equipment, devices and accessories (the '*Equipment*') supplied by the *Applicant*. The tests and measurements performed on this *Equipment* were only those set forth in the applicable *Rules* and/or the Test and Measurement Standards they reference. The *Rules* applied and the Test and Measurement Standards used during this evaluation appear in the Normative References section of this report. The limits set forth in the technical requirements of the applicable *Rules* were applied to the measurement results obtained during this evaluation and ,unless otherwise noted, these limits were used as the Pass/Fail criteria. The Pass/Fail statements made in this report apply to only the tests and measurements performed on only the *Equipment* tested during this evaluation. Where applicable and permissible, information including test and measurement data and/or results from previous evaluations of same or similar equipment, devices and/or accessories may be cited in this report.

**Device Description:**

The RANDY III FCC is Portable / Mobile 1W / 4W AM / FM CBRS Transceiver. It can be used as a handheld portable transceiver or as a mobile transceiver with an externally vehicular mounted antenna.

**Application:**

This is an application for a Class II Permissive Change. The RF Transceiver of the RANDY III FCC, FCC ID: **2AEOCPC209**, is identical in all respects to the RANDY II FCC, FCC ID: **2AEOCPC209**, with the exception there have been modifications to the audio section to increase the audio performance. All other aspects of the RANDY III FCC are identical to the RANDY II FCC, including form factor.

**Regulatory Requirement:**

As per FCC 47 CFR 2 Subpart I , Equipment Authorization is require for this *Equipment* by means of a Class II Permissive Change in accordance with FCC 47 CFR §95 Subpart D, (CBRS), and ANSI C63.26.

**Scope of Work:**

The scope of this investigation is limited only to the evaluation of the RANDY III FCC for radiated spurious emissions, antenna port conducted power and antenna port spurious emissions.

**RF Exposure:**

The RANDY III FCC can be used as a portable or mobile transceiver. Since the output power of the RANDY III FCC is the same as the RANDY II FCC, and an RF Exposure evaluation of the RANDY II FCC was performed, an RF Exposure evaluation of the RANDY III FCC is deemed unnecessary.

#### 4.0 TEST RESULT SUMMARY

TEST SUMMARY					
Referenced Standard(s):		FCC CFR Title 47 Parts 2, 95D, 15B			
Section	Description of Test	Procedure Reference	Applicable Rule Part(s) FCC	Test Date	Result
7.0	Conducted Power (Fundamental)	ANSI/TIA/EIA-382-A ANSI/TIA-603-E ANSI C63.26:2015 ANSI C63.4:2014	§2.1046 §2.1033(c )(8) §95.967	26 Aug 2025	Complies
8.0	Conducted TX Spurious Emissions	ANSI/TIA/EIA-382-A ANSI C63.26:2015 ANSI C63.4:2014	§2.1051 §95.979	26 Aug 2025	Complies
9.0	Radiated TX Spurious Emissions	ANSI/TIA/EIA-382-A ANSI C63.26:2015 ANSI C63.4:2014	§2.1053 §95.979	14 Aug 2025	Complies
10.0	Radiated Receiver Emissions	ANSI C63.26:2015 ANSI C63.4:2014	§15 Subpart B §15.109(d)	14 Aug 2025	Complies

Test Station Day Log					
Date	Ambient Temp (°C)	Relative Humidity (%)	Barometric Pressure (kPa)	Test Station	Tests Performed Section(s)
14 Aug 2025	21.0	53	101.4	OATS	<b>9, 10</b>
26 Aug 2025	27.1	38	101.6	EMC	<b>7, 8</b>

**EMC** - EMC Test Bench

**SAC** - Semi-Anechoic Chamber

**OATS** - Open Area Test Site

**TC** - Temperature Chamber

**LISN** - LISN Test Area

**ESD** - ESD Test Bench

**IMM** - Immunity Test Area

**RI** - Radiated Immunity Chamber

I attest that the data reported herein is true and accurate within the tolerance of the Measurement Instrument Uncertainty; that all tests and measurements were performed in accordance with accepted practices or procedures; and that all tests and measurements were performed by me or by trained personnel under my direct supervision. The results of this investigation are based solely on the test sample(s) provided by the client which were not adjusted, modified or altered in any manner whatsoever, except as required to carry out specific tests or measurements. This test report has been completed in accordance with ISO/IEC 17025.



Art Voss, P.Eng.

 Technical Manager  
 Celltech Labs Inc.

3 September 2025

Date



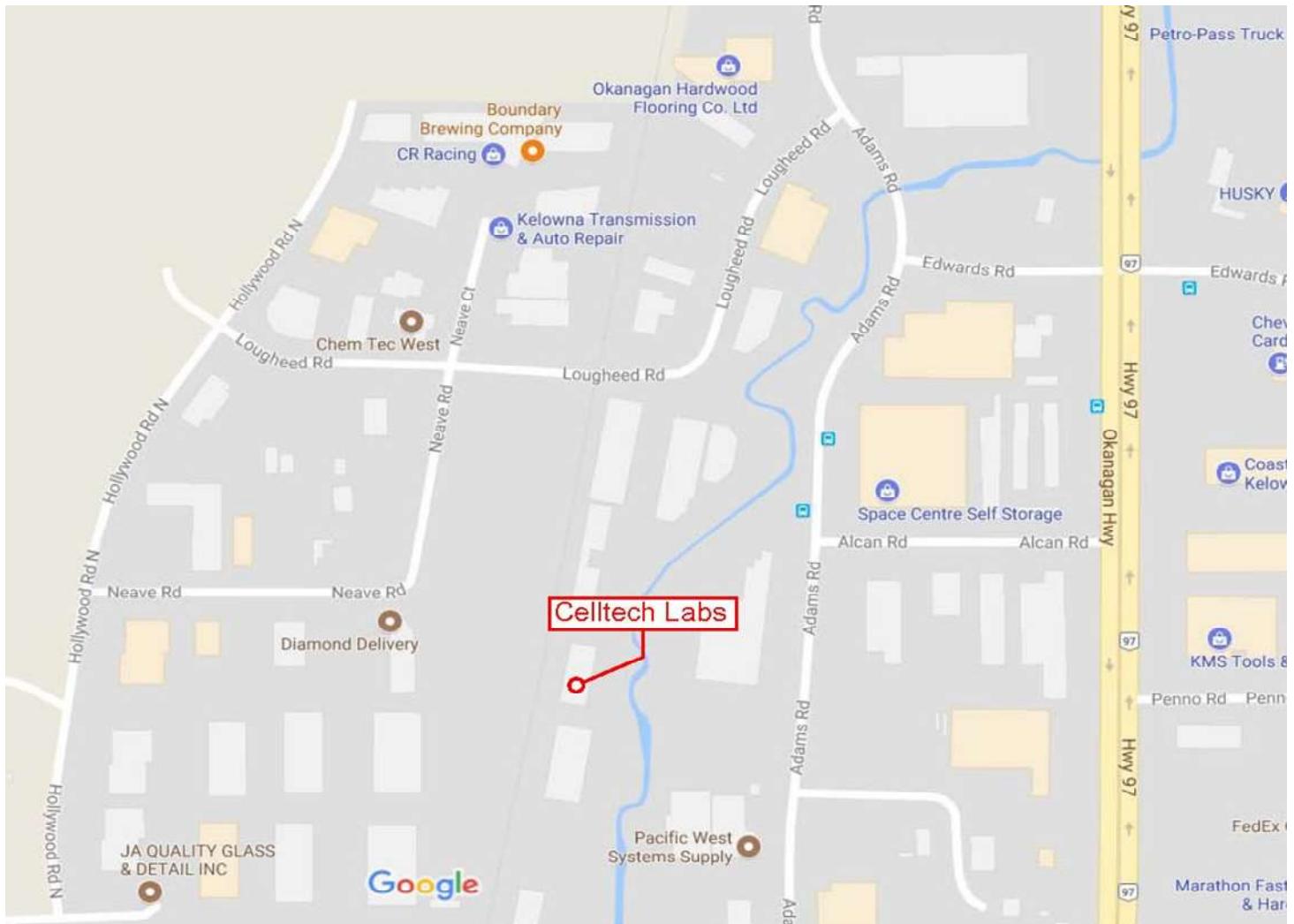
## 5.0 NORMATIVE REFERENCES

<b>Normative References</b>	
ISO/IEC 17025:2017	General requirements for the competence of testing and calibration laboratories
ANSI C63.4-2014	American National Standard of Procedures for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electric and Electronic Equipment in the Range of 9kHz to 40GHz
ANSI C63.26-2015	American National Standard of Procedures for Compliance Testing of Transmitters Used in Licensed Radio Services
ANSI/TIA-382-A	Minimum Standards - Citizens Band Radio Service Amplitude Modulated (AM) Transceivers Operating in the 27 MHz Band (Revision of EIA-382)
ANSI/TIA-603-E	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards (Revision of TIA-603-D)
CFR	Code of Federal Regulations Title 47: Telecommunication Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
CFR	Code of Federal Regulations Title 47: Telecommunication Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations Subpart (2.1091): Radiofrequency radiation exposure evaluation: mobile devices.
CFR	Code of Federal Regulations Title 47: Telecommunication Part 15: Radio Frequency Devices Subpart B: Unintentional Radiators
CFR	Code of Federal Regulations Title 47: Telecommunication Part 95: Personal Radio Service Subpart D: Citizens Band Radio Service (CBRS)

## 6.0 FACILITIES AND ACCREDITATIONS

### Facility and Accreditation:

The facilities used to evaluate this device outlined in this report are located at 21-364 Lougheed Road, Kelowna, British Columbia, Canada V1X 7R8. The radiated emissions site (OATS) conforms to the requirements set forth in ANSI C63.4 and is filed and listed with the FCC under Test Firm Registration Number CA3874 and Industry Canada under Test Site File Number IC 3874A. Celltech is accredited to ISO 17025, through accrediting body A2LA and with certificate 2470.01.



## 7.0 CONDUCTED POWER

### Test Procedure

<b>Normative Reference</b>	FCC 47 CFR §2.1046, §2.1033(c )(8), §95.967, RSS-236 EIA/TIA-382-A, TIA-603-E
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### Limits

47 CFR §95.967	(a) When transmitting amplitude modulated (AM) voice signals or frequency modulated (FM) voice signals, the mean carrier power must not exceed 4 Watts.
RSS-236 4.6	The transmitter output power shall not exceed 4.0 watts for a DSB or FM signals.

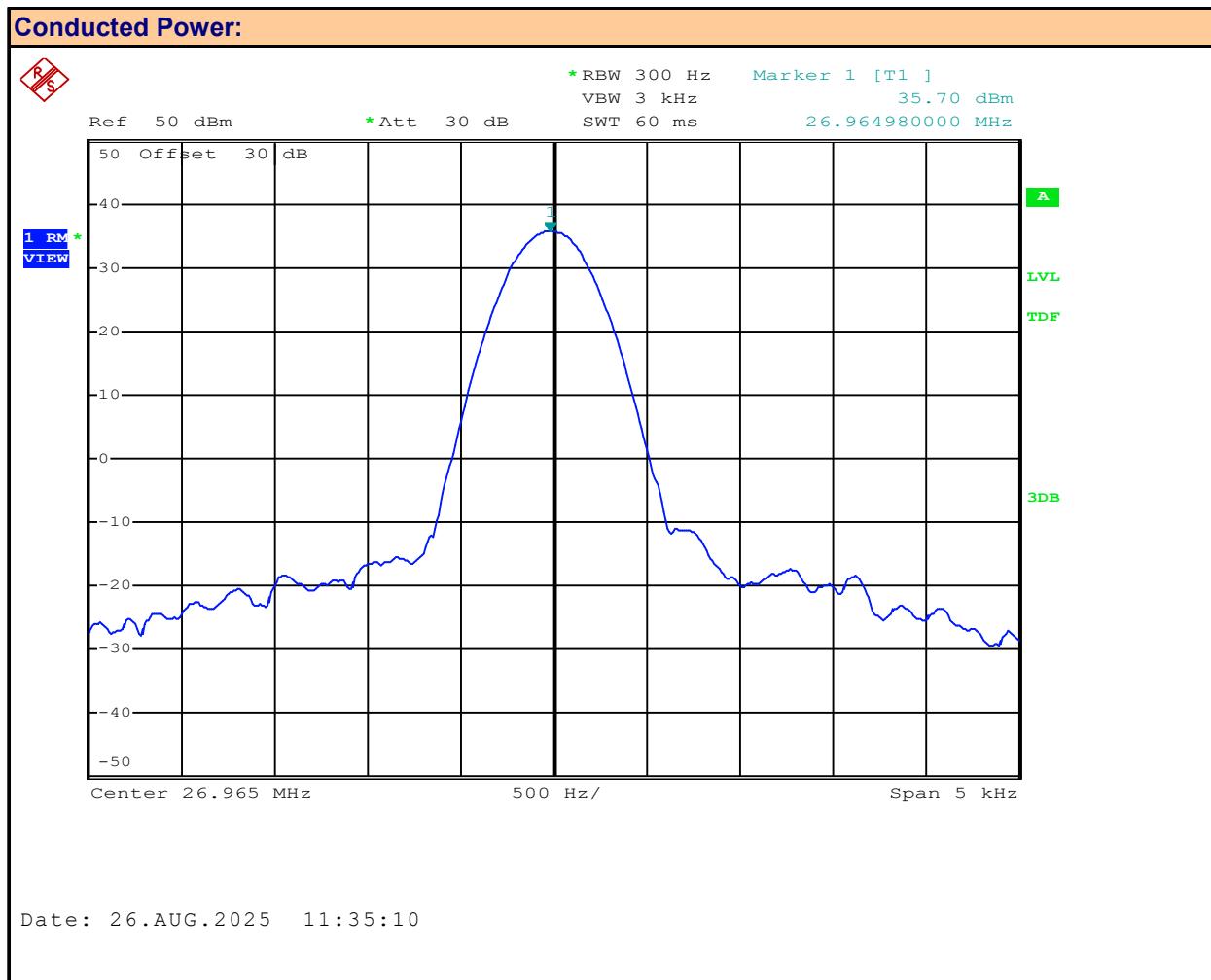
### General Procedure

EIA/TIA-382-A	<b>19. TRANSMITTER CARRIER POWER OUTPUT</b> Transmitter Carrier Power Output for this service is the power (rms) available at the output terminals of the transmitter when the output terminals are connected to a standard output load. This measurement shall be performed without modulation, at standard test. conditions.
TIA-603-E	<b>2.2.1 Conducted Carrier Output Power Rating</b> The conducted carrier power output rating for a transmitter is the power available at the output terminals of the transmitter when the output terminals are connected to the standard transmitter load.

<b>Test Setup</b>	<b>Appendix A - Figure A.1</b>
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### Measurement Procedure

The DUT was connected to a Spectrum Analyzer (SA) via a 30dB attenuator connected to the DUT's antenna port. The SA was configured as above using the Automatic 6dB Cursor Bandwidth measurement. The output power of the DUT was set to the manufacturer's highest output power setting at the Low, Mid and High frequency channels as permitted by the device. The DUT was set to transmit at its maximum Duty Cycle.
---

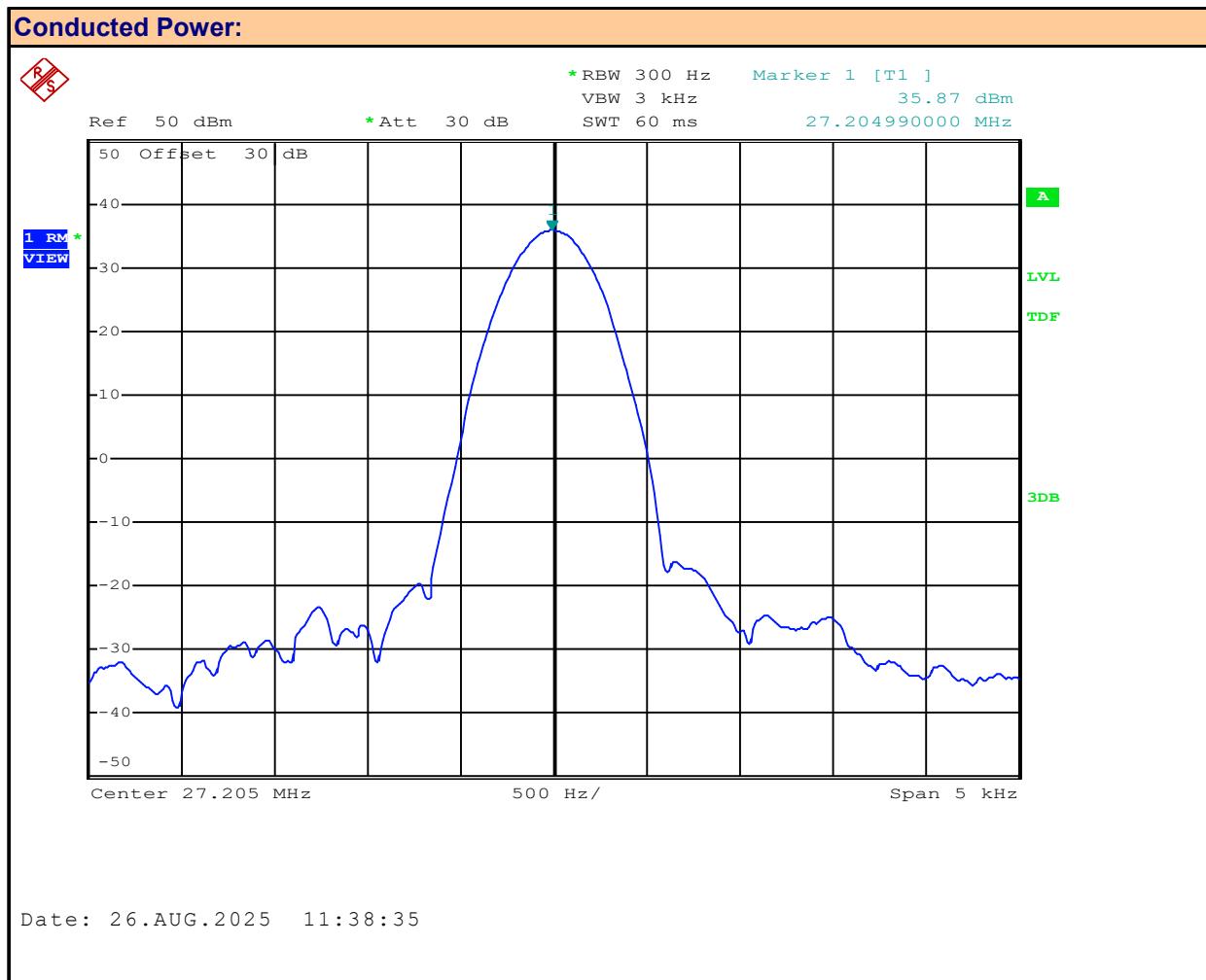
**Plot 7.1 – Conducted Output Power, Channel 1, AM, 4W**

 Channel: **1**

 Channel Frequency: **26.965** MHz

 Mode: **AM**

 Modulation: **AM**

 Measured Power: **35.7** dBm

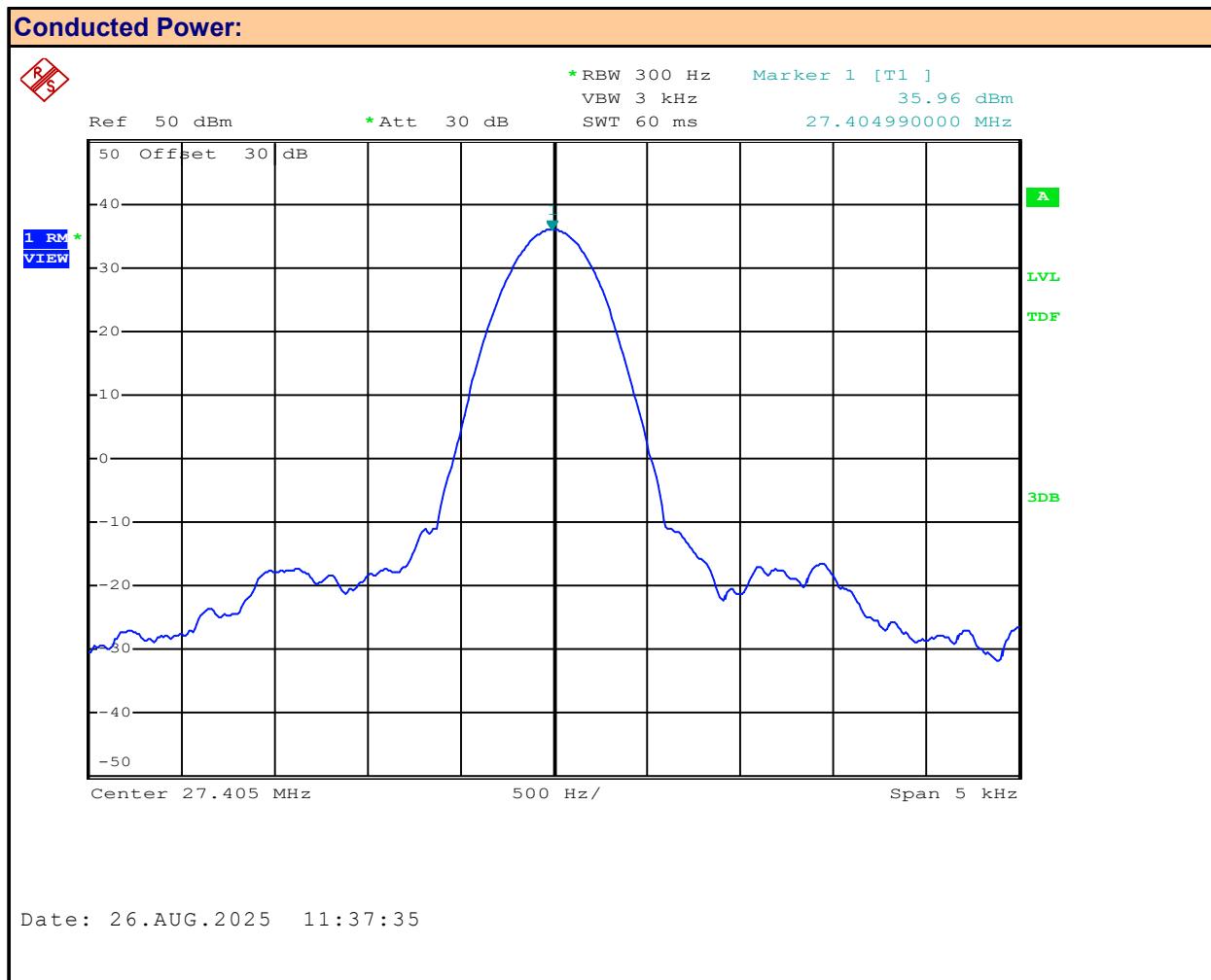
**Plot 7.2 – Conducted Output Power, Channel 20, AM, 4W**

 Channel: **20**

 Channel Frequency: **27.205** MHz

 Mode: **AM**

 Modulation: **AM**

 Measured Power: **35.87** dBm

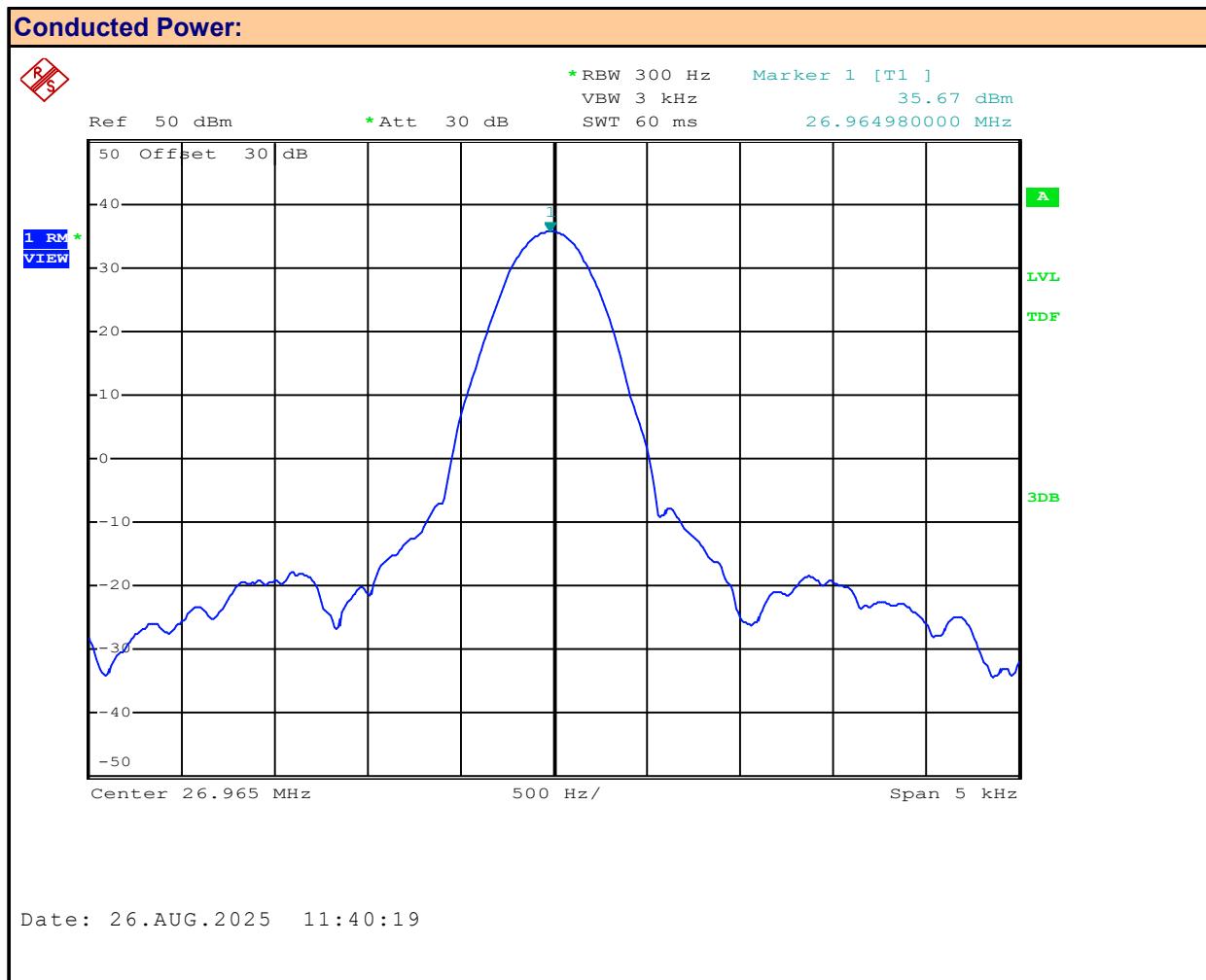
**Plot 7.3 – Conducted Output Power, Channel 40, AM, 4W**

 Channel: **40**

 Channel Frequency: **27.405** MHz

 Mode: **AM**

 Modulation: **AM**

 Measured Power: **35.96** dBm

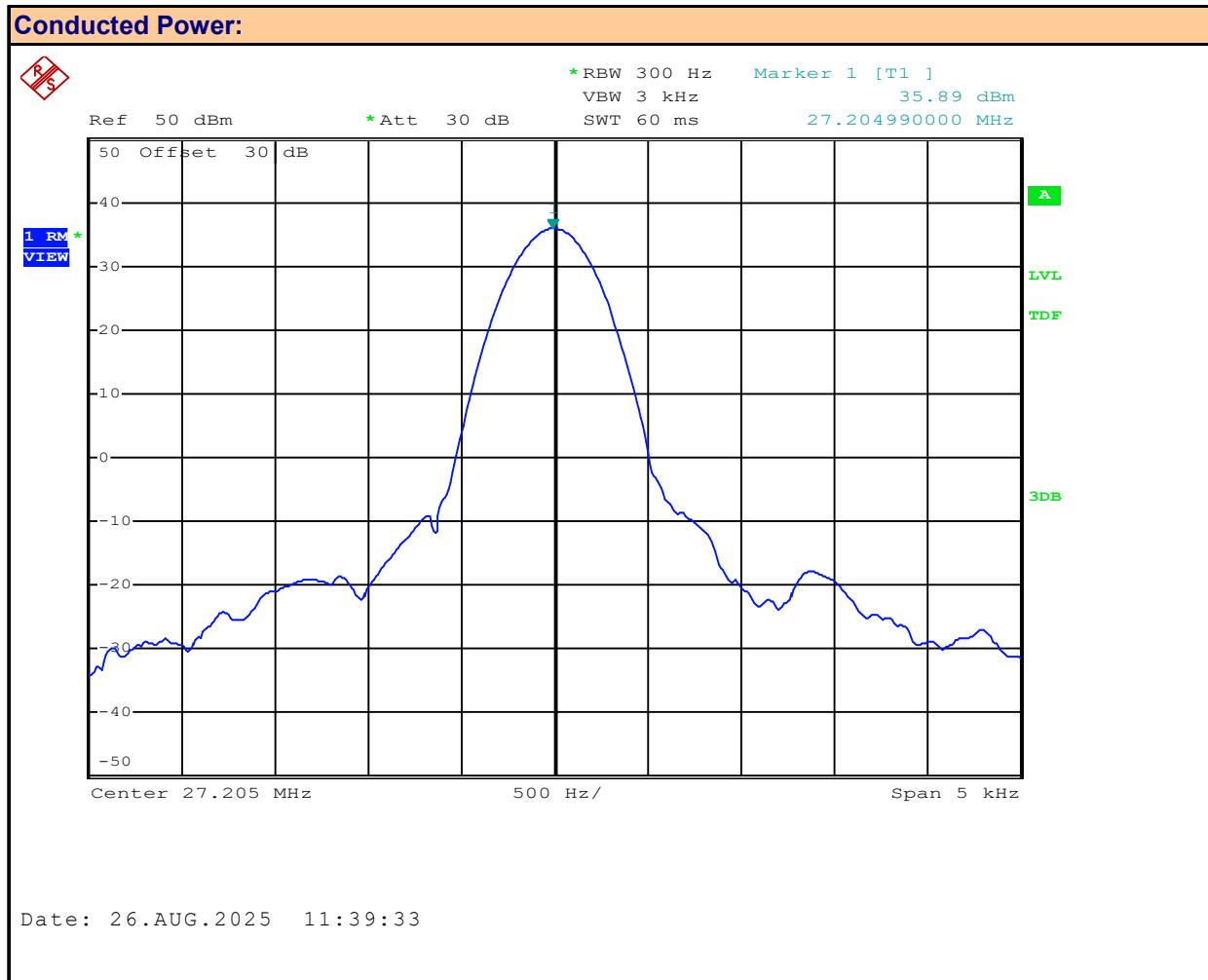
**Plot 7.4 – Conducted Output Power, Channel 1, FM, 4W**

 Channel: **1**

 Channel Frequency: **26.965** MHz

 Mode: **FM**

 Modulation: **FM**

 Measured Power: **35.67** dBm

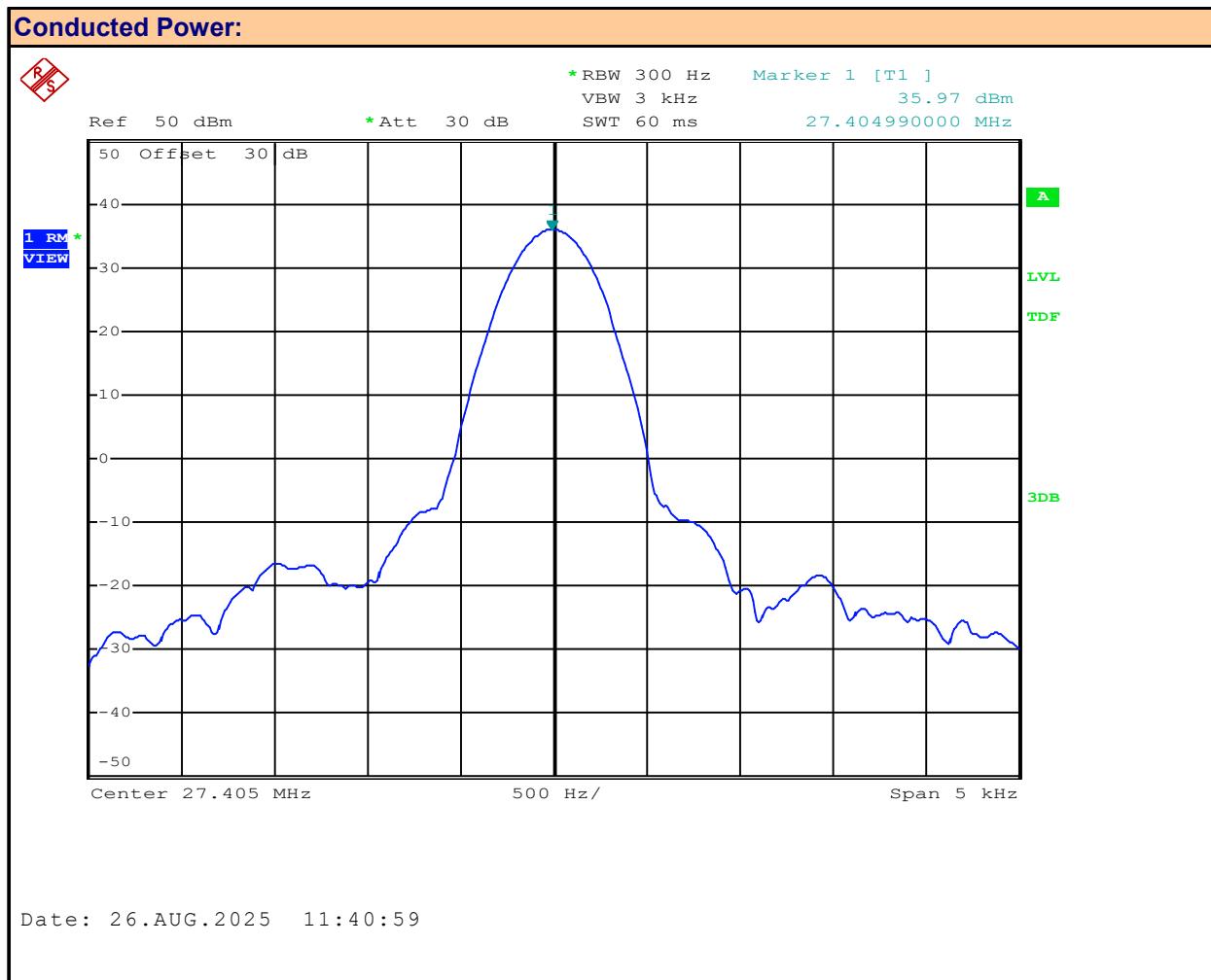
**Plot 7.5 – Conducted Output Power, Channel 20, FM, 4W**

 Channel: **20**

 Channel Frequency: **27.205** MHz

 Mode: **FM**

 Modulation: **FM**

 Measured Power: **35.89** dBm

**Plot 7.6 – Conducted Output Power, Channel 40, FM, 4W**

 Channel: **40**

 Channel Frequency: **24.405** MHz

 Mode: **FM**

 Modulation: **FM**

 Measured Power: **35.97** dBm

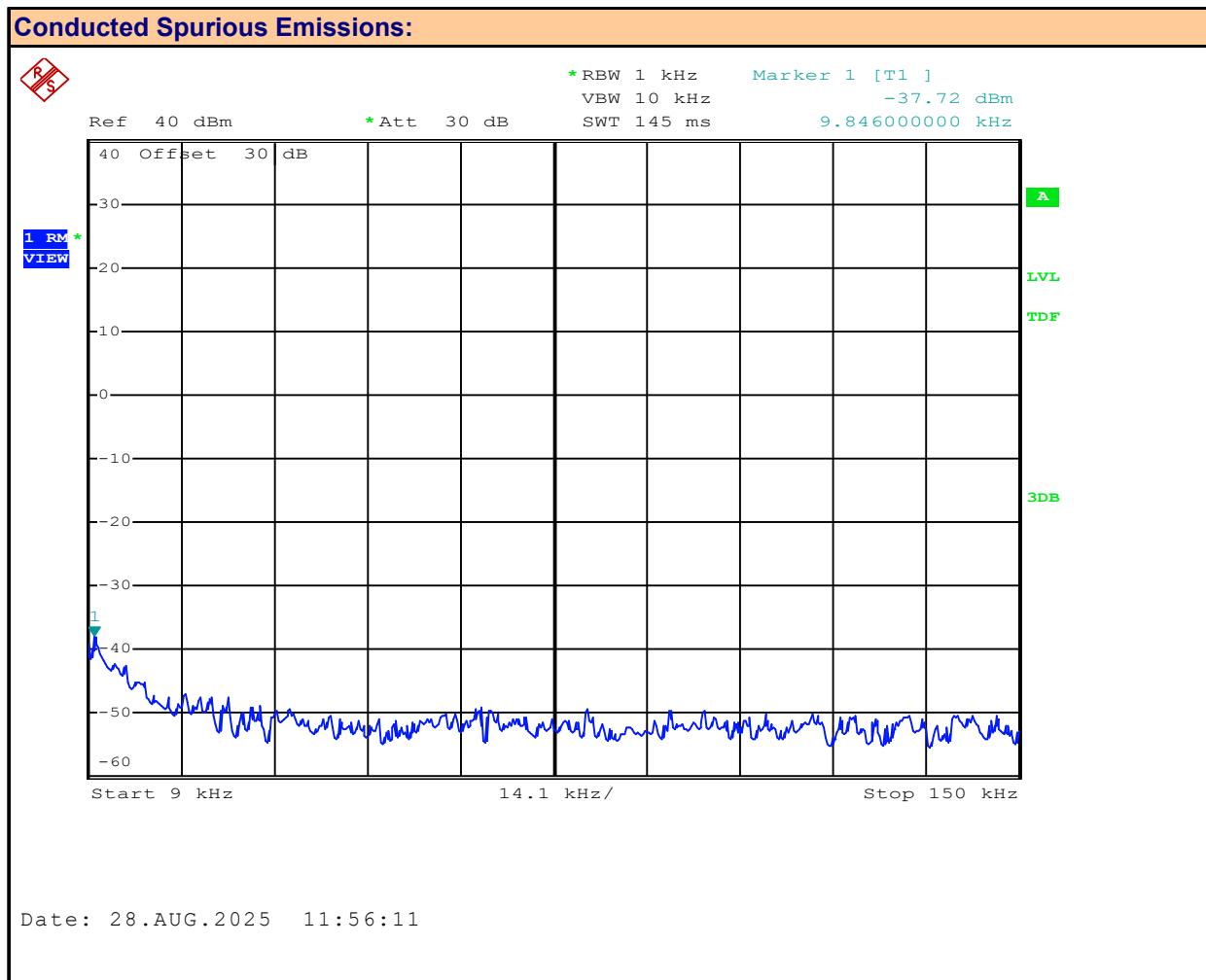
**Table 7.1 – Summary of Conducted Power Measurements (RMS), 4W**

<b>Conducted Power Measurement Results (4W):</b>						
<b>Channel Number</b>	<b>Channel Frequency (MHz)</b>	<b>Mode</b>	<b>Modulation</b>	<b>Measured Power [P<sub>Meas</sub>] (dBm)</b>	<b>Limit [P<sub>Lim</sub>] (dBm)</b>	<b>Margin (dB)</b>
1	26.97	AM	AM	35.70	36	0.30
20	27.21			35.87		0.13
40	27.41			35.96		0.04
1	26.97		FM	35.67		0.33
20	27.21			35.89		0.11
40	24.41			35.97		0.03
<b>Result:</b>						<b>Complies</b>

 Margin = P<sub>Limit</sub> - P<sub>Meas</sub>

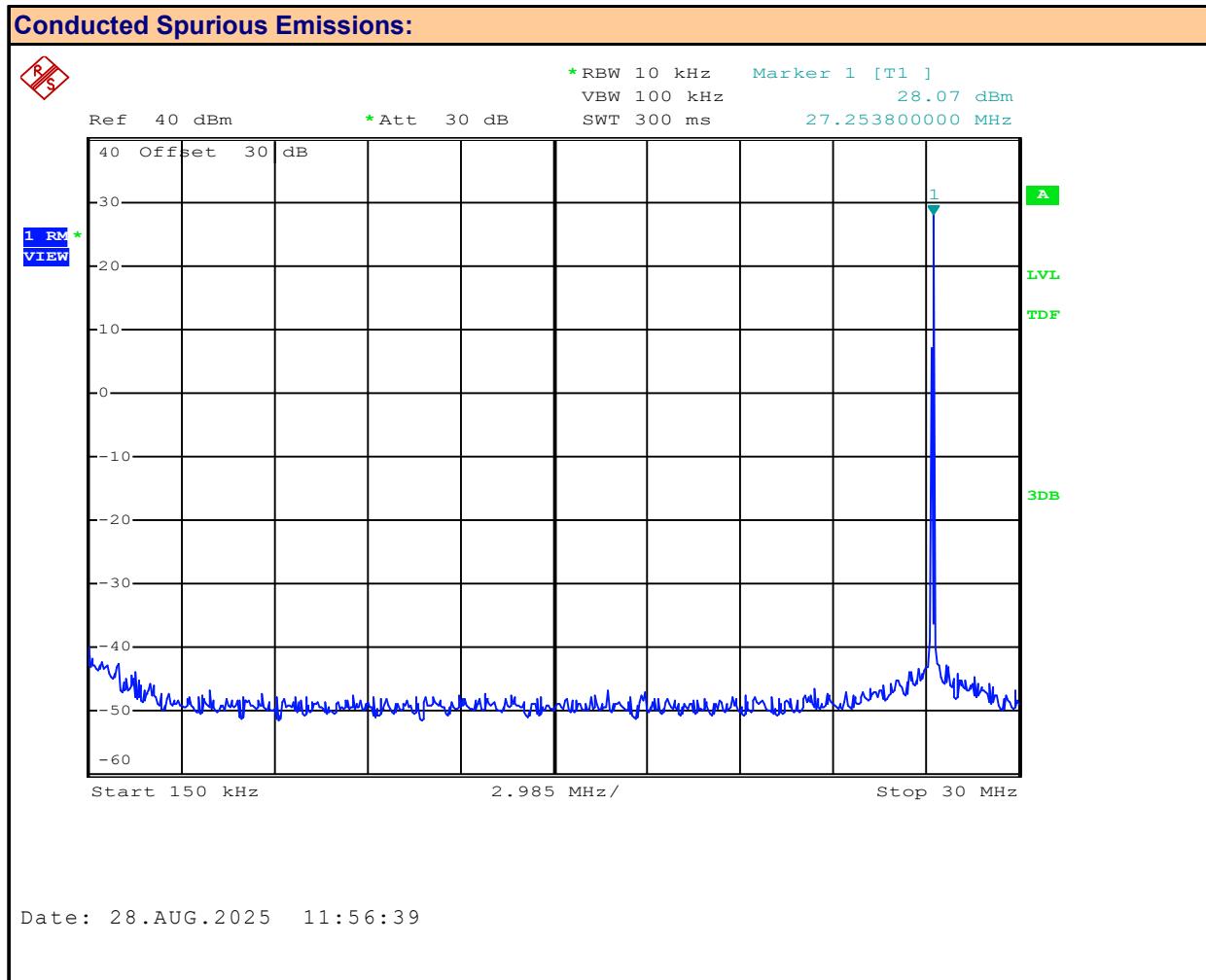
## 8.0 CONDUCTED OUT OF BAND SPURIOUS EMISSIONS

<b>Test Conditions</b>	
<b>Normative Reference</b> <b>FCC 47 CFR §95.979</b>	
<b>Limits</b>	
47 CFR §95.979	<p>Each CBRS transmitter type must be designed to comply with the applicable unwanted emissions limits in this section.</p> <p>(a) Attenuation requirements. The power of unwanted emissions must be attenuated below the transmitter output power in Watts (P) as specified in the applicable paragraphs listed in the following table:</p> <p>For A3E, F3E (1), (3), (5), (6)</p> <p>(1) 25 dB (decibels) in the frequency band 4 kHz to 8 kHz removed from the channel center frequency;</p> <p>(3) 35 dB in the frequency band 8 kHz to 20 kHz removed from the channel center frequency;</p> <p>(5) <math>53 + 10 \log (P)</math> dB in any frequency band removed from the channel center frequency by more than 250% of the authorized bandwidth.</p> <p>(6) 60 dB in any frequency band centered on a harmonic (i.e., an integer multiple of two or more times) of the carrier frequency.</p>
<b>Measurement Procedure</b>	
TIA 382 21.2	<p><b>Transmitter Conducted Spurious and Harmonic Emissions</b></p> <p>The transmitter RF output shall be connected to the standard nonradiating output load. The output shall be sampled and displayed using spectrum analysis techniques. 2500 Hz modulation shall be applied at a level 16 dB above that required to produce 50% modulation at the frequency of maximum response. The sampled output shall be analyzed from the lowest frequency generated in the equipment to the 10th harmonic of the fundamental signal and the levels of all spurious outputs attenuated not more than 20 dB below the maximum required attenuation shall be recorded.</p>
<b>Test Setup</b>	<b>Appendix A</b> <b>A.1</b>

**Plot 8.1 – Conducted Out of Band Emissions, 9kHz to 150kHz, Channel 20, AM**


Channel: **20**  
 Modulation: **AM**

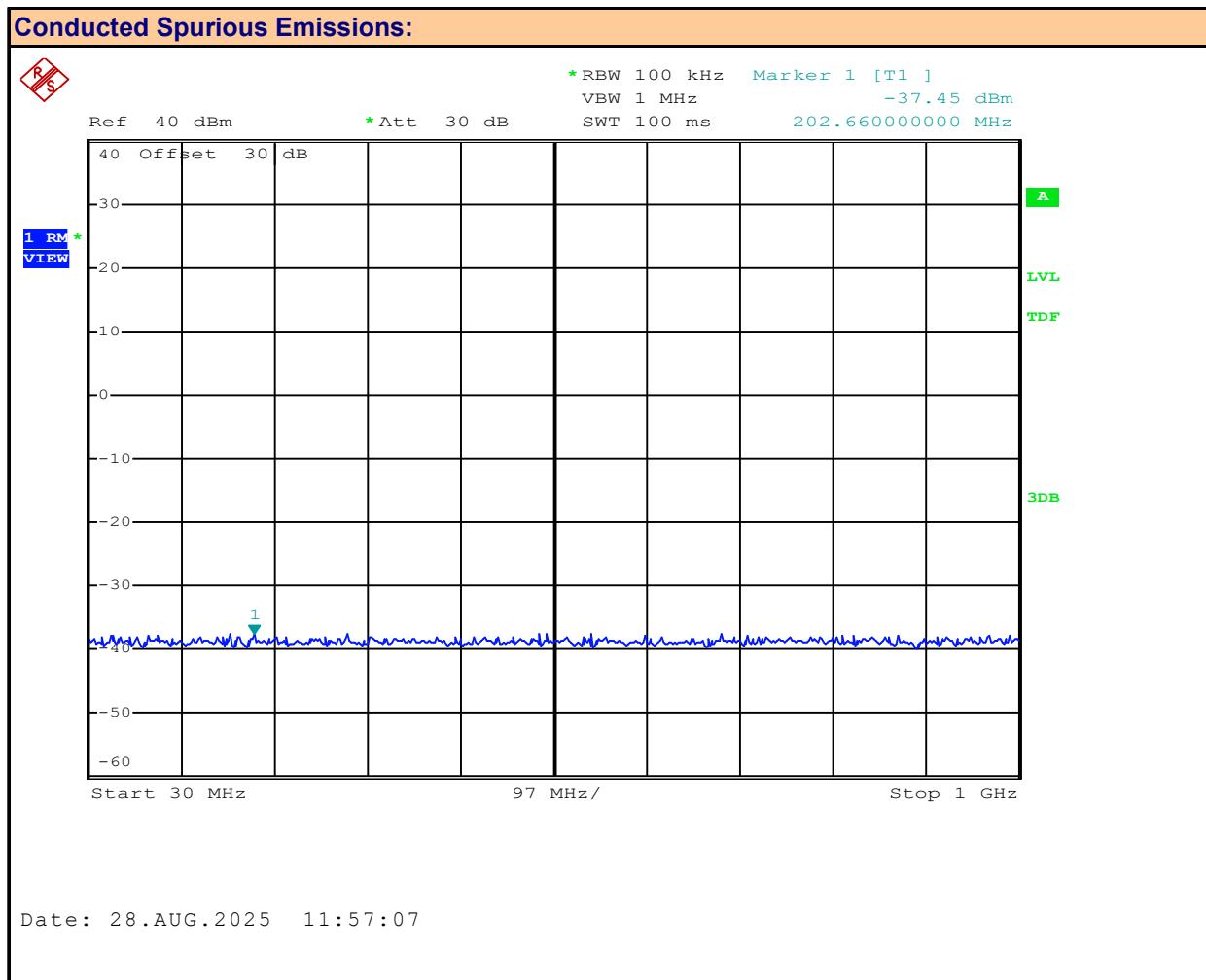
Channel Frequency: **27.205** MHz  
 Emission Frequency: **ND** MHz  
 Measured Emission: **ND** dBm

**Plot 8.2 – Conducted Out of Band Emissions, 150kHz – 30MHz, Channel 20, AM**


Channel: **20**  
 Modulation: **AM**

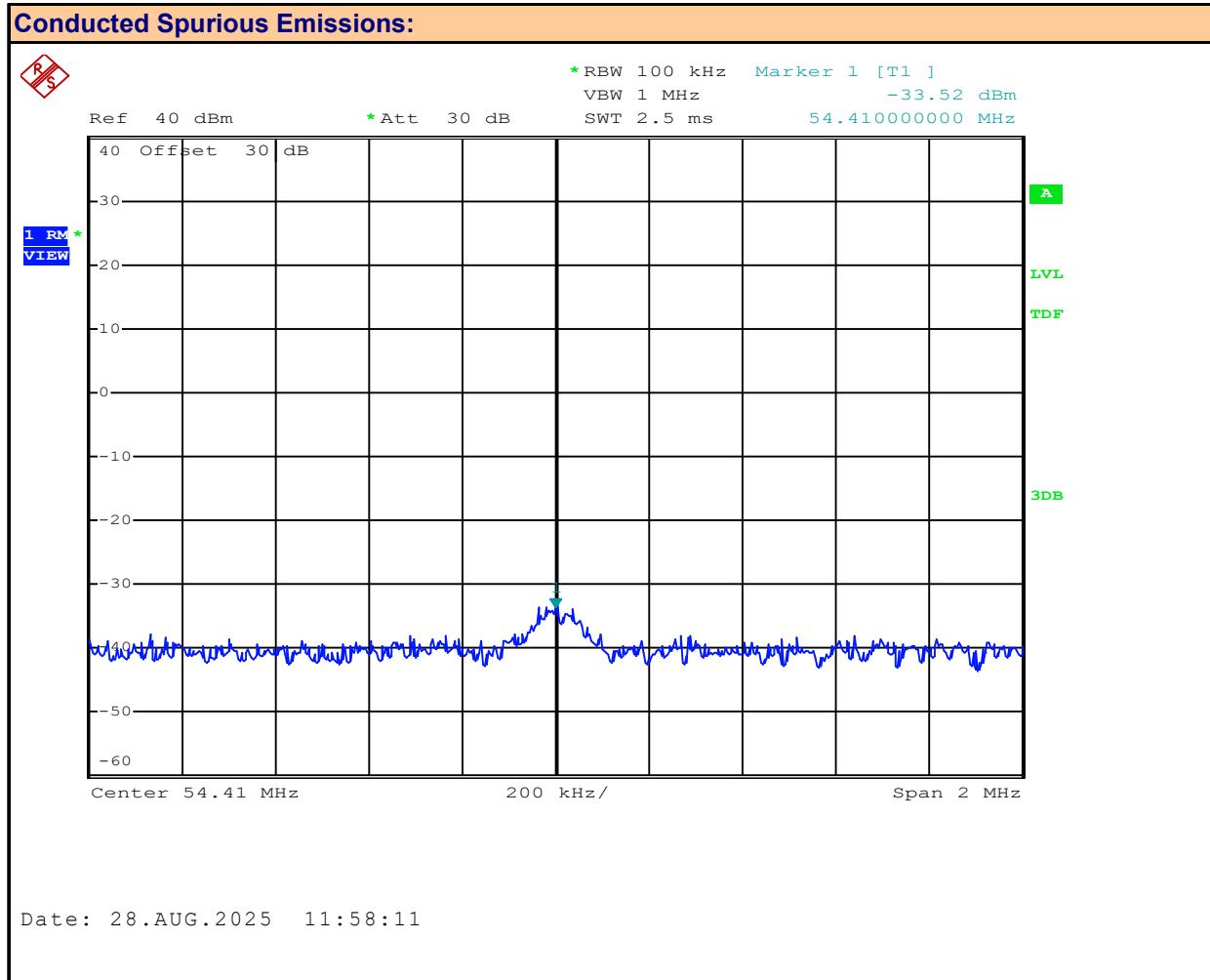
Channel Frequency: **27.205** MHz  
 Emission Frequency: **ND** MHz  
 Measured Emission: **ND** dBm

**Marker 1 = Fundamental**

**Plot 8.3 – Conducted Out of Band Emissions, 30 – 1000MHz, Channel 20, AM**


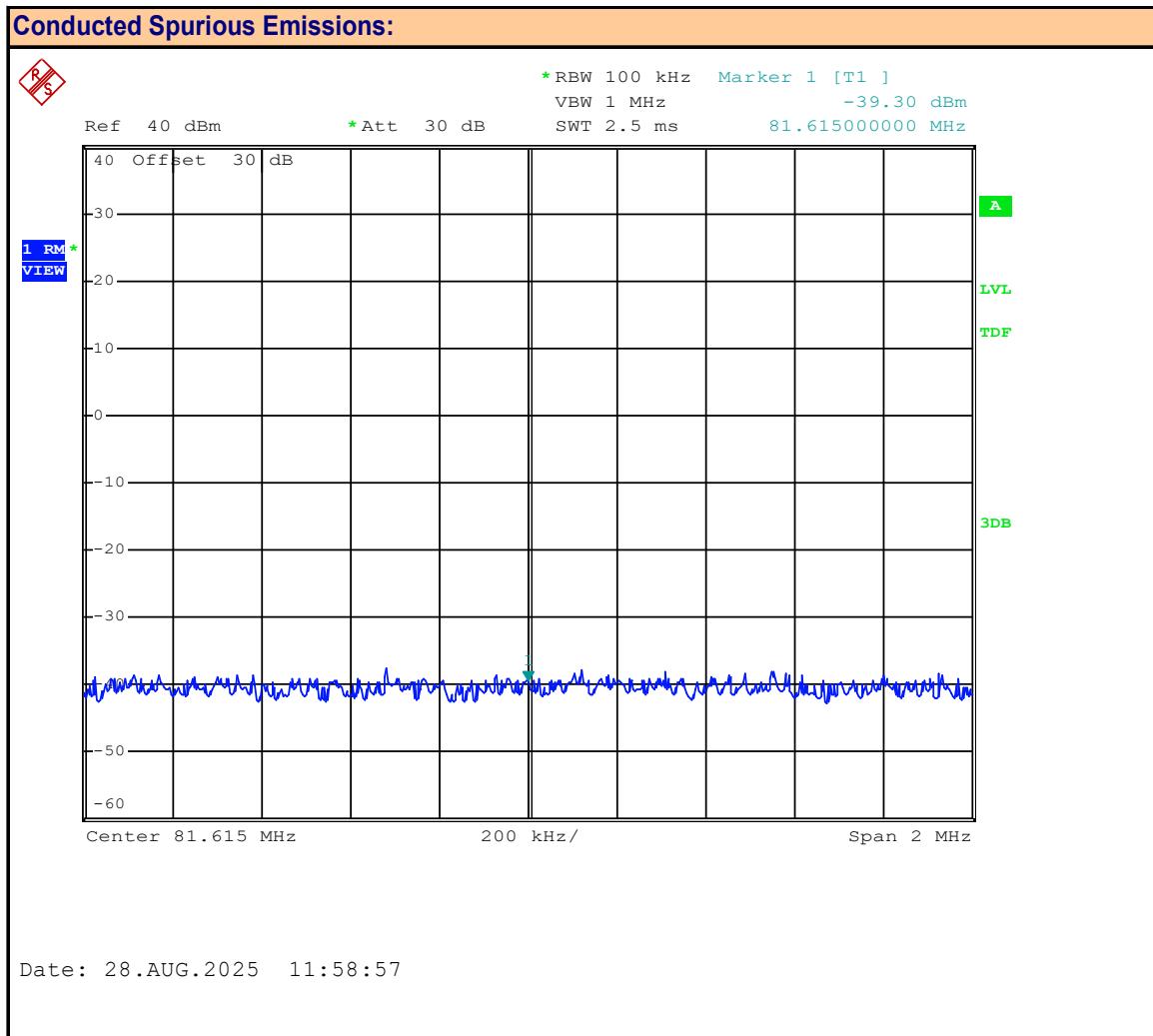
Channel: **20**  
 Modulation: **AM**

Channel Frequency: **27.205** MHz  
 Emission Frequency: **ND** MHz  
 Measured Emission: **ND** dBm

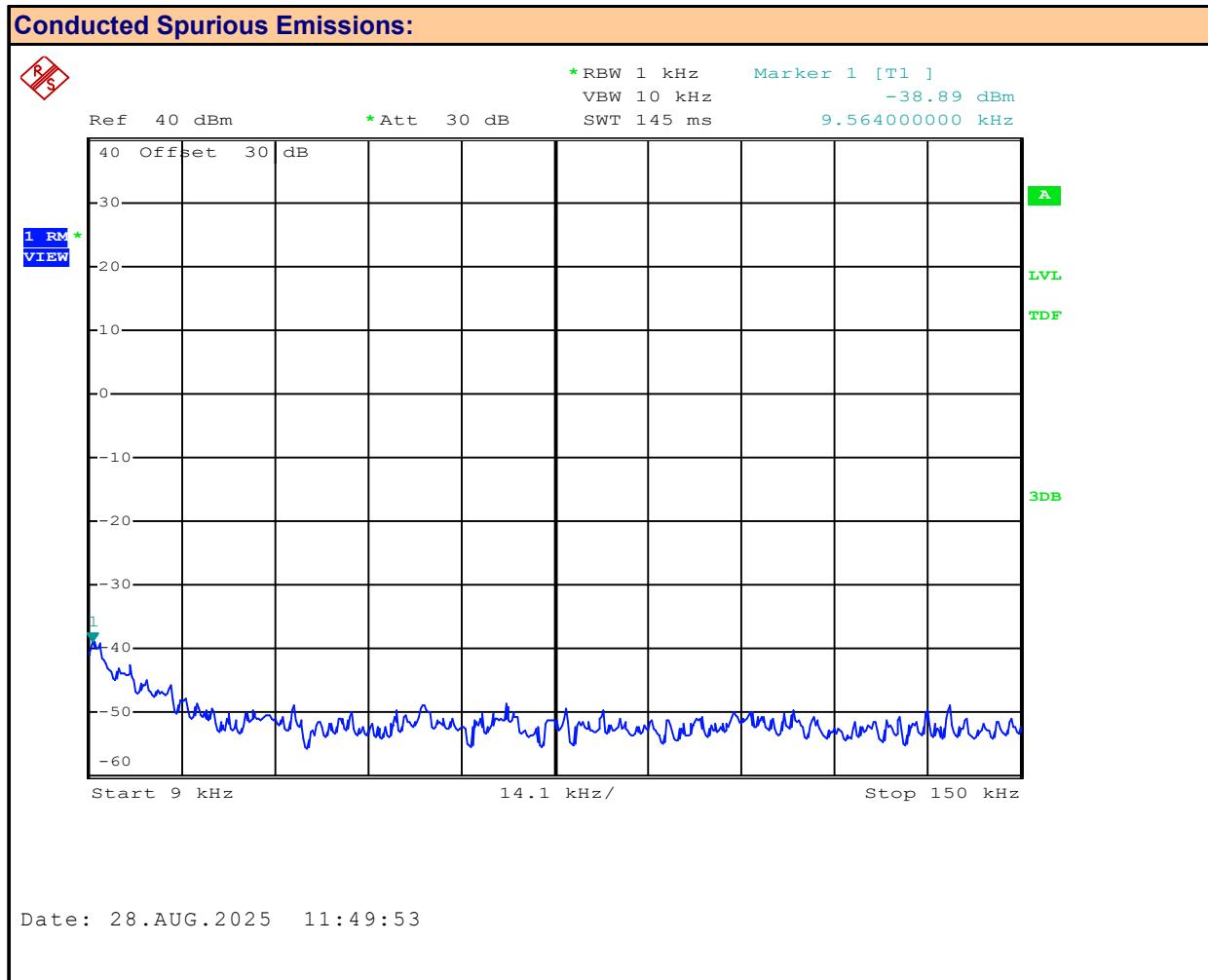
**Plot 8.4 – Conducted Out of Band Emissions, 2<sup>nd</sup> Harmonic, Channel 20, AM**


Channel: **20**  
 Modulation: **AM**

Channel Frequency: **27.205** MHz  
 Emission Frequency: **54.41** MHz  
 Measured Emission: **-33.52** dBm

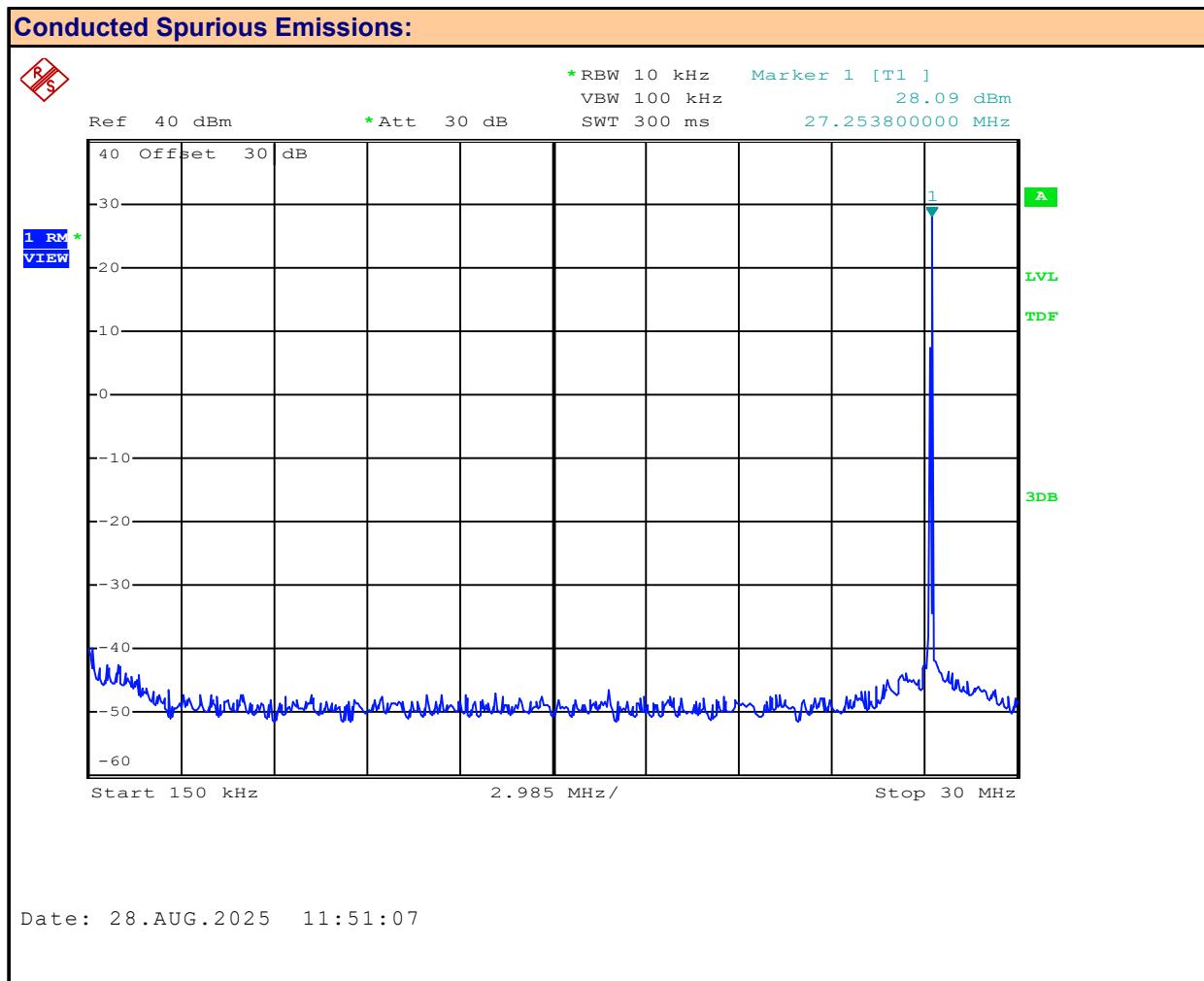
**Plot 8.5 – Conducted Out of Band Emissions, 3<sup>rd</sup> Harmonic, Channel 20, AM**


Channel:	20	Channel Frequency:	27.205	MHz
Modulation:	AM	Emission Frequency:	ND	MHz
		Measured Emission:	ND	dBm

**Plot 8.6 – Conducted Out of Band Emissions, 9kHz to 150kHz, Channel 20, FM**


Channel: **20**  
 Modulation: **FM**

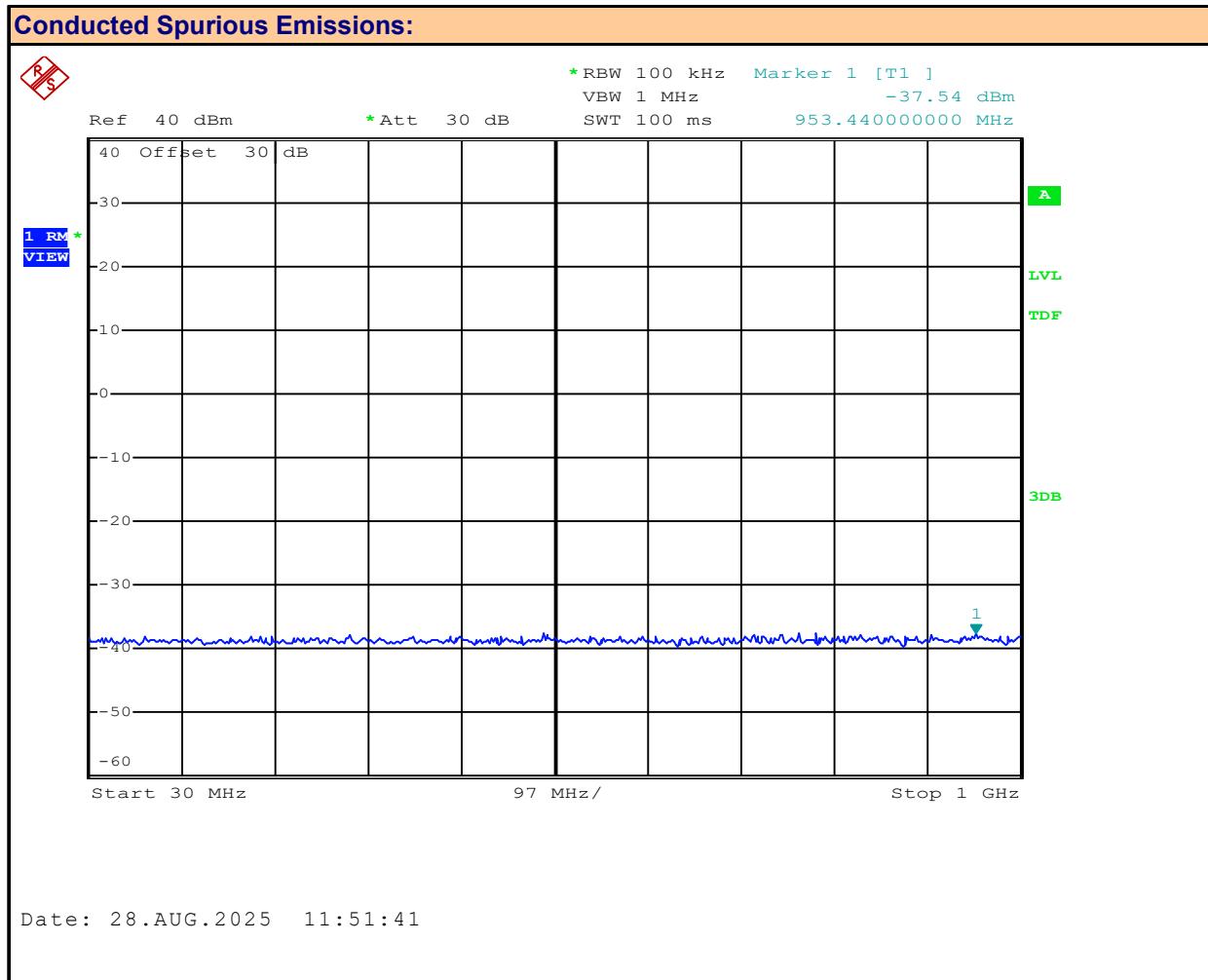
Channel Frequency: **27.205** MHz  
 Emission Frequency: **ND** MHz  
 Measured Emission: **ND** dBm

**Plot 8.7 – Conducted Out of Band Emissions, 150kHz – 20MHz, Channel 20, FM**


Channel: **20**  
 Modulation: **FM**

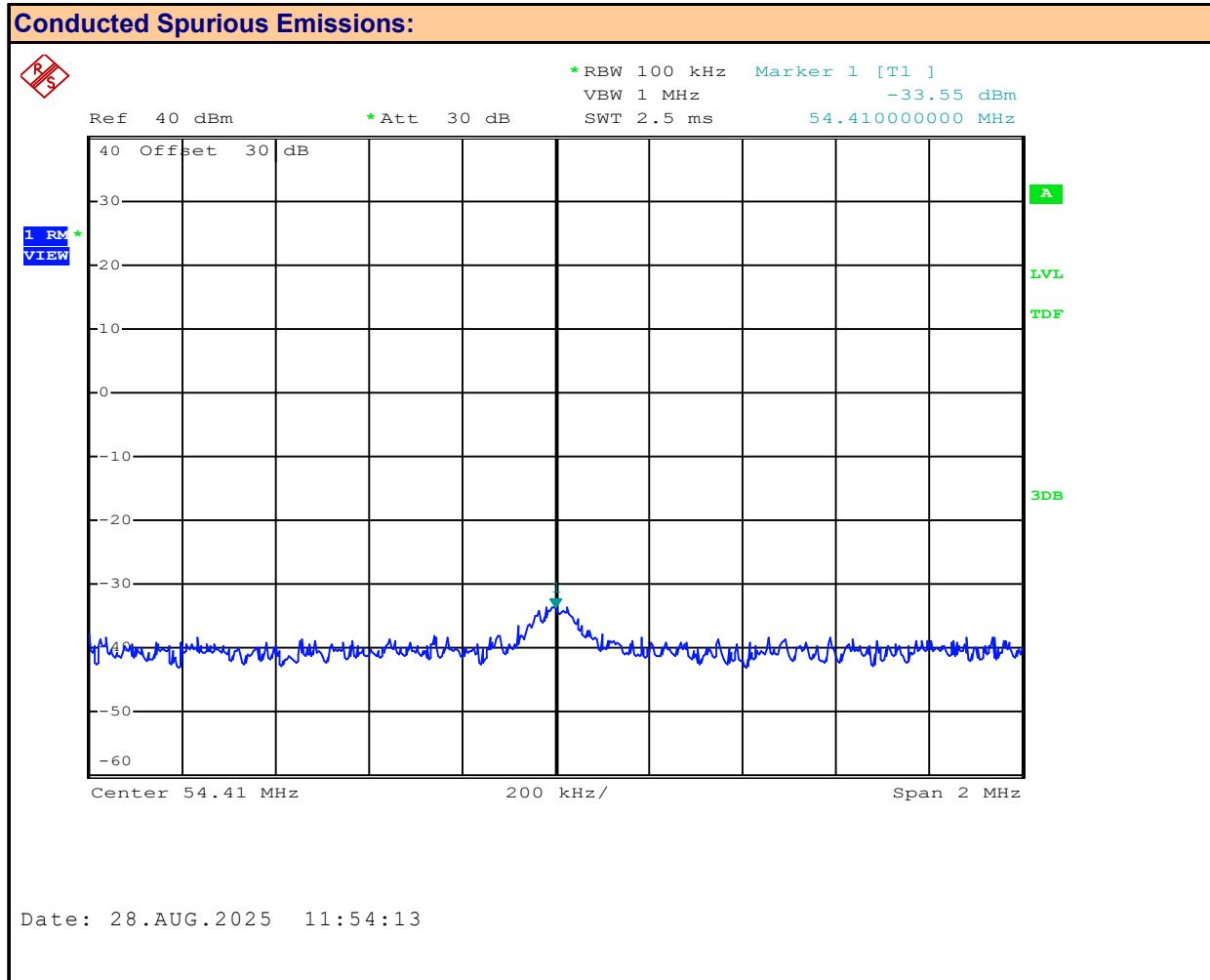
Channel Frequency: **27.205** MHz  
 Emission Frequency: **ND** MHz  
 Measured Emission: **ND** dBm

**Marker 1 = Fundamental**

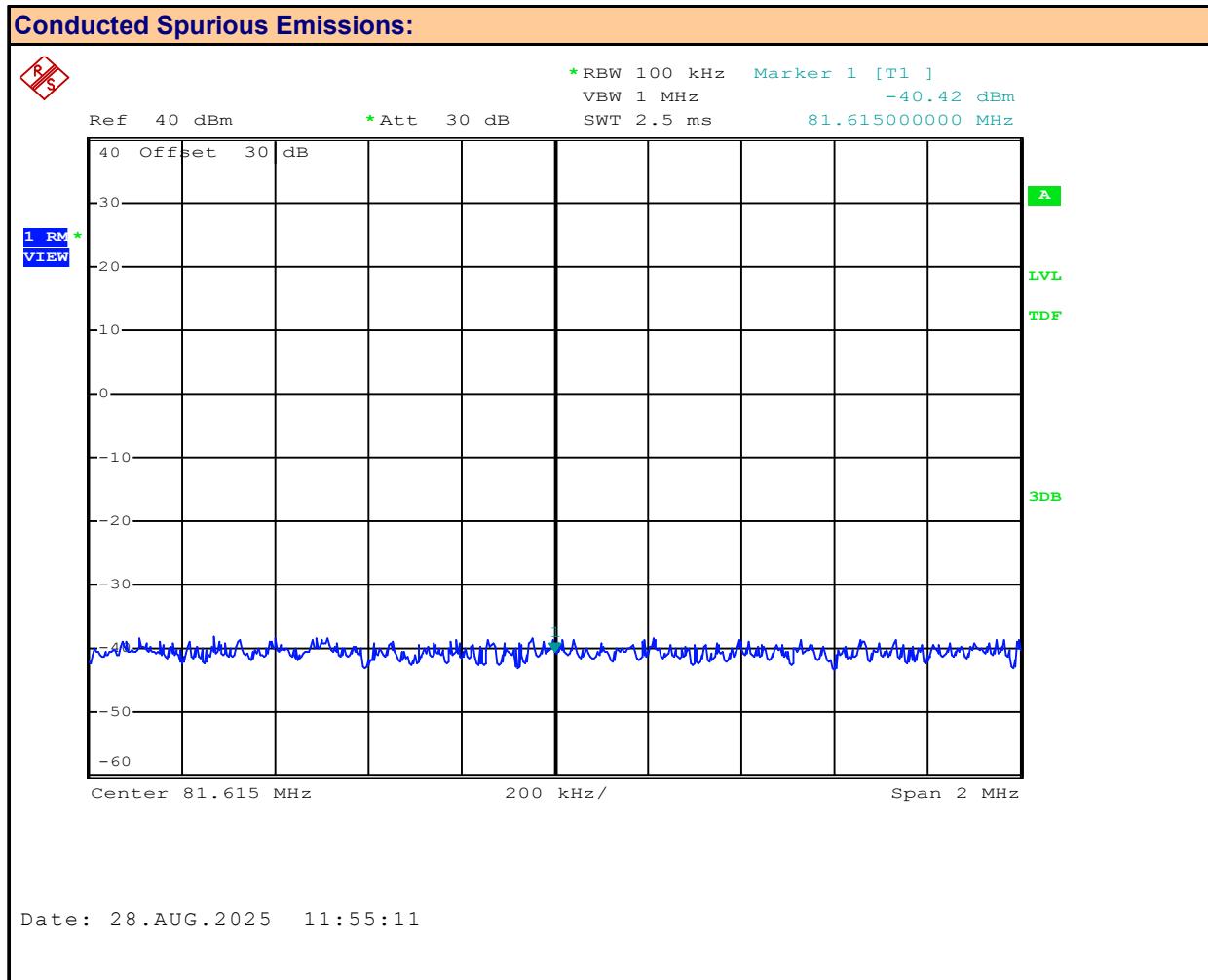
**Plot 8.8 – Conducted Out of Band Emissions, 20 – 1000MHz, Channel 20, FM**


Channel: **20**  
 Modulation: **FM**

Channel Frequency: **27.205** MHz  
 Emission Frequency: **ND** MHz  
 Measured Emission: **ND** dBm

**Plot 8.9 – Conducted Out of Band Emissions, 2<sup>nd</sup> Harmonic, Channel 20, FM**

 Channel: **20**  
 Modulation: **FM**

 Channel Frequency: **27.205** MHz  
 Emission Frequency: **54.41** MHz  
 Measured Emission: **-33.55** dBm

**Plot 8.10 – Conducted Out of Band Emissions, 3<sup>rd</sup> Harmonic, Channel 20, FM**


Channel: **20**  
 Modulation: **FM**

Channel Frequency: **27.205** MHz  
 Emission Frequency: **ND** MHz  
 Measured Emission: **ND** dBm

**Table 8.1 – Summary of Conducted Out of Band Emissions**

<b>Conducted Spurious Emissions Measurement Results:</b>								
<b>Channel Number</b>	<b>Frequency (MHz)</b>	<b>Modulation</b>	<b>Emission Power [P<sub>Em</sub>] (dBm)</b>	<b>Emission Frequency (MHz)</b>	<b>Fundamental Measurment [P<sub>Fund</sub>] (dBm)</b>	<b>Attenuation [Atten] (dB)</b>	<b>Limit (dB)</b>	<b>Margin (dB)</b>
20	27.205	AM	-33.52	54.41	35.87	69.39	60	9.39
		FM	-33.55	54.41	35.89	69.44		9.44
								<b>Complies</b>

 Attenuation [Atten] = [P<sub>Fund</sub>] - [P<sub>Em</sub>]

Margin = [Atten] - Limit

ND = None Detected

## 9.0 RADIATED SPURIOUS TX EMISSIONS

### Test Conditions

**Normative Reference** **FCC 47 CFR §95.979, RSS-236, ANSI C63.10**

### Limits

47 CFR §95.979 RSS-Gen RSS-236	<p>Each CBRS transmitter type must be designed to comply with the applicable unwanted emissions limits in this section.</p> <p>(a) Attenuation requirements. The power of unwanted emissions must be attenuated below the transmitter output power in Watts (P) as specified in the applicable paragraphs listed in the following table:</p> <p>For A3E, F3E (1), (3), (5), (6)</p> <p>(1) 25 dB (decibels) in the frequency band 4 kHz to 8 kHz removed from the channel center frequency;</p> <p>(3) 35 dB in the frequency band 8 kHz to 20 kHz removed from the channel center frequency;</p> <p>(5) <math>53 + 10 \log (P)</math> dB in any frequency band removed from the channel center frequency by more than 250% of the authorized bandwidth.</p> <p>(6) 60 dB in any frequency band centered on a harmonic (i.e., an integer multiple of two or more times) of the carrier frequency.</p> <p>(c) Measurement conditions and procedures. Subject to additional measurement standards and procedures established pursuant to part 2, subpart J, the following conditions and procedures must be used.</p> <p>(1) The unwanted emissions limits requirements in this section must be met both with and without the connection of permitted attachments, such as external speakers, microphones, power cords and/or antennas.</p>
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### Measurement Procedure

#### TIA 382 22.2      Transmitter Radiated Spurious and Harmonic Emissions

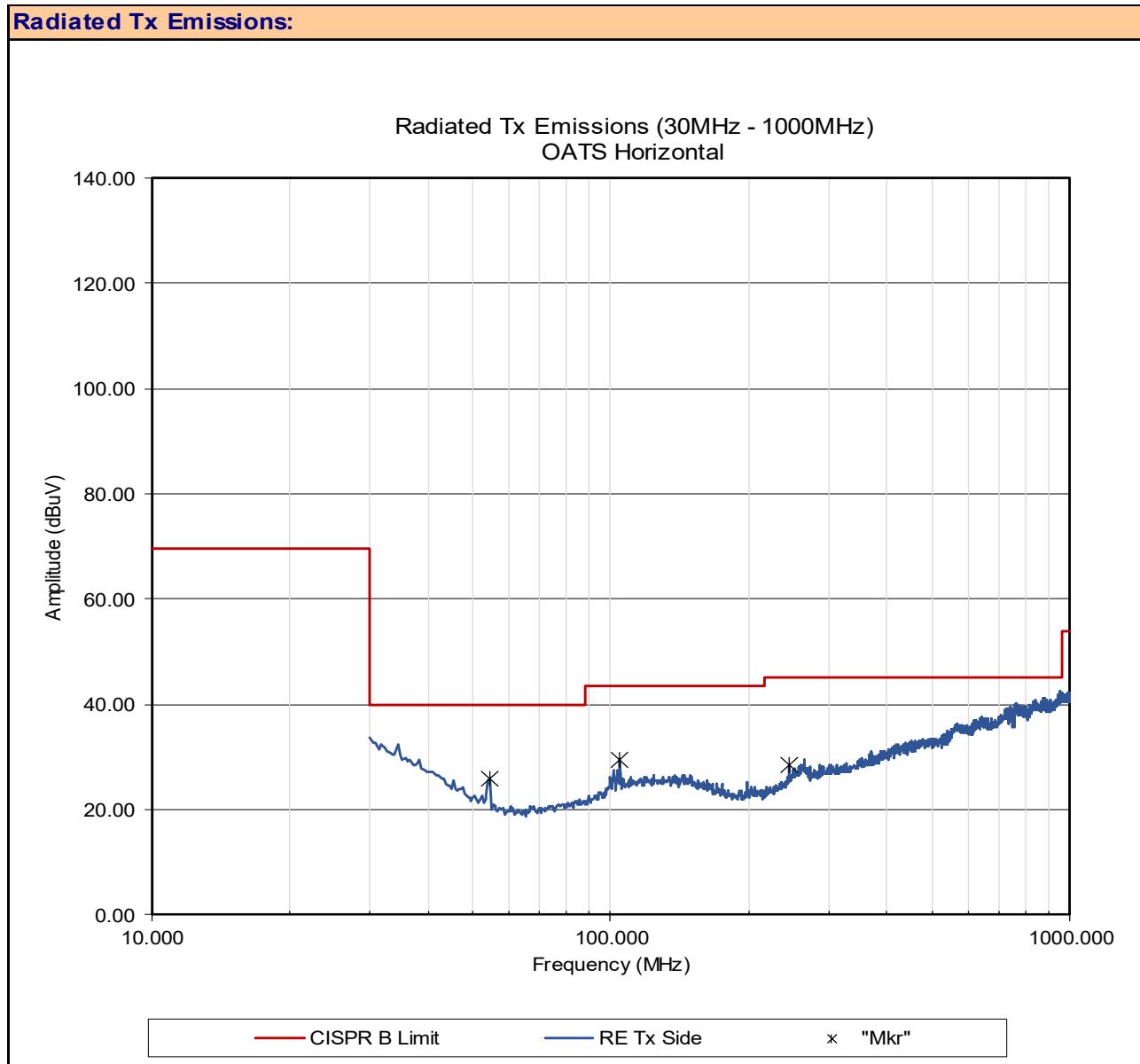
The transmitter shall be terminated in a nonradiating dummy load and shall be keyed but not modulated.

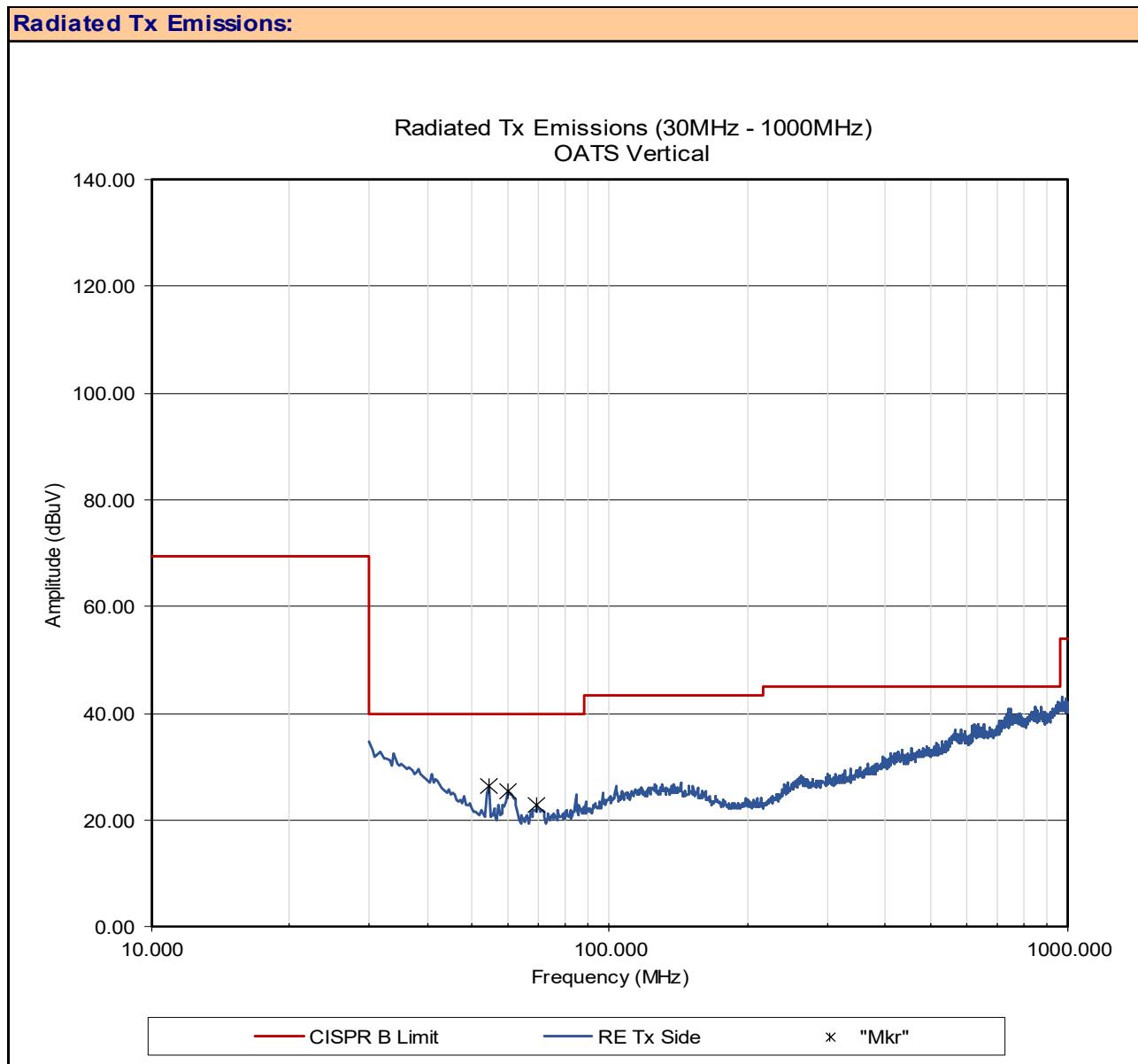
For each spurious frequency, raise and lower the receiver antenna to obtain a maximum reading on the FIM with the antenna at horizontal polarity. Then the turntable should be rotated to further increase this maximum reading. Repeat this procedure of raising and lowering the antenna and rotating the turntable until the highest possible signal has been obtained. The effect of the simulated accessory connections shall be noted, so that the measurement series producing the maximum radiation level can be recorded. Measurements were repeated with and without approved accessories.

**Test Setup**

**Appendix A**

**Figure A.3**

**Plot 9.1 – Radiated Spurious Emissions OATS, 30 - 1000MHz, Horizontal**


**Plot 9.2 – Radiated Spurious Emissions OATS, 30 - 1000MHz, Vertical**


**Table 9.1 – Summary of Radiated Tx Emissions, without Accessories**

Summary of Radiated Tx Emissions w/o Accessories									
Measured Frequency Range (MHz)	Antenna Polarization	Emission Frequency (MHz)	Measured Emission [E <sub>Meas</sub> ] (dBuV)	Antenna ACF [ACF <sup>E</sup> ] (dB/m)	Cable Loss [L <sub>c</sub> ] (dB)	Amplifier Gain [G <sub>A</sub> ] (dB)	Corrected Emission [E <sub>corr</sub> ] (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30-1000	Horizontal	<b>54.64</b>	13.29 AV	11.91	0.79	0.00 (3)	<b>26.0</b>	40.0	<b>14.0</b>
30-1000	Horizontal	<b>104.80</b>	13.10 AV	15.50	1.01	0.00 (3)	<b>29.6</b>	43.5	<b>13.9</b>
30-1000	Horizontal	<b>245.16</b>	10.25 AV	16.92	1.48	0.00 (3)	<b>28.6</b>	45.0	<b>16.4</b>
30-1000	Vertical	<b>54.64</b>	13.68 AV	11.91	0.79	0.00 (3)	<b>26.4</b>	40.0	<b>13.6</b>
30-1000	Vertical	<b>59.92</b>	13.44 AV	11.10	0.81	0.00 (3)	<b>25.4</b>	40.0	<b>14.6</b>
30-1000	Vertical	<b>69.60</b>	10.70 AV	11.36	0.85	0.00 (3)	<b>22.9</b>	40.0	<b>17.1</b>
								<b>Results:</b>	<b>Complies</b>

(3) External Amplifier not used

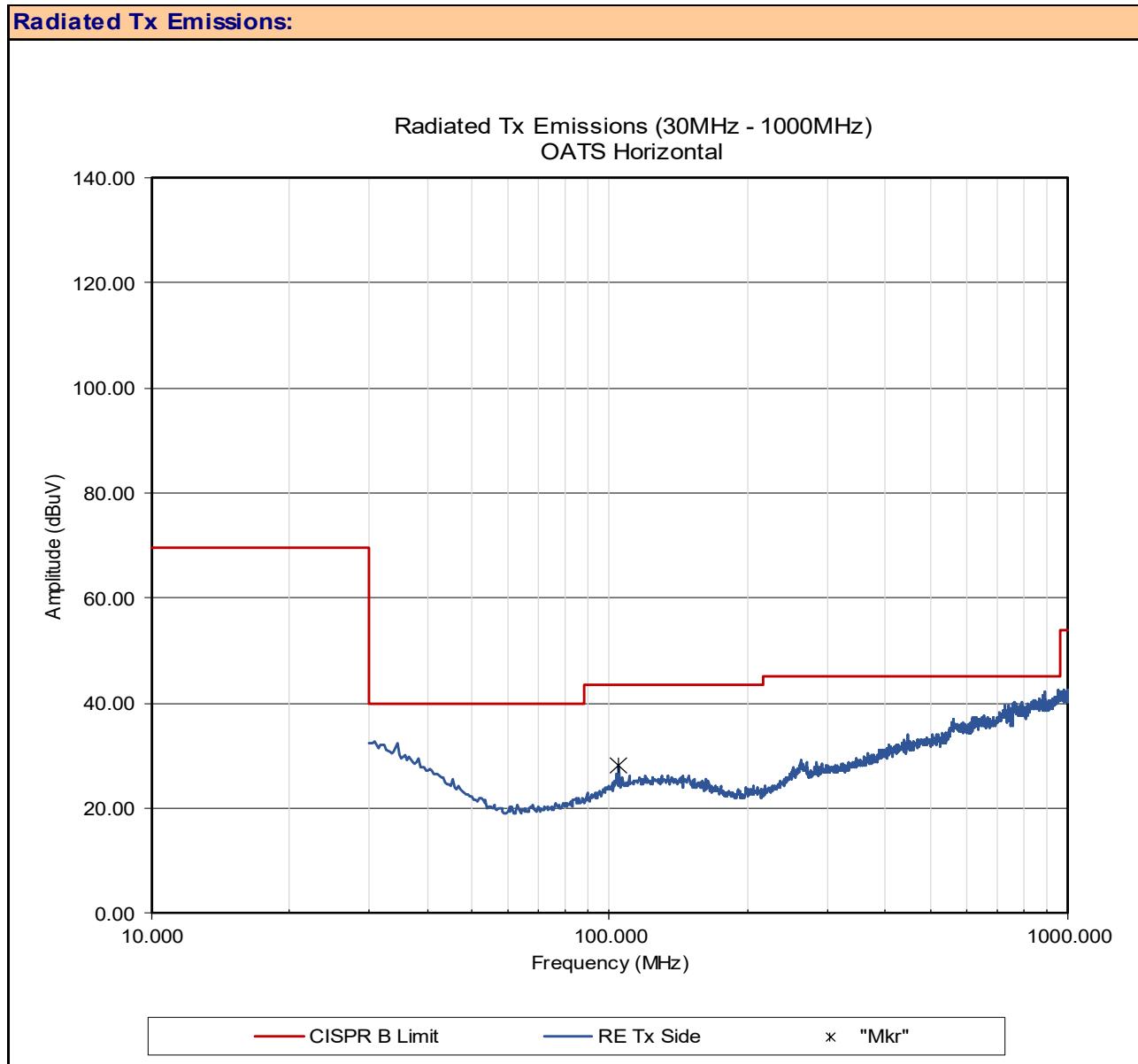
$$E_{\text{Corr}} = E_{\text{Meas}} + ACF^E + L_c - G_A$$

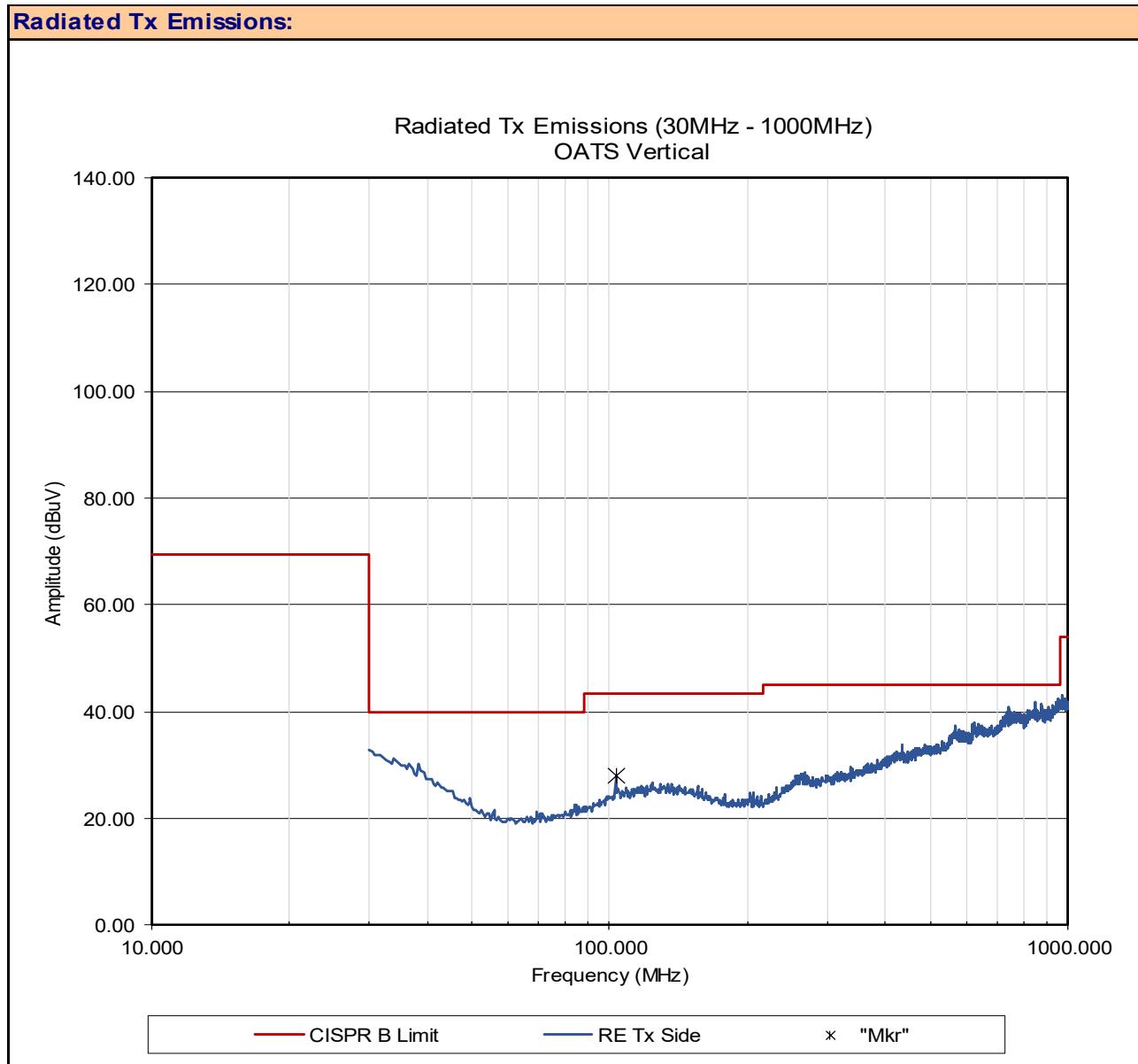
Where ACF<sup>E</sup> is the Electric Antenna Correction Factor

AV = Average

## 10.0 RADIATED SPURIOUS RX EMISSIONS

<b>Test Procedure</b>	
<b>Normative Reference</b>	FCC 47 CFR §15.109, ICES-003(6.2) ANSI C63.4:2014
<b>Limits</b>	
47 CFR §15.109	(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values: 30-88MHz: 40dBuV/m 88-216MHz: 43.5dBuV/m 216-960MHz: 46dBuV/m > 960MHz: 54dBuV/m
ICES-003(6.2.1) RSS-Gen 8.9	6.2.1 - Radiated Emissions Limits Below 1 GHz Class B: ITE that does not meet the conditions for Class A operation shall comply with the Class B radiated limits set out in Table 5 determined at a distance of 3 metres. 30-88MHz: 40dBuV/m 88-216MHz: 43.5dBuV/m 216-960MHz: 46dBuV/m > 960MHz: 54dBuV/m
<b>Test Setup</b>	<b>Appendix A</b> <b>Figure A.3</b>
<b>Measurement Procedure</b>	
The DUT was set up as per ANSI C63.4:2014. Emissions were scanned between 30MHz and 1000MHz. The turntable was rotated 360 degrees and the antenna was elevated to 4m to optimize the measured emissions.	

**Plot 10.3– Radiated Spurious Emissions OATS, 30 - 1000MHz, Horizontal**


**Plot 10.4– Radiated Spurious Emissions OATS, 30 - 1000MHz, Vertical**


**Table 10.1 – Summary of Radiated Rx Emissions**

Summary of Radiated Rx Emissions									
Measured Frequency Range (MHz)	Antenna Polarization	Emission Frequency (MHz)	Measured Emission [E <sub>Meas</sub> ] (dBuV)	Antenna ACF [ACF <sup>E</sup> ] (dB/m)	Cable Loss [L <sub>c</sub> ] (dB)	Amplifier Gain [G <sub>A</sub> ] (dB)	Corrected Emission [E <sub>corr</sub> ] (dBuV/m)	Limit (dBuV)	Margin (dB)
30-1000	Horizontal	<b>104.80</b>	<b>11.75</b> AV	15.5	1.0	0.00 (3)	<b>28.3</b>	43.5	<b>15.2</b>
30-1000	Vertical	<b>103.04</b>	<b>11.67</b> AV	15.4	1.0	0.00 (3)	<b>28.1</b>	43.5	<b>15.4</b>
<b>Results:</b>									<b>Complies</b>

ND: No Emissions Detected above ambient or within 20dB of the limit

(3) External Amplifier not used

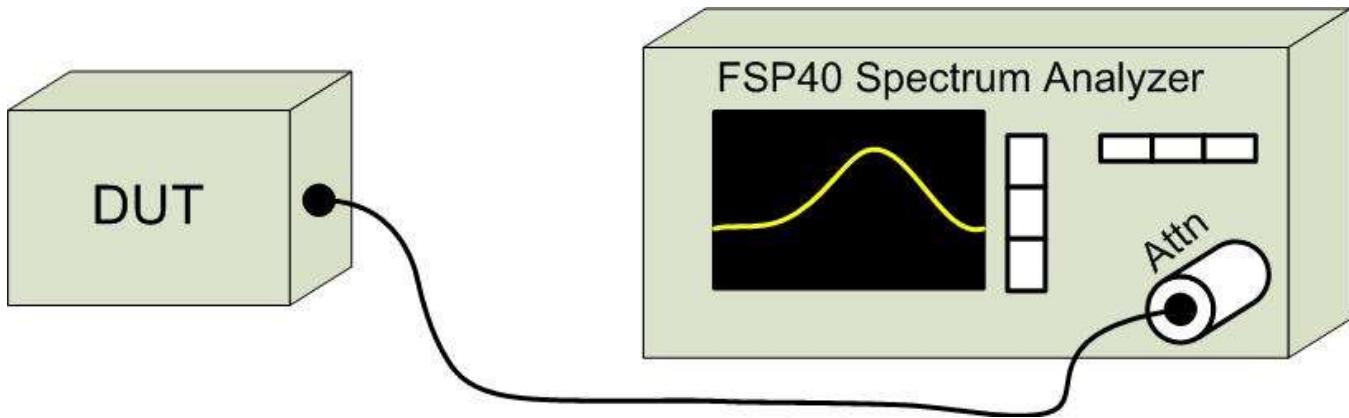
$$E_{\text{Corr}} = E_{\text{Meas}} + ACF^E + L_c - G_A$$

 Where ACF<sup>E</sup> is the Electric Antenna Correction Factor

AV = Average

**APPENDIX A – TEST SETUP DRAWINGS AND EQUIPMENT**
**Table A.1 – Setup - Conducted Measurements Equipment**

Equipment List			
Asset Number	Manufacturer	Model Number	Description
00241	R&S	FSU40	Spectrum Analyzer

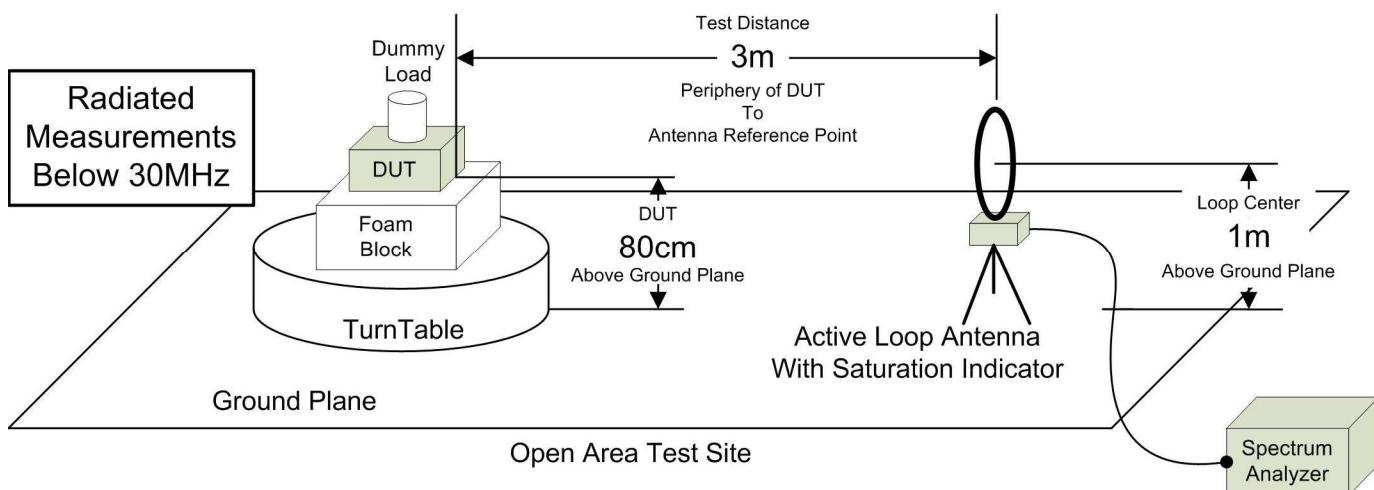
**Figure A.1 – Test Setup Conducted Measurements**


**Table A.3 – Setup - Radiated Emissions Equipment**

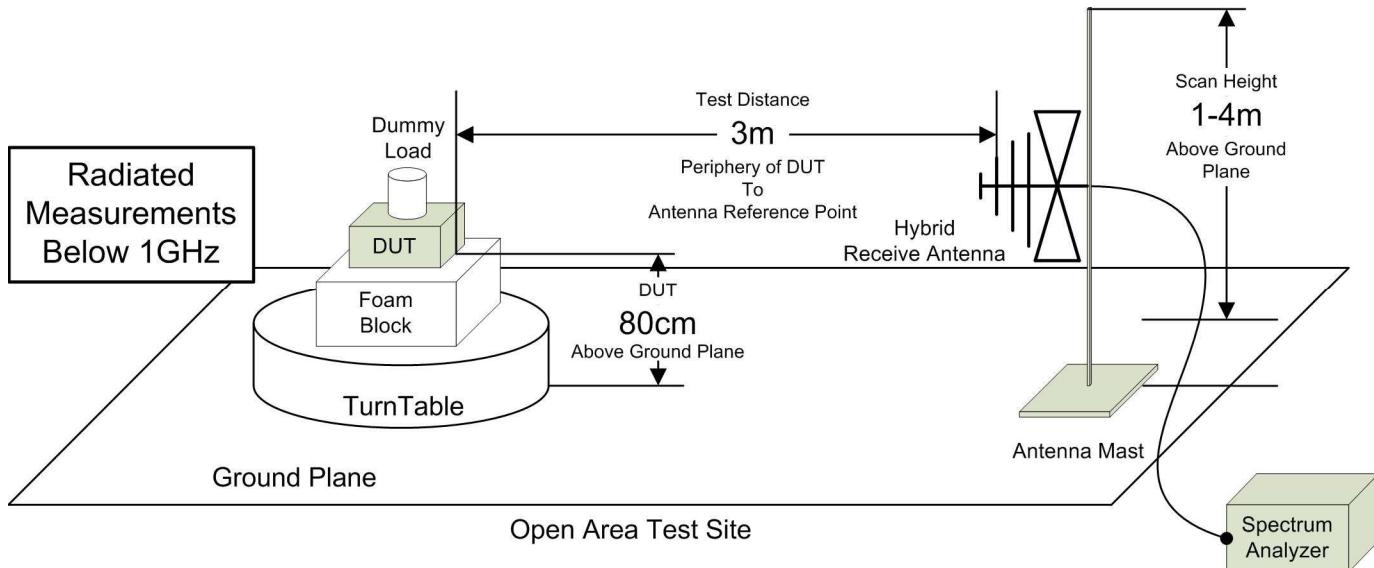
Equipment List			
Asset Number	Manufacturer	Model Number	Description
00051	HP	8566B	Spectrum Analyzer
00049	HP	85650A	Quasi-peak Adapter
00047	HP	85685A	RF Preselector
00072	EMCO	2075	Mini-mast
00073	EMCO	2080	Turn Table
00071	EMCO	2090	Multi-Device Controller
00265	Miteq	JS32-00104000-58-5P	Microwave L/N Amplifier
00241	R&S	FSU40	Spectrum Analyzer
00050	Chase	CBL-6111A	Bilog Antenna
00275	Coaxis	LMR400	25m Cable
00276	Coaxis	LMR400	4m Cable
00278	TILE	34G3	TILE Test Software
00034	ETS	3115	Double Ridged Guide Horn

CNR: Calibration Not Required

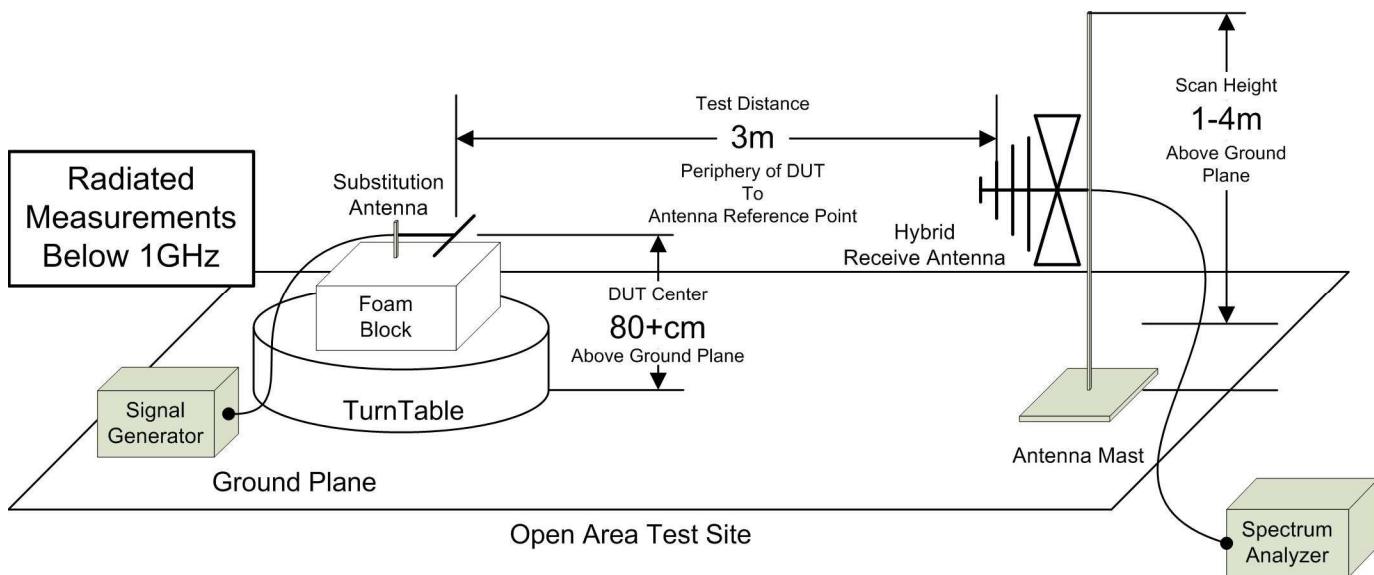
COU: Calibrate On Use

**Figure A.3 – Test Setup Radiated Emissions Measurements Below 30MHz**


**Figure A.4 – Test Setup Radiated Emissions Measurements 30-1000MHz**



**Figure A.5 – Test Setup Radiated Emissions Measurements 30-1000MHz**



**APPENDIX B – EQUIPMENT LIST AND CALIBRATION**

Equipment List					Last Calibrated	Calibration Interval	Calibration Due
Asset Number	Manufacturer	Model Number	Serial Number	Description			
00050	Chase	CBL-6111A	1607	Bilog Antenna	16 Nov 2023	Triennial	16 Nov 2026
00241	R&S	FSU40	100500	Spectrum Analyzer	6 Sep 2024	Triennial	6 Sep 2027
00250	Circuit Test	DMR-1800	TE182	Digital Multi-Meter - DVM	26 Jun 2023	Triennial	26 Jun 2026
00071	EMCO	2090	9912-1484	Multi-Device Controller	n/a	n/a	n/a
00072	EMCO	2075	0001-2277	Mini-mast	n/a	n/a	n/a
00073	EMCO	2080	0002-1002	Turn Table	n/a	n/a	n/a
00263	Koaxis	KP10-1.00M-TD	263	1m Armoured Cable	COU	n/a	COU
00130	Pasternack	PE7019-30	n/a	30dB, 50W Attenuator	COU	n/a	COU
00275	TMS	LMR400	n/a	25m Cable	COU	n/a	COU
00278	TILE	34G3	n/a	TILE Test Software	NCR	n/a	NCR

NCR: No Calibration Required

COU: Calibrate On Use

**APPENDIX C – MEASUREMENT INSTRUMENT UNCERTAINTY**
**CISPR 16-4 Measurement Uncertainty (  $U_{LAB}$  )**

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence interval using a coverage factor of  $k=2$

**Radiated Emissions 30MHz - 200MHz**
 $U_{LAB} = 5.14\text{dB}$     $U_{CISPR} = 6.3\text{dB}$ 
**Radiated Emissions 200MHz - 1000MHz**
 $U_{LAB} = 5.90\text{dB}$     $U_{CISPR} = 6.3\text{dB}$ 
**Radiated Emissions 1GHz - 6GHz**
 $U_{LAB} = 4.80\text{dB}$     $U_{CISPR} = 5.2\text{dB}$ 
**Radiated Emissions 6GHz - 18GHz**
 $U_{LAB} = 5.1\text{dB}$     $U_{CISPR} = 5.5\text{dB}$ 
**Power Line Conducted Emissions 9kHz to 150kHz**
 $U_{LAB} = 2.96\text{dB}$     $U_{CISPR} = 3.8\text{dB}$ 
**Power Line Conducted Emissions 150kHz to 30MHz**
 $U_{LAB} = 3.12\text{dB}$     $U_{CISPR} = 3.4\text{dB}$ 

If the calculated uncertainty  $U_{lab}$  is **less** than  $U_{CISPR}$  then:

- 1 Compliance is deemed to occur if **NO** measured disturbance exceeds the disturbance limit
- 2 Non-Compliance is deemed to occur if **ANY** measured disturbance **EXCEEDS** the disturbance limit

If the calculated uncertainty  $U_{lab}$  is **greater** than  $U_{CISPR}$  then:

- 3 Compliance is deemed to occur if **NO** measured disturbance, increased by  $( U_{lab} - U_{CISPR} )$ , exceeds the disturbance limit
- 4 Non-Compliance is deemed to occur if **ANY** measured disturbance, increased by  $( U_{lab} - U_{CISPR} )$ , **EXCEEDS** the disturbance limit

**Other Measurement Uncertainties (  $U_{LAB}$  )**
**RF Conducted Emissions 9kHz - 40GHz**
 $U_{LAB} = 1.0\text{dB}$     $U_{CISPR} = \text{n/a}$ 
**Frequency/Bandwidth 9kHz - 40GHz**
 $U_{LAB} = 0.1\text{ppm}$     $U_{CISPR} = \text{n/a}$ 
**Temperature**
 $U_{LAB} = 1^{\circ}\text{C}$     $U_{CISPR} = \text{n/a}$ 
**END OF REPORT**