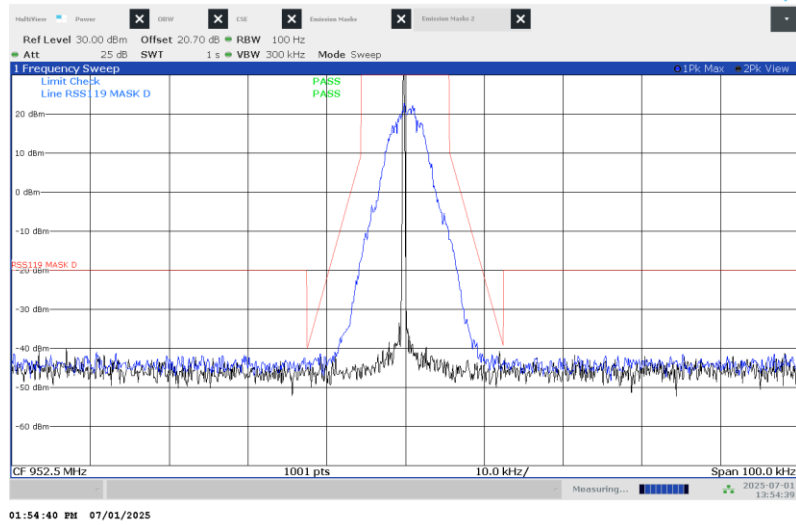


952.5MHz – 12.5kHz Channel Spacing – m4Pass 10k Mode



Test Personnel: Jeremy Pickens

Test Date: 01 July 2025

Ambient Temperature: 22.7°C

Reference Standard: ANSI C63.26

Relative Humidity: 43.9%

Atmospheric Pressure: 98.2kPa

8 Occupied Bandwidth

8.1 Method

The methods defined in ANSI C63.26, Section 5.4.4 were applied for measuring the 99% Occupied (Power) Bandwidth (OBW). The antenna port was connected directly to a spectrum analyzer through a cable and 20dB attenuator (20.7dB of total loss). The attenuation was accounted for by applying an offset to the spectrum analyzer. The spectrum analyzer was configured with a 3dB Resolution Bandwidth (RBW) between 1% and 5% of the anticipated occupied bandwidth, the Video Bandwidth (VBW) was set to at least 3 x RBW, and the span was configured to at least 1.5 times the OBW. The 99% OBW function of the spectrum analyzer was used to take the measurements.

TEST SITE: RF Bench

The RF bench consists of a Rohde & Schwarz TS8997 automated test system coupled with a temperature/humidity environmental chamber. Where applicable, 2.4 and 5GHz radio measurements are automated using the Rohde & Schwarz EMC32 test software. The TS8997 system houses a switch matrix (OSP), along with a spectrum analyzer, vector network analyzer, and analog signal generator.

8.2 Test Equipment

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
200001	Attenuator, 20 dB, <18GHz	Weinschel Corp	2	BK1848	07/26/2024	07/26/2025
212165	Temperature/Humidity/Pressure Sensor	Extech	SD700	110344	04/29/2025	04/29/2026
213502	Spectrum Analyzer (2Hz-43.5GHz)	Rohde & Schwarz	FSW43	102972	08/01/2024	08/01/2025

Software Utilized

Name	Manufacturer	Version
EMC32	Rohde & Schwarz	11.70.00

8.3 Results

The sample tested was found to Comply.

8.4 Test Data

Frequency (MHz)	Mode	99% Bandwidth (kHz)
901.5	Normal	12.082
901.5	Double Density	14.154
901.5	C&I (Half Baud)	6.175
901.5	Priority	6.889
901.5	2SFSK (Half Baud)	5.988
901.5	4SFSK (Half Baud)	6.979
901.5	8SFSK (Half Baud)	7.216
901.5	2SFSK	11.894
901.5	4SFSK	14.037
901.5	8SFSK	14.837
930.5	mPass 5k	5.807
930.5	mPass 10k	11.887
930.5	m4Pass 10k	6.119
930.5	m4Pass 20k	12.339
940.0125	mPass 5k	5.829

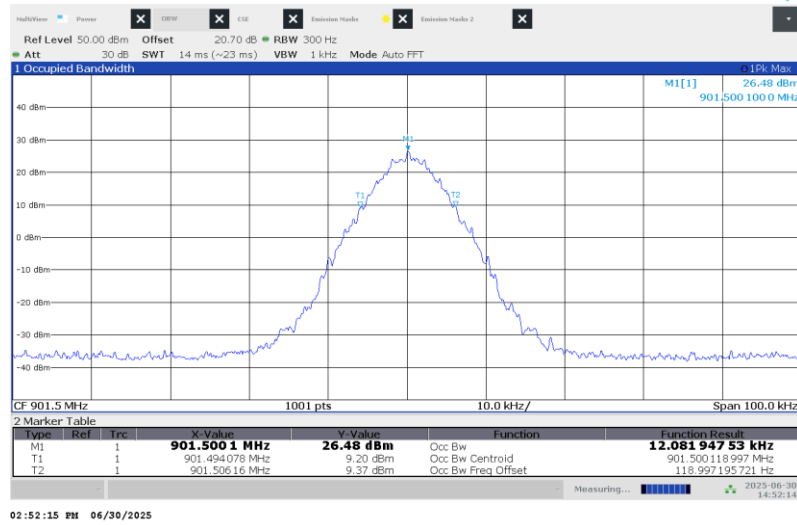
Intertek

Report Number: 106182215ATL-001

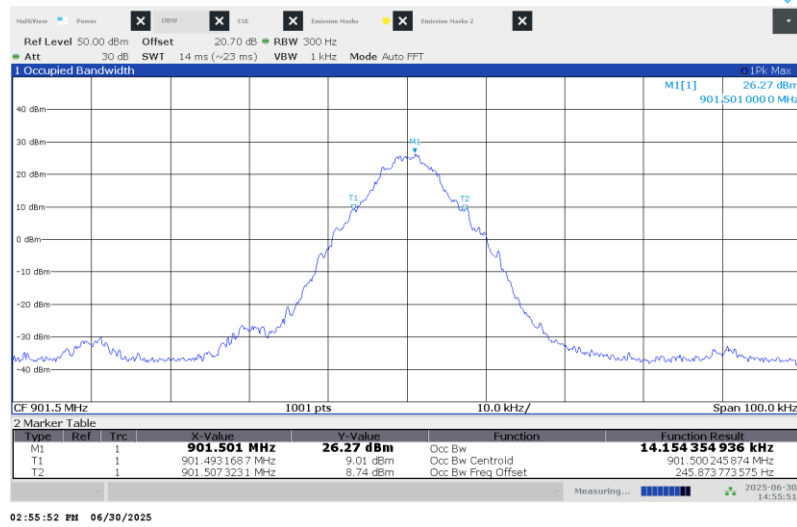
Issued: 09 July 2025

Frequency (MHz)	Mode	99% Bandwidth (kHz)
940.0125	mPass 10k	11.841
940.0125	m4Pass 10k	6.084
940.0125	m4Pass 20k	12.201
928.925	Normal	12.110
928.925	Double Density	14.163
928.925	C&I (Half Baud)	6.153
928.925	Priority	6.921
928.925	2SFSK (Half Baud)	5.942
928.925	4SFSK (Half Baud)	6.990
928.925	8SFSK (Half Baud)	7.263
928.925	2SFSK	11.971
928.925	4SFSK	14.046
928.925	8SFSK	14.805
932.25	Normal	12.001
932.25	Double Density	14.108
932.25	C&I (Half Baud)	6.167
932.25	Priority	6.944
932.25	2SFSK (Half Baud)	5.951
932.25	4SFSK (Half Baud)	6.993
932.25	8SFSK (Half Baud)	7.295
932.25	2SFSK	11.906
932.25	4SFSK	13.988
932.25	8SFSK	14.704
941.4875	mPass 5k	5.822
941.4875	mPass 10k	11.885
941.4875	m4Pass 10k	6.018
941.4875	m4Pass 20k	12.054
952.5	mPass 5k	5.807
952.5	mPass 10k	11.812
952.5	m4Pass 10k	6.080
952.5	m4Pass 20k	12.162
959.925	mPass 5k	5.837
959.925	mPass 10k	11.846
959.925	m4Pass 10k	6.048
959.925	m4Pass 20k	12.170

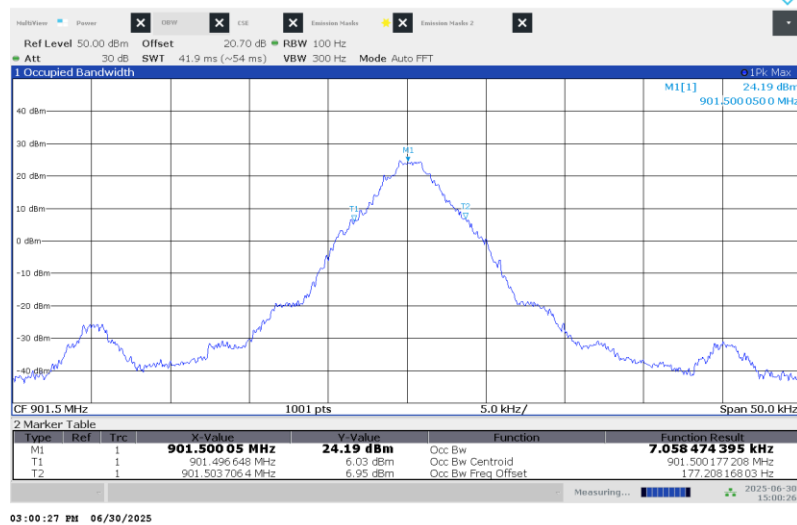
901.5MHz – Normal Mode



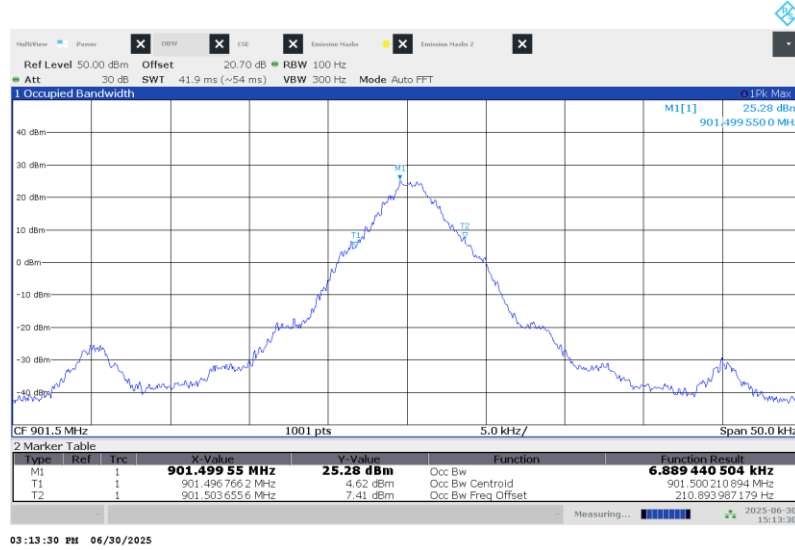
901.5MHz – Double Density Mode



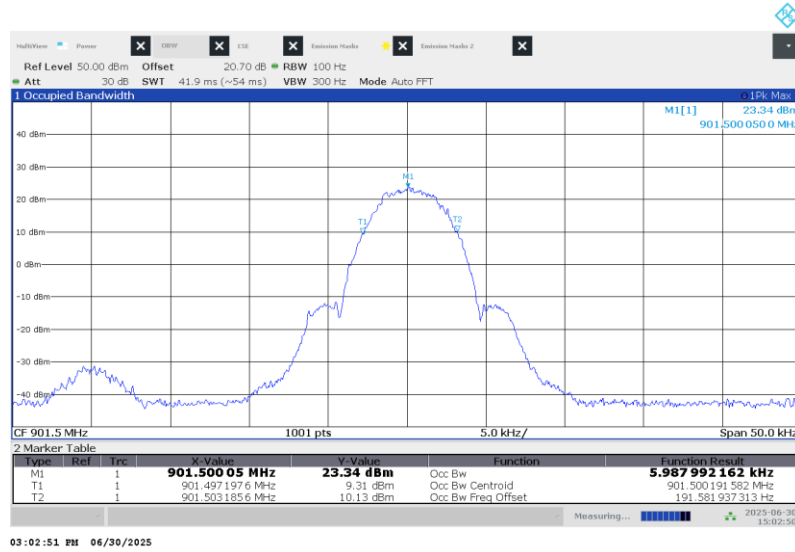
901.5MHz – C&I (Half Baud) Mode



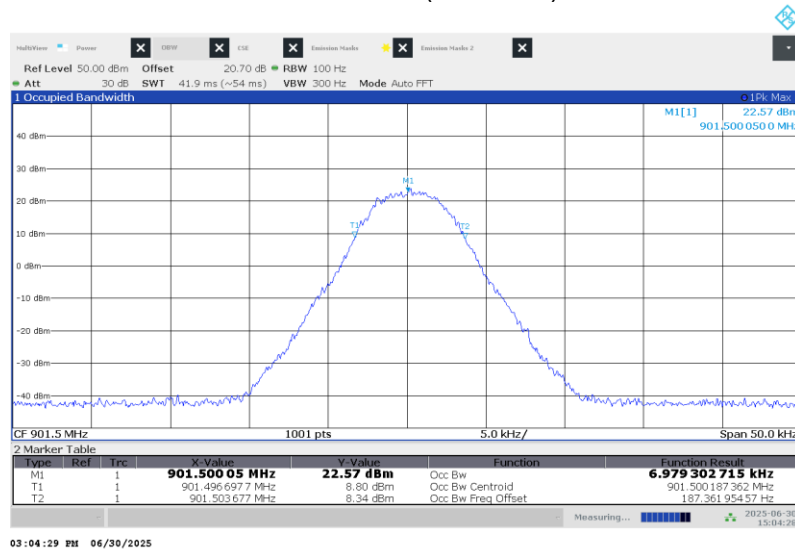
901.5MHz – Priority Mode



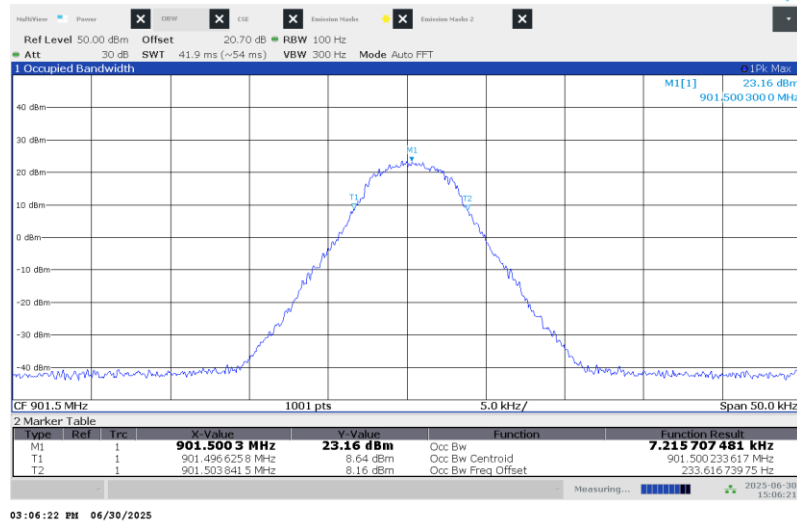
901.5MHz – 2FSK (Half Baud) Mode



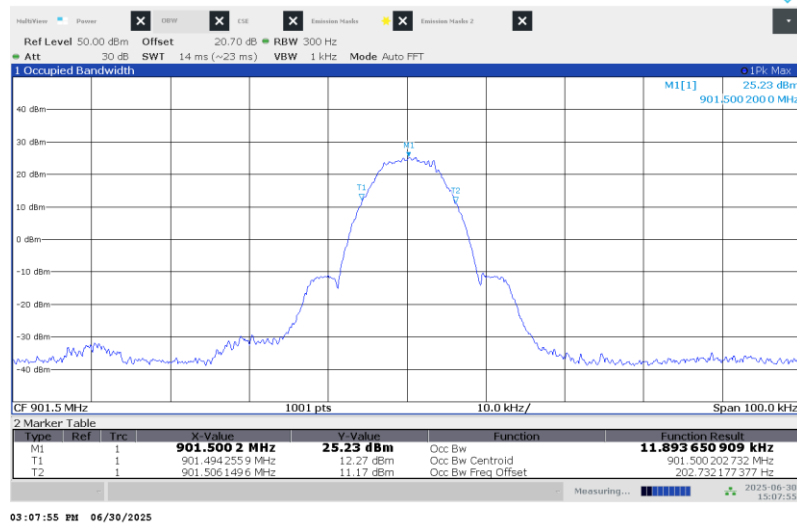
901.5MHz – 4FSK (Half Baud) Mode



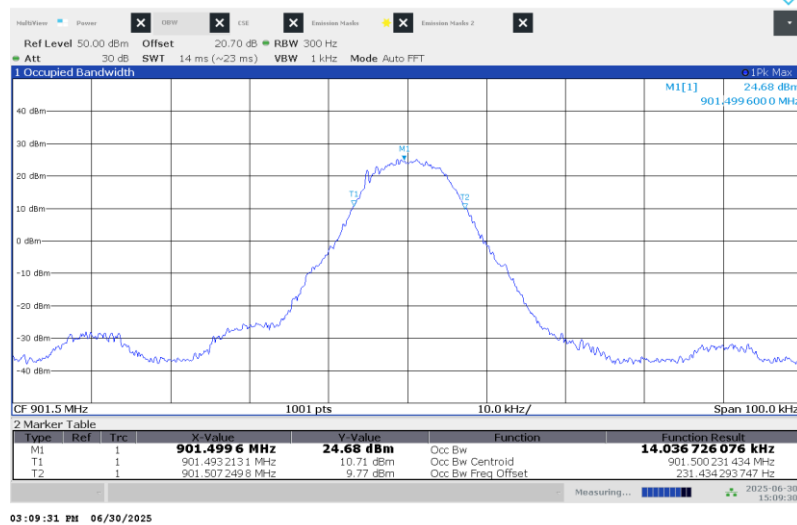
901.5MHz – 8SFSK (Half Baud) Mode



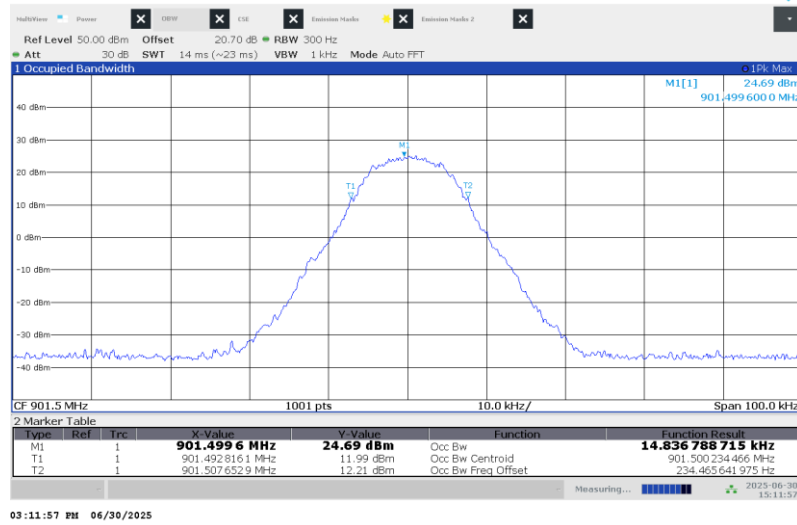
901.5MHz – 2SFSK Mode



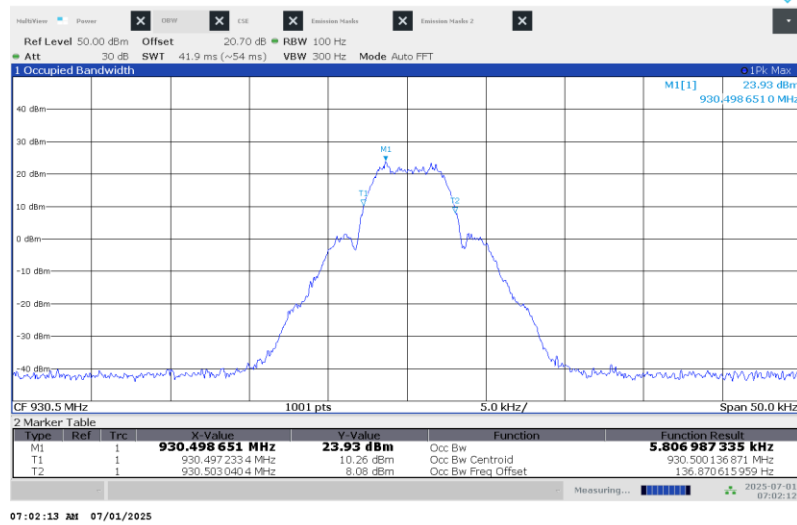
901.5MHz – 4SFSK Mode



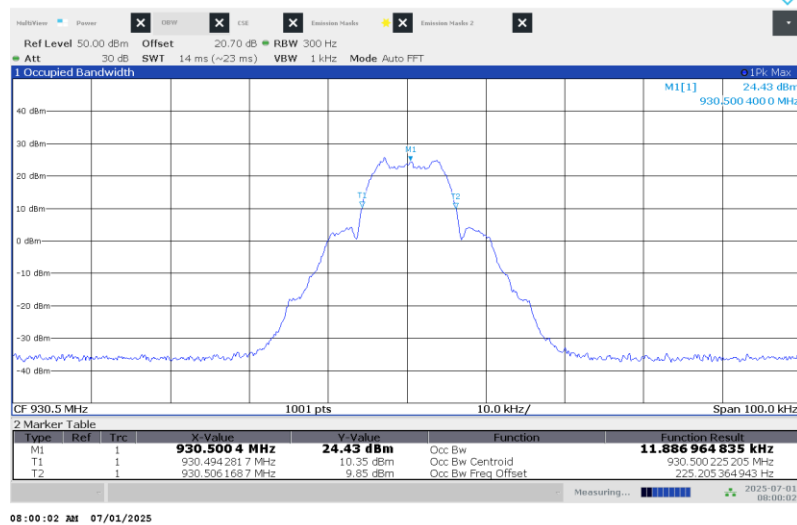
901.5MHz – 8SFSK Mode



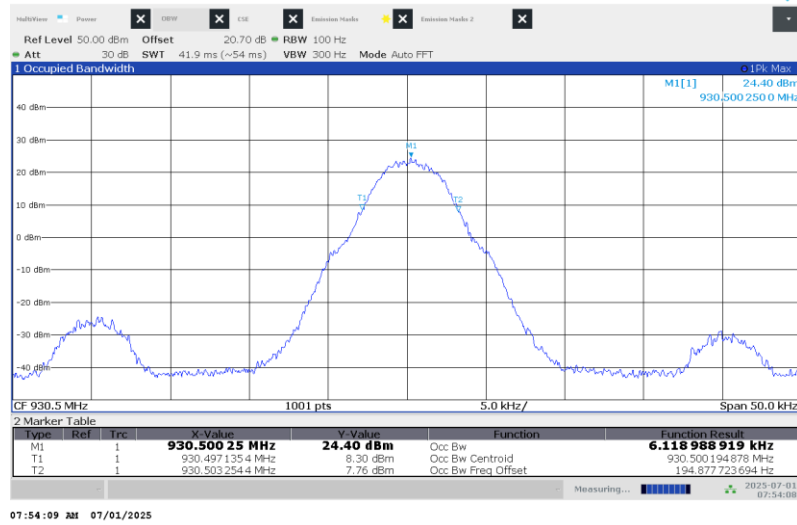
930.5MHz – mPass 5k Mode



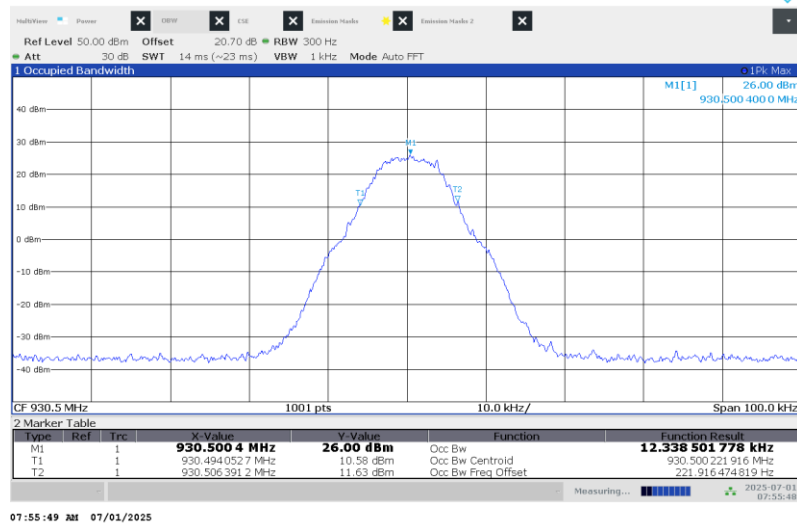
930.5MHz – mPass 10k Mode



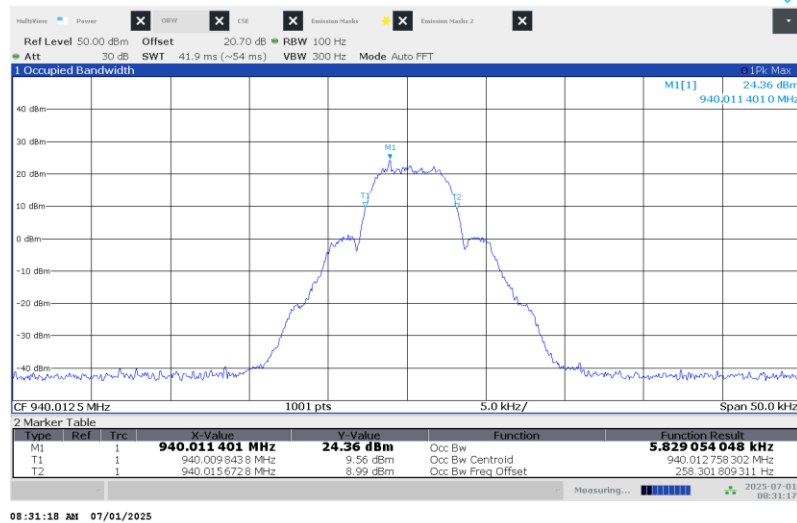
930.5MHz – m4Pass 10k Mode



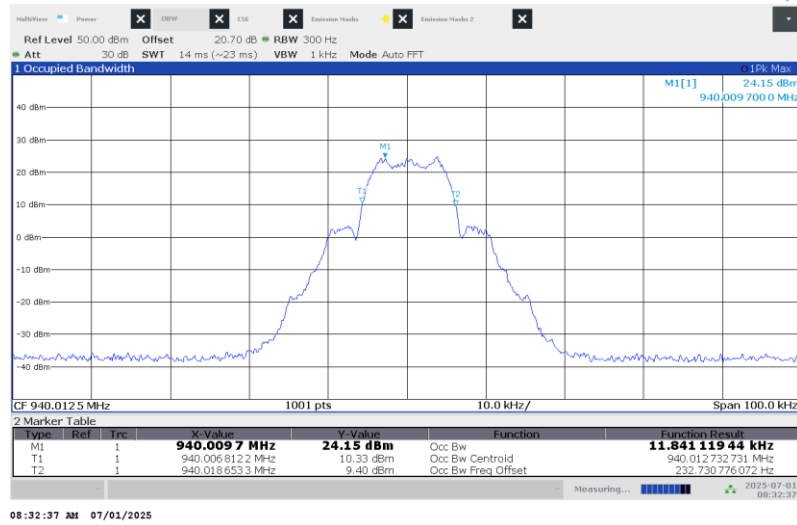
930.5MHz – m4Pass 20k Mode



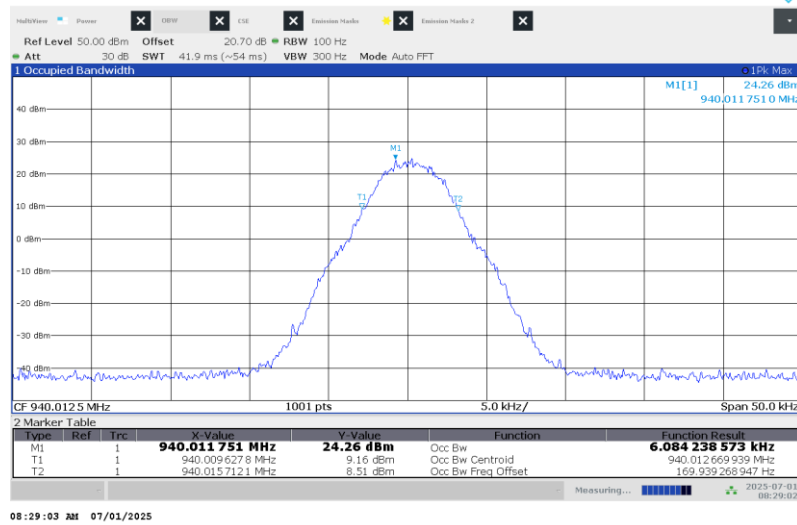
940.0125MHz – mPass 5k Mode



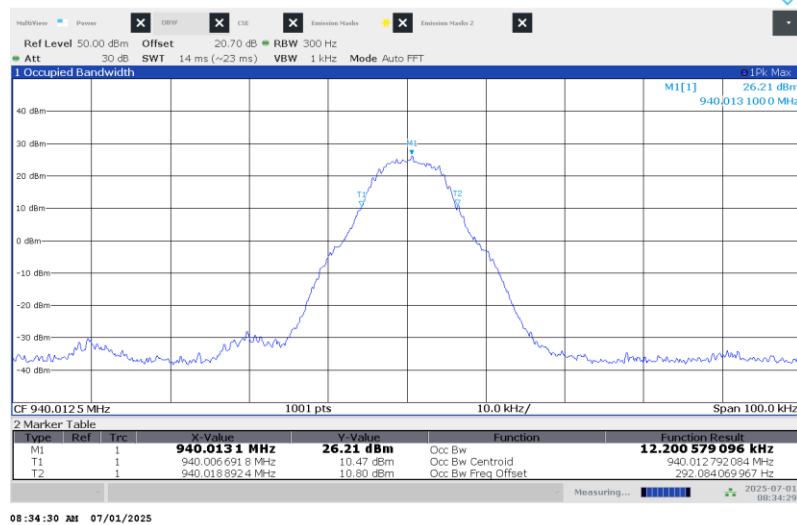
940.0125MHz – mPass 10k Mode



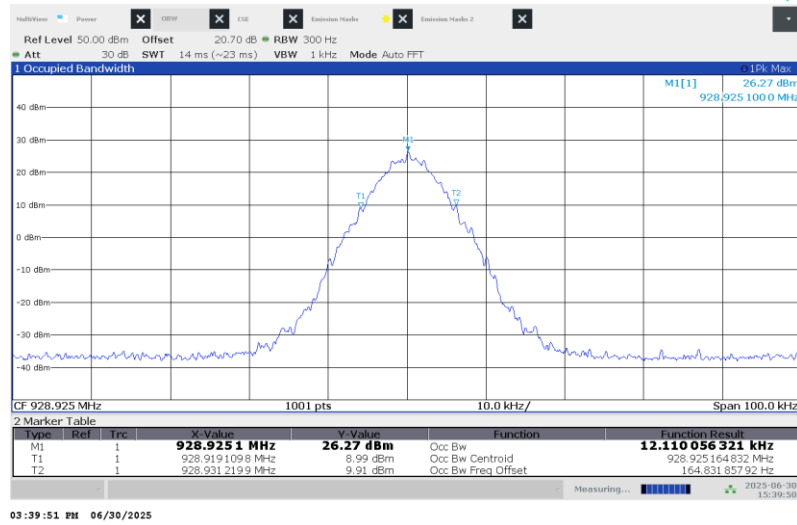
940.0125MHz – m4Pass 10k Mode



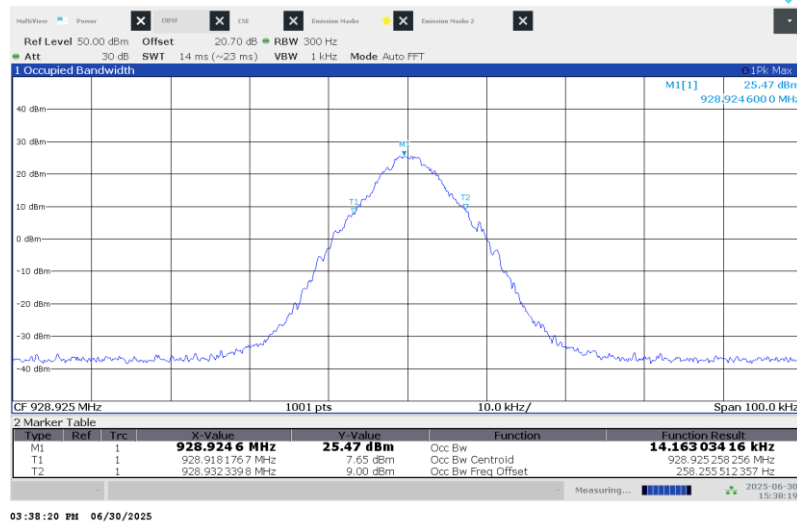
940.0125MHz – m4Pass 20k Mode



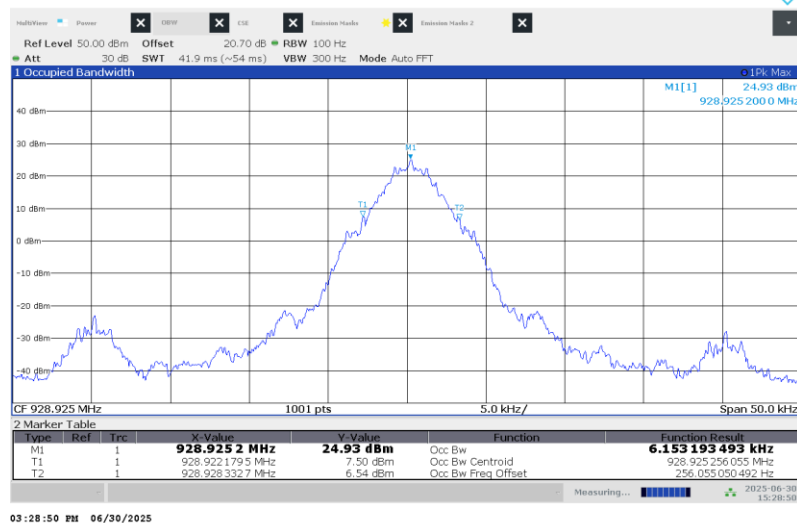
928.925MHz – Normal Mode



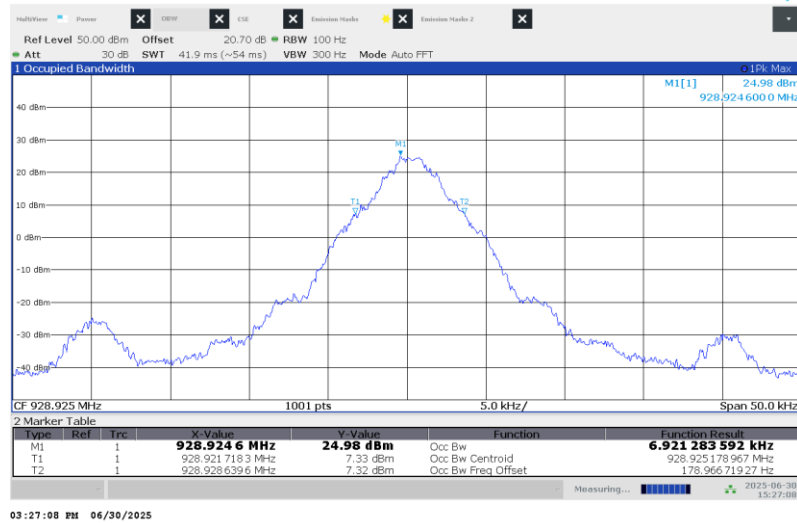
928.925MHz – Double Density Mode



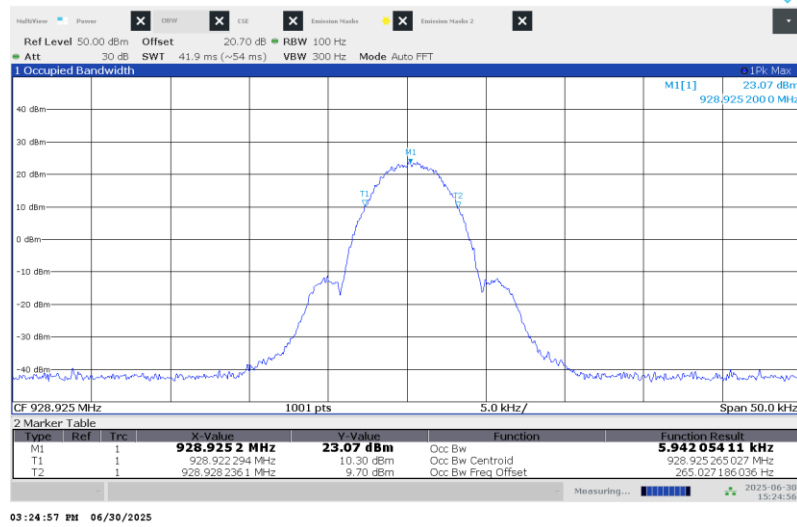
928.925MHz – C&I (Half Baud) Mode



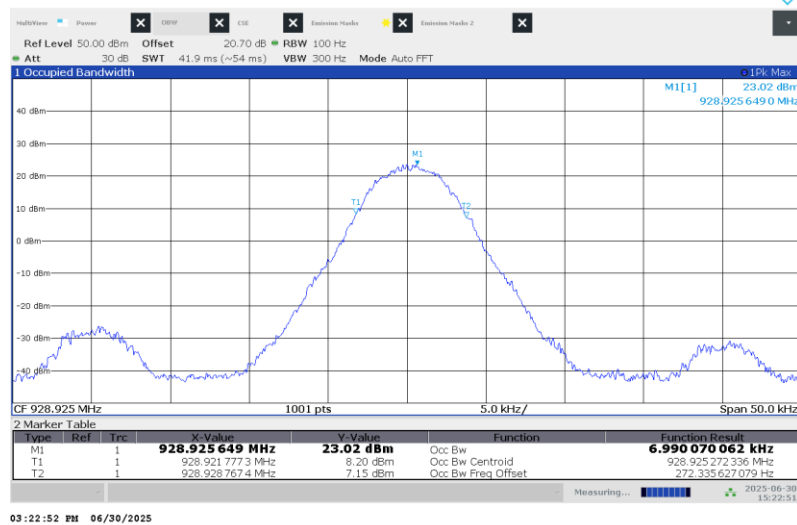
928.925MHz – Priority Mode



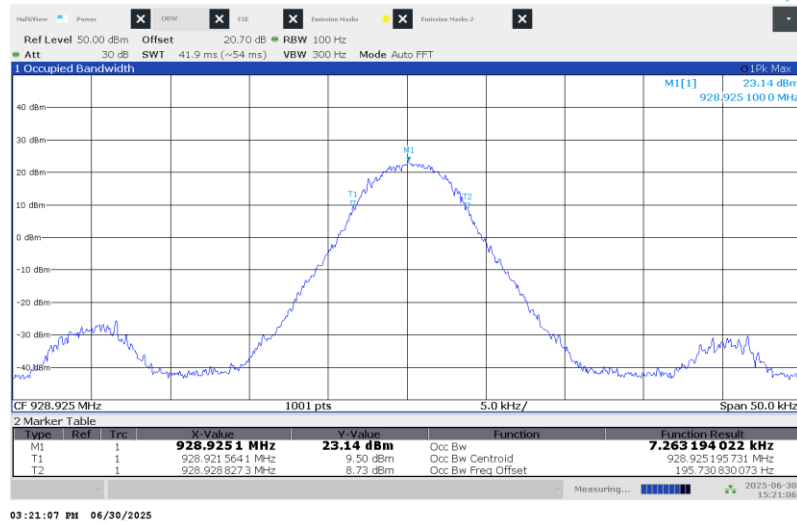
928.925MHz – 2SFSK (Half Baud) Mode



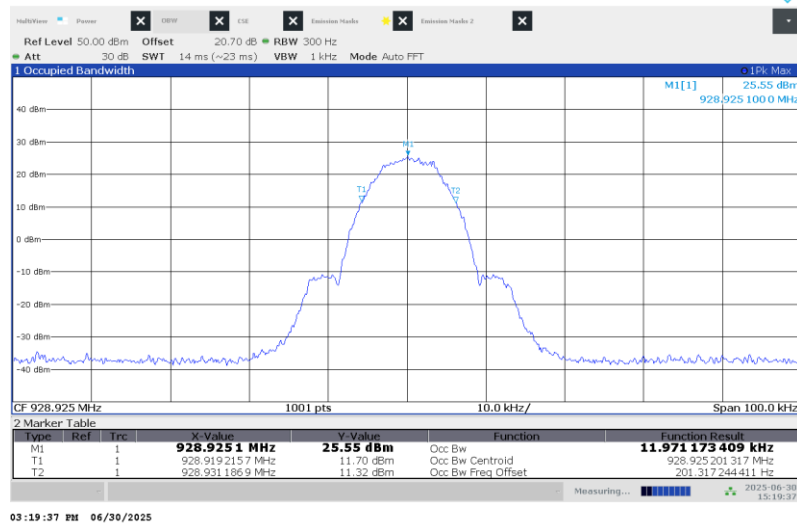
928.925MHz – 4SFSK (Half Baud) Mode



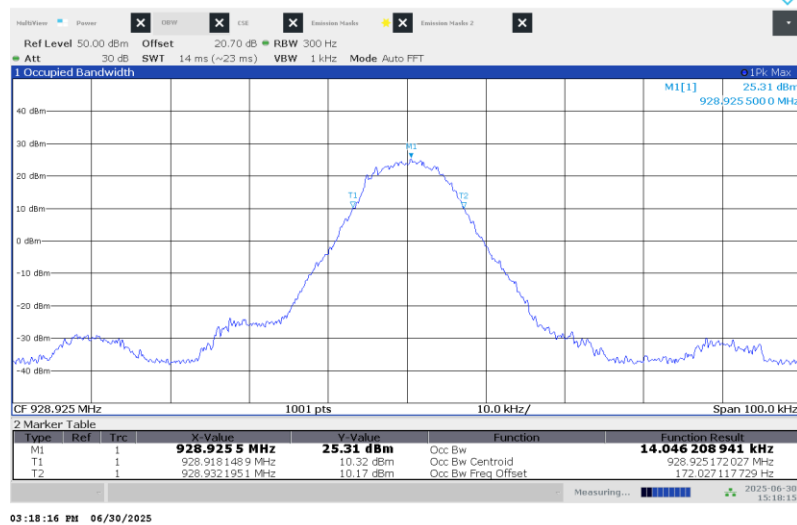
928.925MHz – 8SFSK (Half Baud) Mode



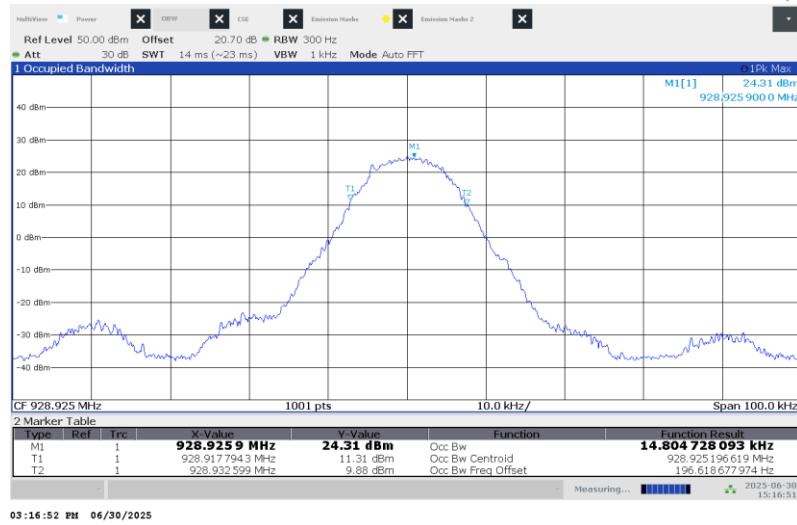
928.925MHz – 2SFSK Mode



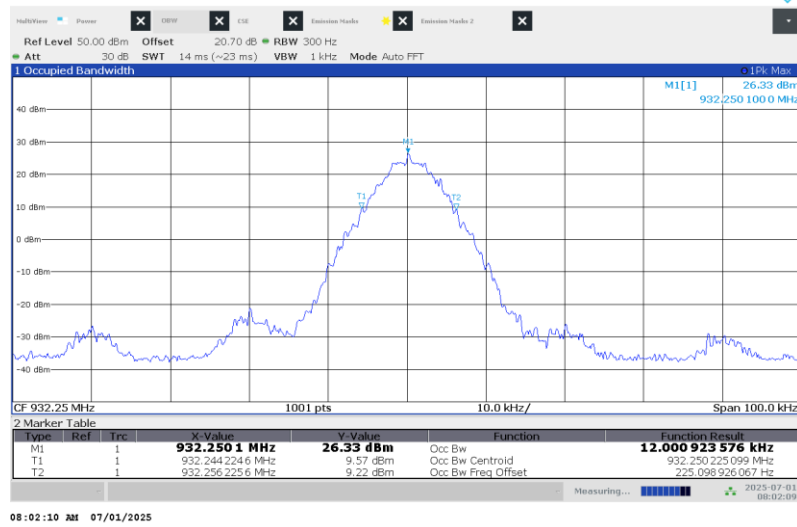
928.925MHz – 4SFSK Mode



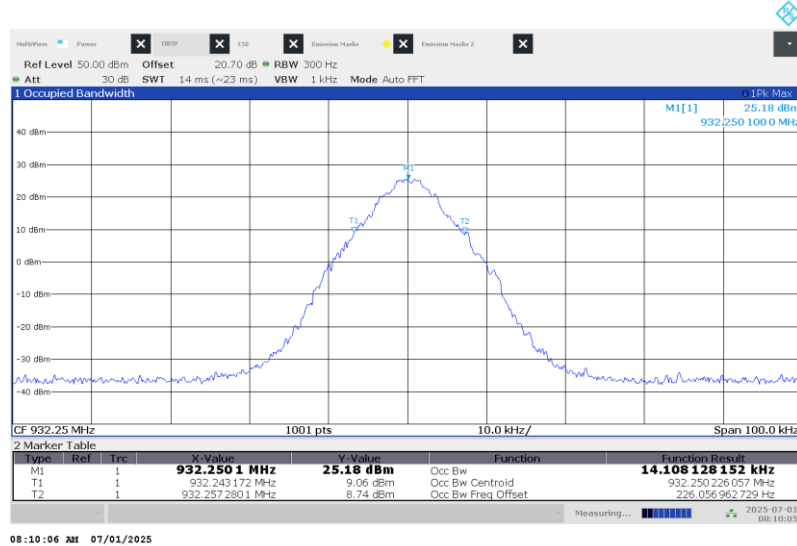
928.925MHz – 8FSK Mode



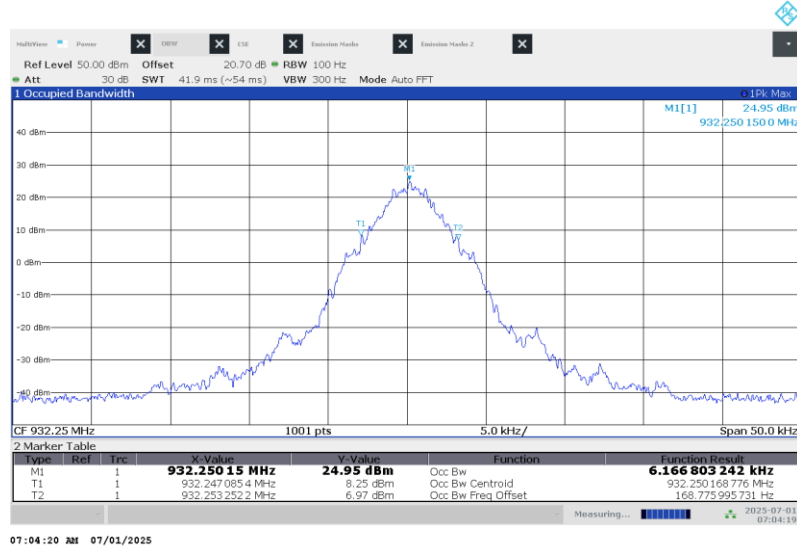
932.25MHz – Normal Mode



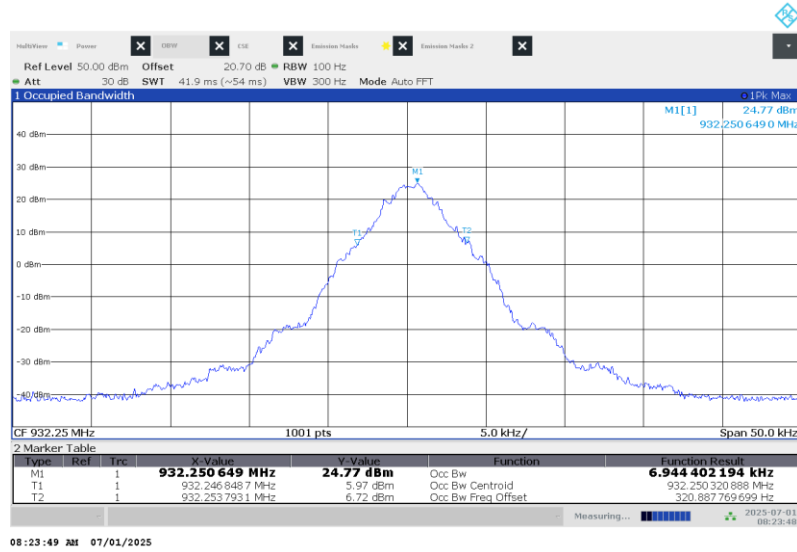
932.25MHz – Double Density Mode



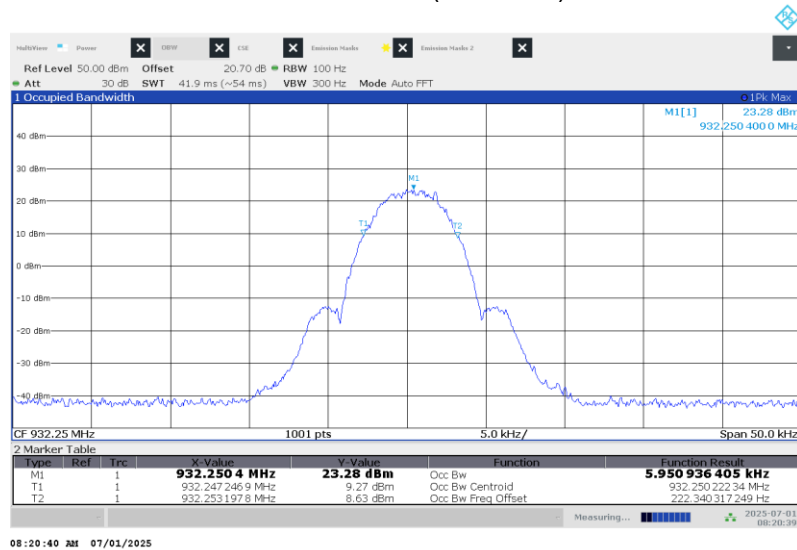
932.25MHz – C&I (Half Baud) Mode



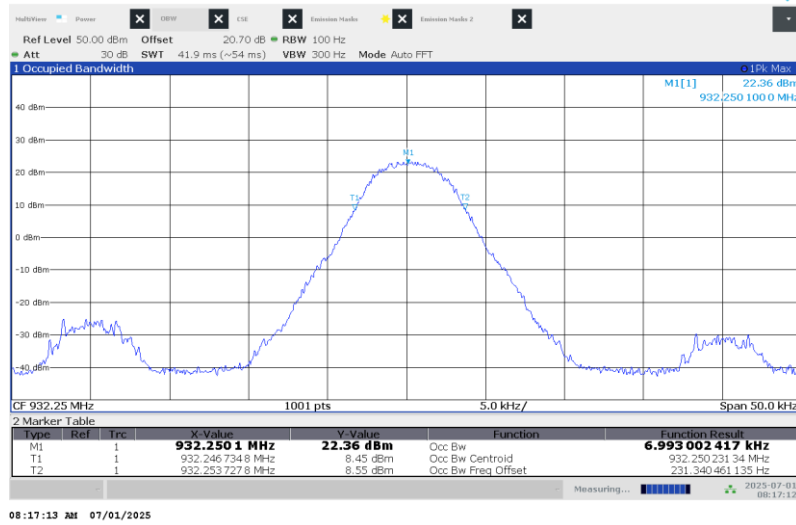
932.25MHz – Priority Mode



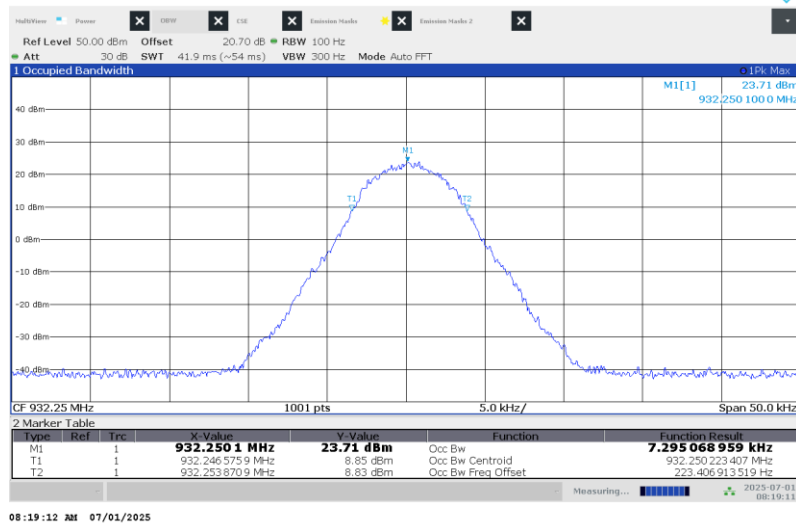
932.25MHz – 2FSK (Half Baud) Mode



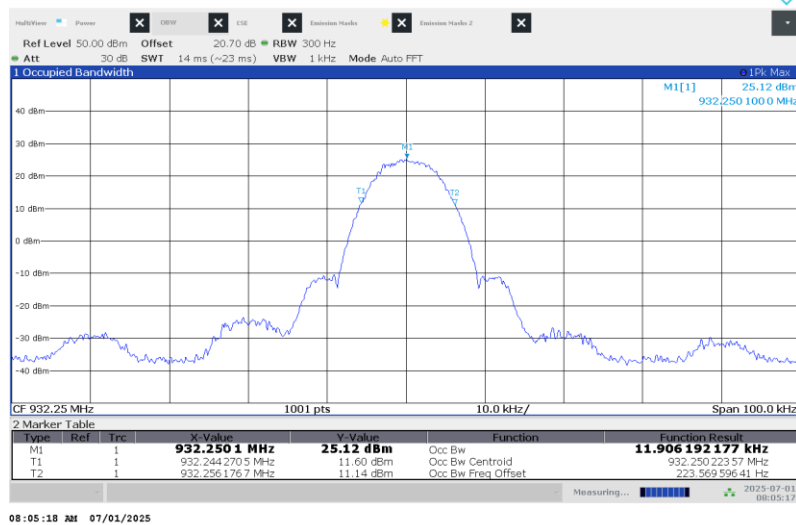
932.25MHz – 4SFSK (Half Baud) Mode



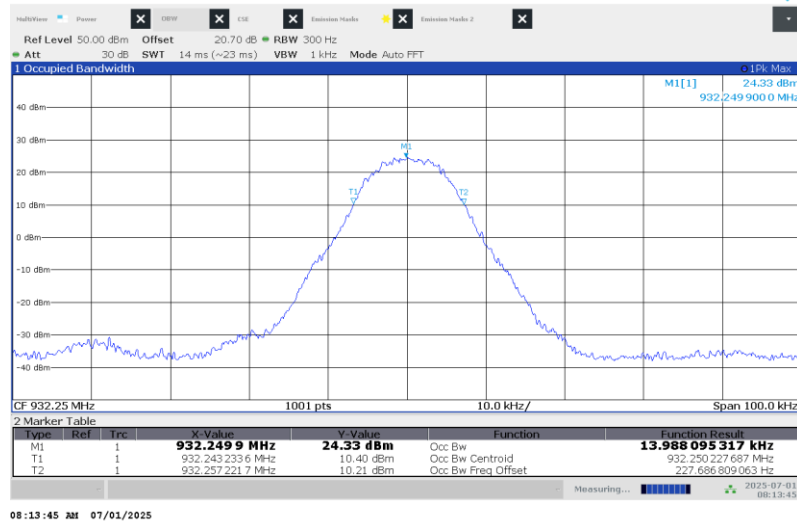
932.25MHz – 8SFSK (Half Baud) Mode



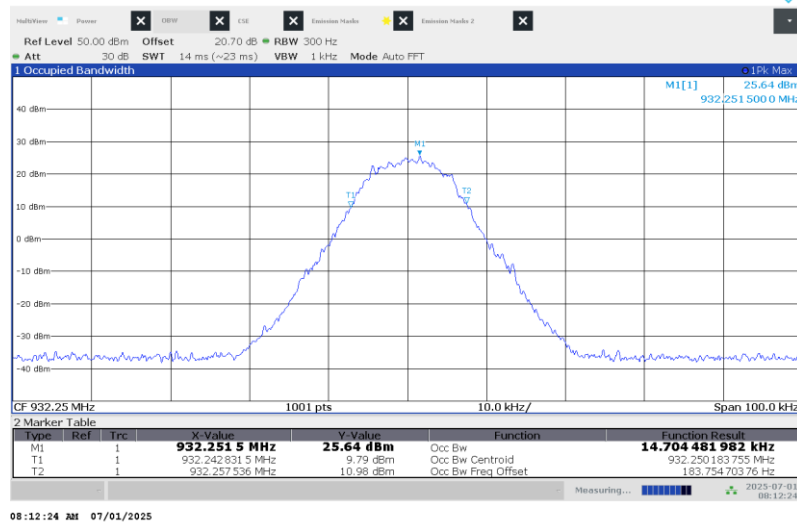
932.25MHz – 2SFSK Mode



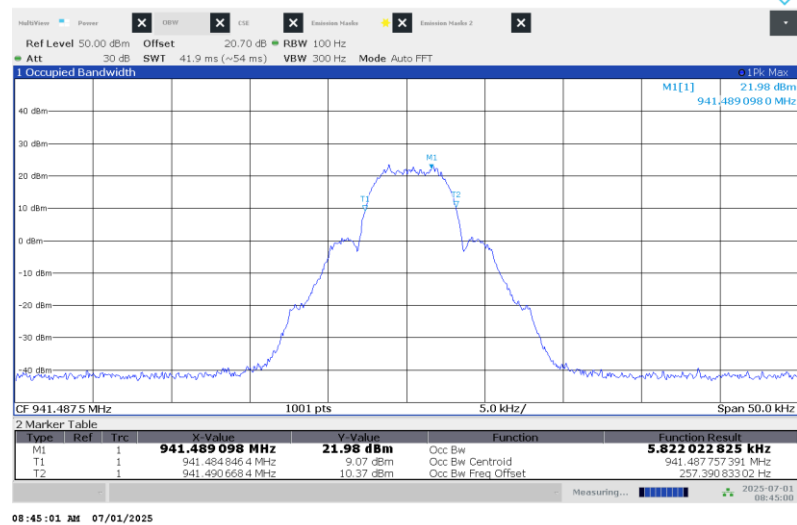
932.25MHz – 4SFSK Mode



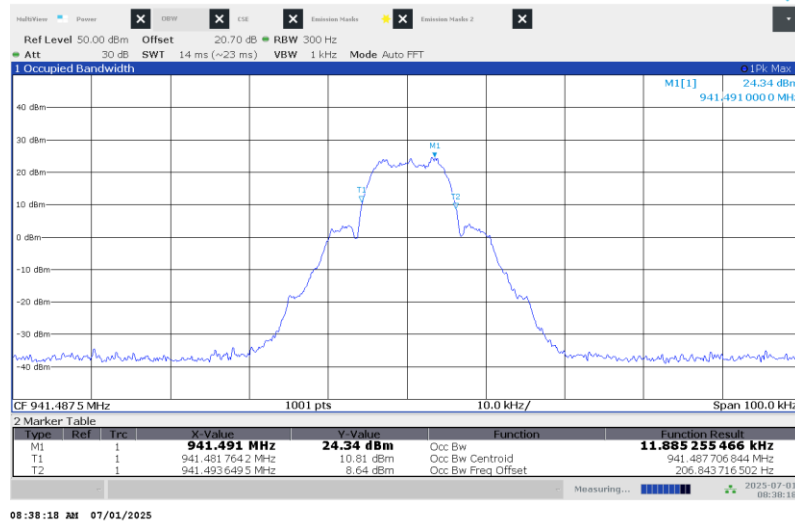
932.25MHz – 8SFSK Mode



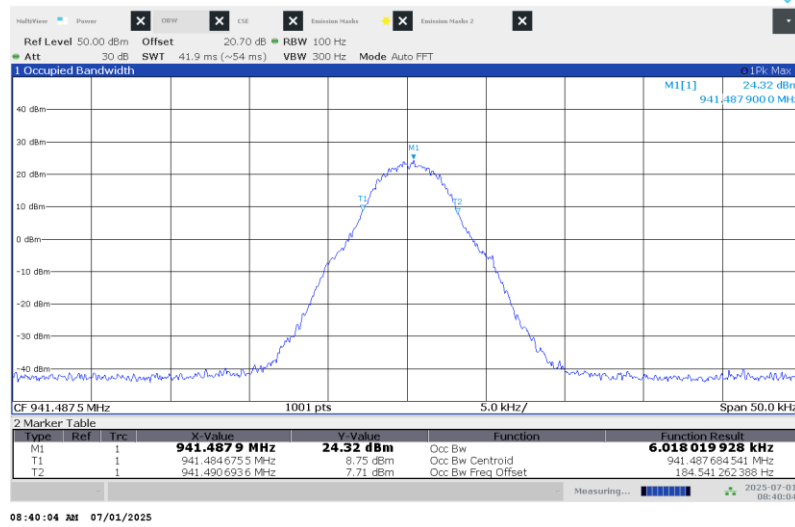
941.4875MHz – mPass 5k Mode



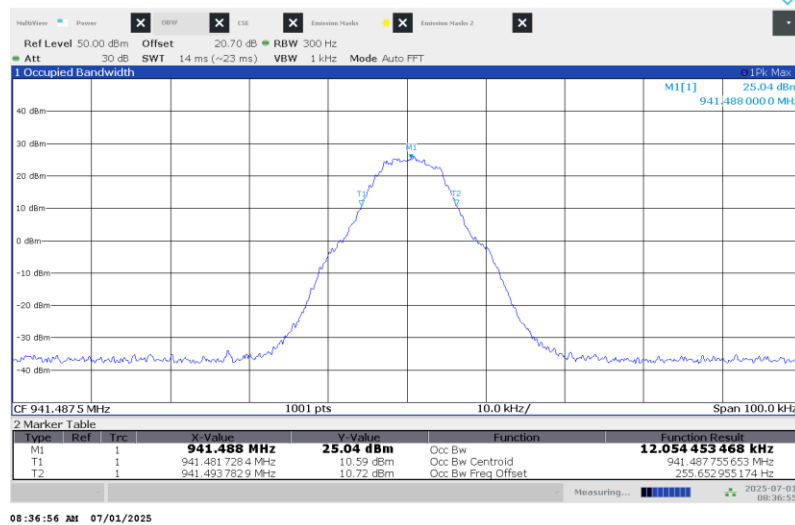
941.4875MHz – mPass 10k Mode



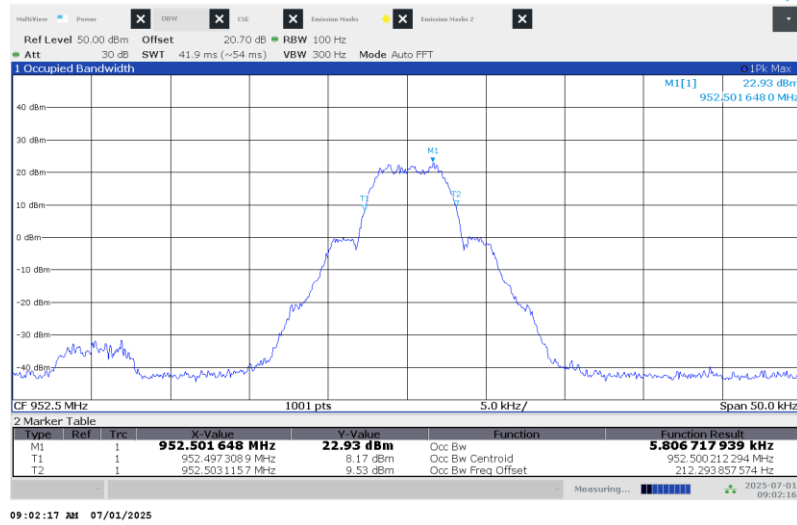
941.4875MHz – m4Pass 10k Mode



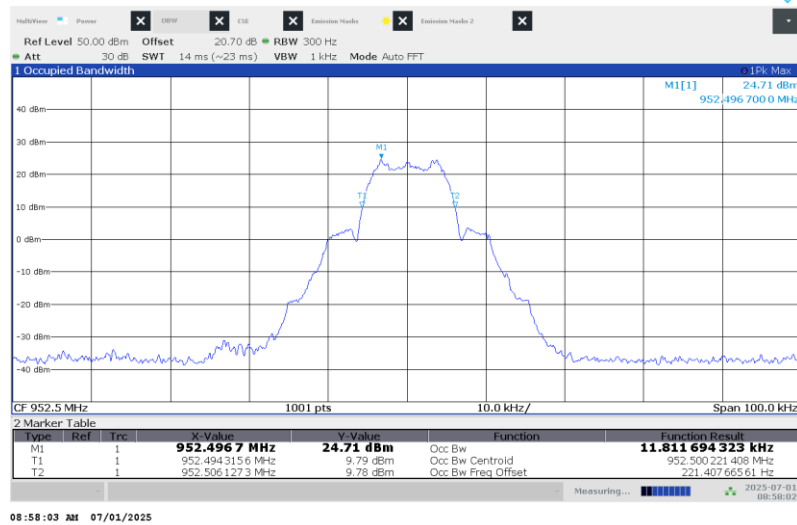
941.4875MHz – m4Pass 20k Mode



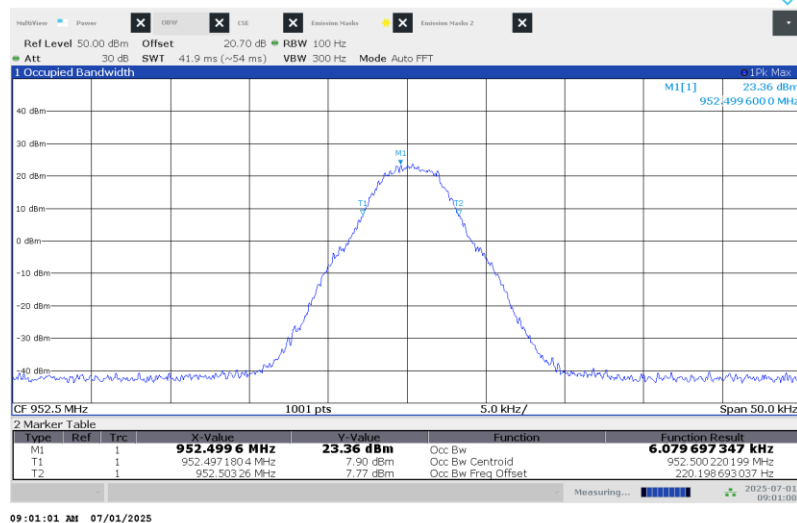
952.5MHz – mPass 5k Mode



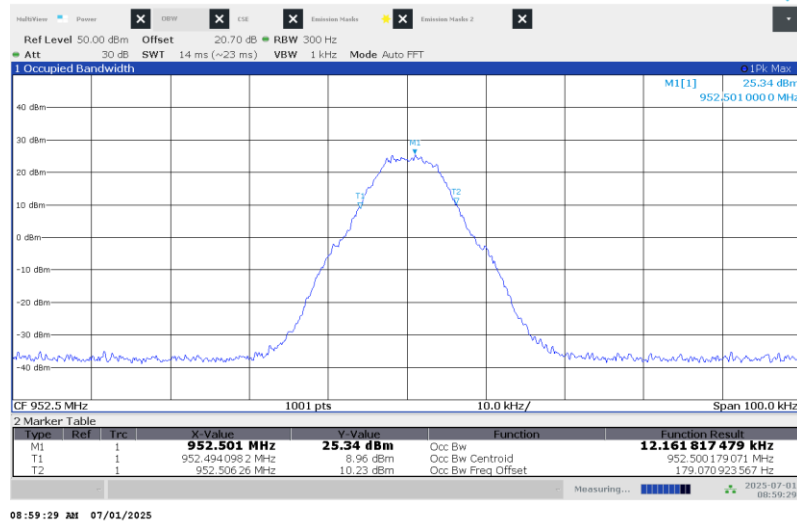
952.5MHz – mPass 10k Mode



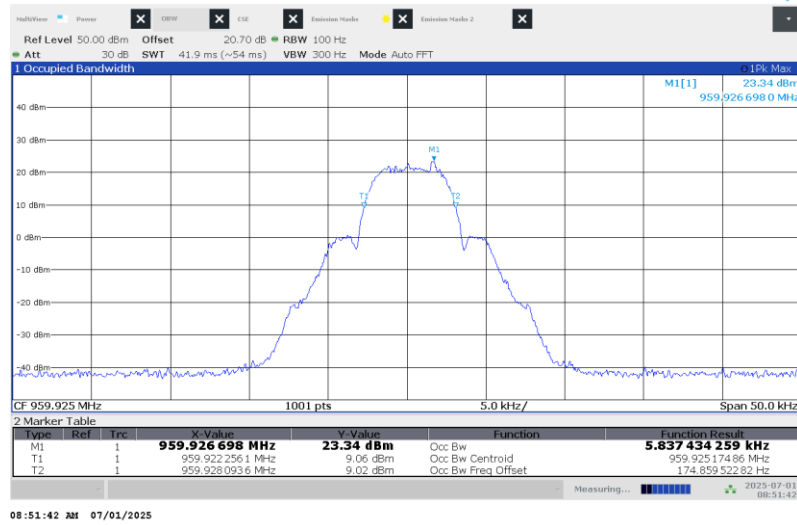
952.5MHz – m4Pass 10k Mode



952.5MHz – m4Pass 20k Mode



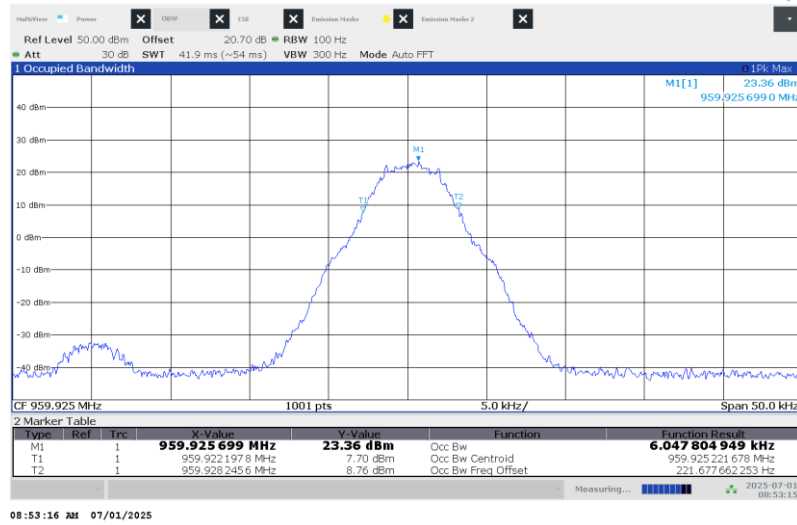
959.925MHz – mPass 5k Mode



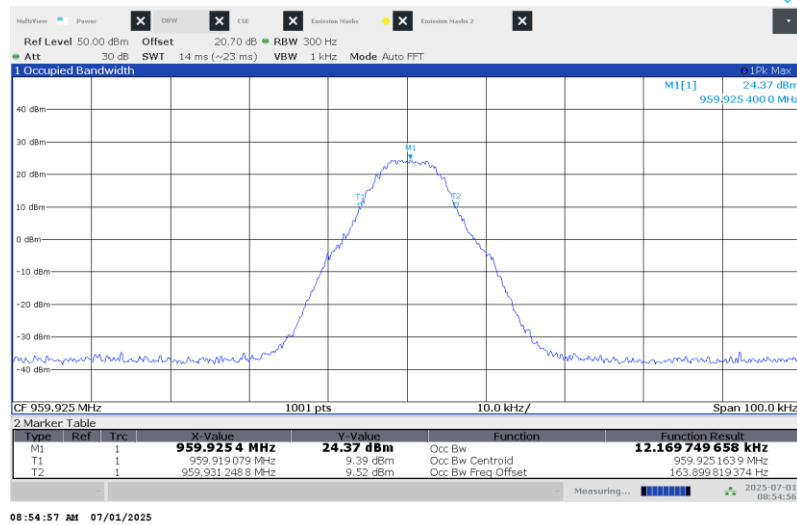
959.925MHz – mPass 10k Mode



959.925MHz – m4Pass 10k Mode



959.925MHz – m4Pass 20k Mode



Test Personnel: Jeremy Pickens

Test Date: 30 June – 01 July 2025

Ambient Temperature: 22.4 – 22.7°C

Product Standard: ANSI C63.26

Relative Humidity: 43.4 – 43.9%

Atmospheric Pressure: 98.2 – 98.5kPa

9 Spurious Emissions at Antenna Terminals

9.1 Method

The methods defined in ANSI C63.26, Section 5.7.3 were applied for measuring the out of band emissions. The antenna port was connected directly to a spectrum analyzer through a cable and 20dB attenuator. The attenuation was accounted for by applying an offset to the spectrum analyzer for the attenuator and a transducer function for the cable loss. The spectrum analyzer was configured with the following Resolution Bandwidth (RBW) settings:

Frequency Range (MHz)	RBW
0.009 – 0.150	1 kHz
0.150 – 30	10 kHz
30 – 1000	100 kHz
1000 – 10000	1 MHz

TEST SITE: RF Bench

The RF bench consists of a Rohde & Schwarz TS8997 automated test system coupled with a temperature/humidity environmental chamber. Where applicable, 2.4 and 5GHz radio measurements are automated using the Rohde & Schwarz EMC32 test software. The TS8997 system houses a switch matrix (OSP), along with a spectrum analyzer, vector network analyzer, and analog signal generator.

9.2 Test Equipment

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
200001	Attenuator, 20 dB, <18GHz	Weinschel Corp	2	BK1848	07/26/2024	07/26/2025
212165	Temperature/Humidity/Pressure Sensor	Extech	SD700	110344	04/29/2025	04/29/2026
213502	Spectrum Analyzer (2Hz-43.5GHz)	Rohde & Schwarz	FSW43	102972	08/01/2024	08/01/2025

Software Utilized

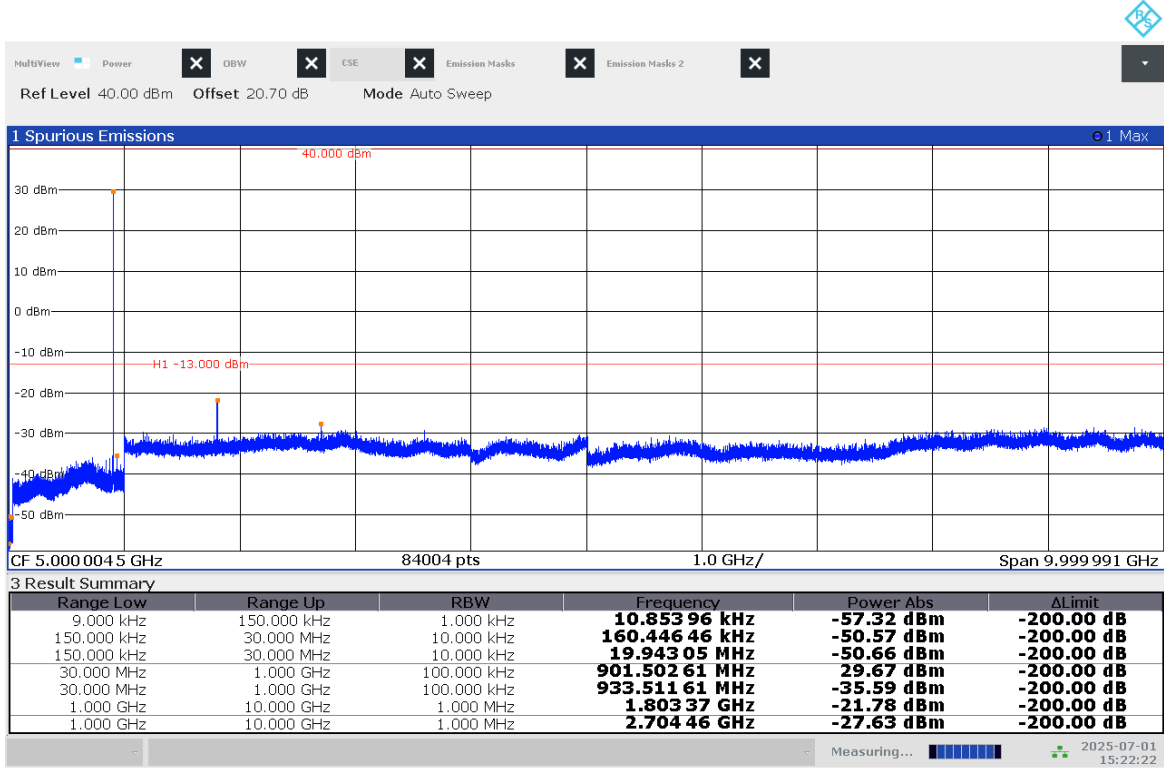
Name	Manufacturer	Version
RSCCommander	Rohde & Schwarz	2.4.2 64-bit (2023)

9.3 Results

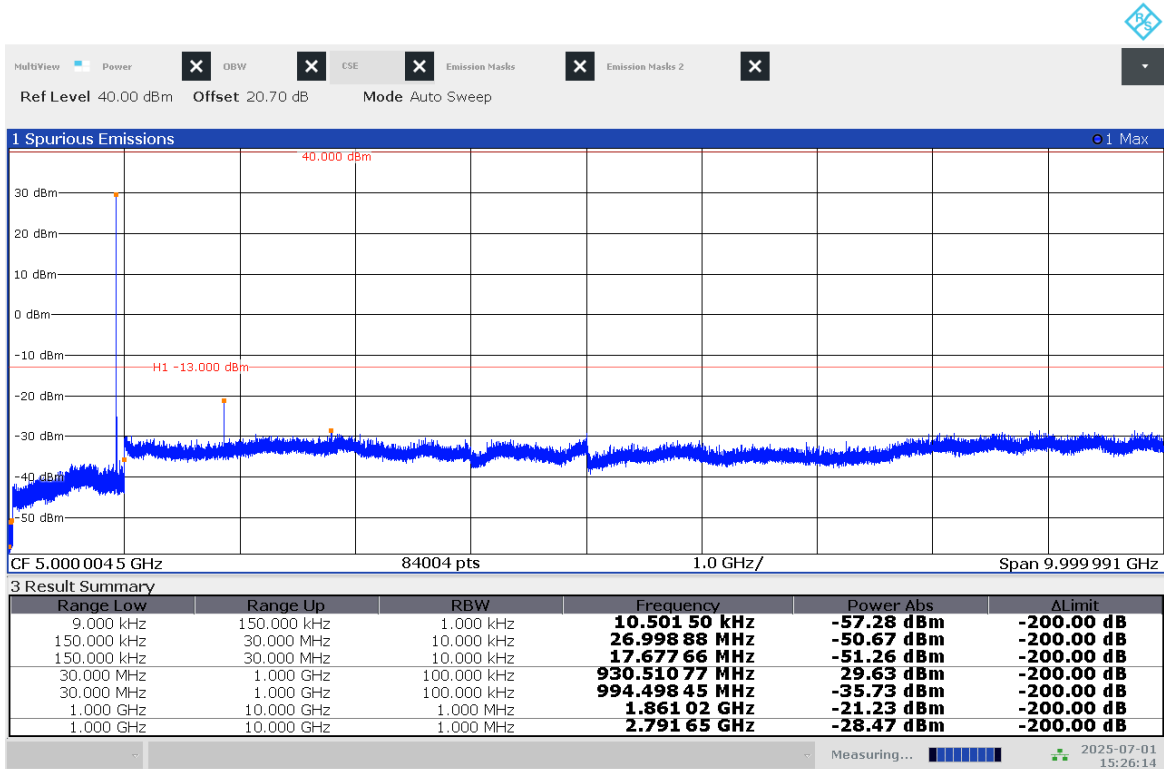
The sample tested was found to Comply.

9.4 Test Data

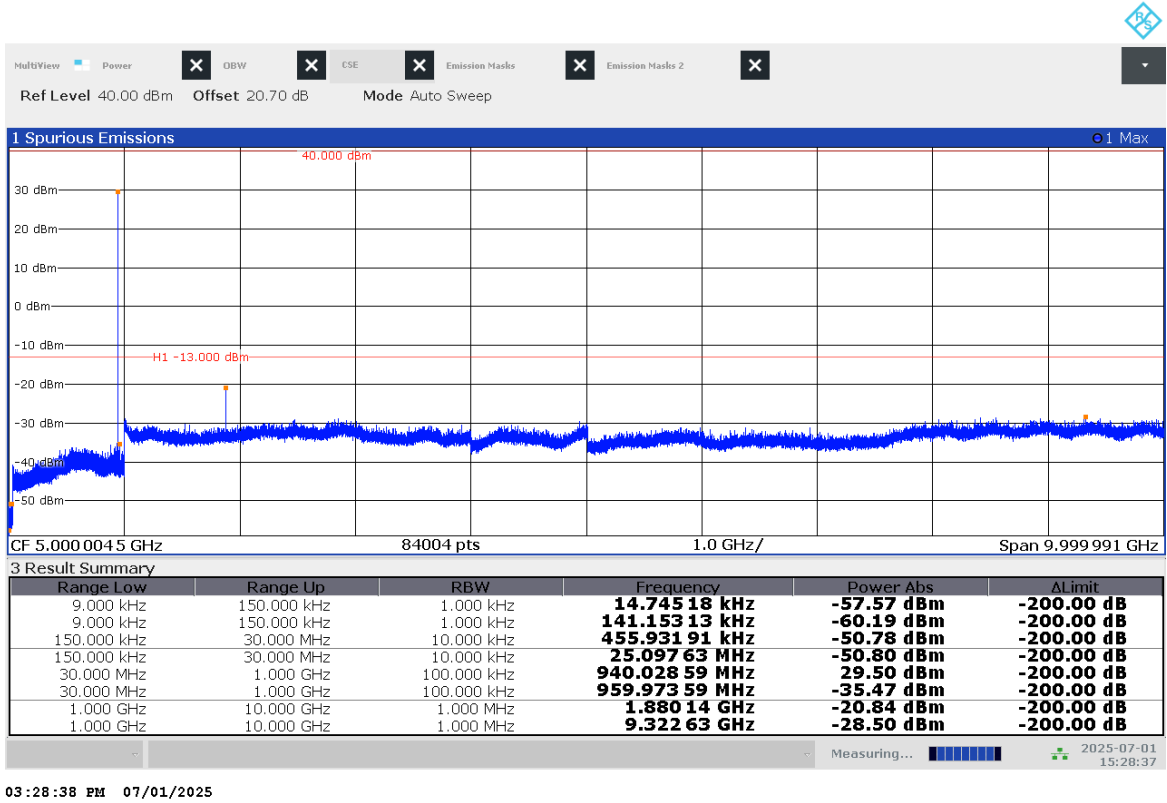
901.5MHz –Normal Mode (Part 24 / RSS-134)



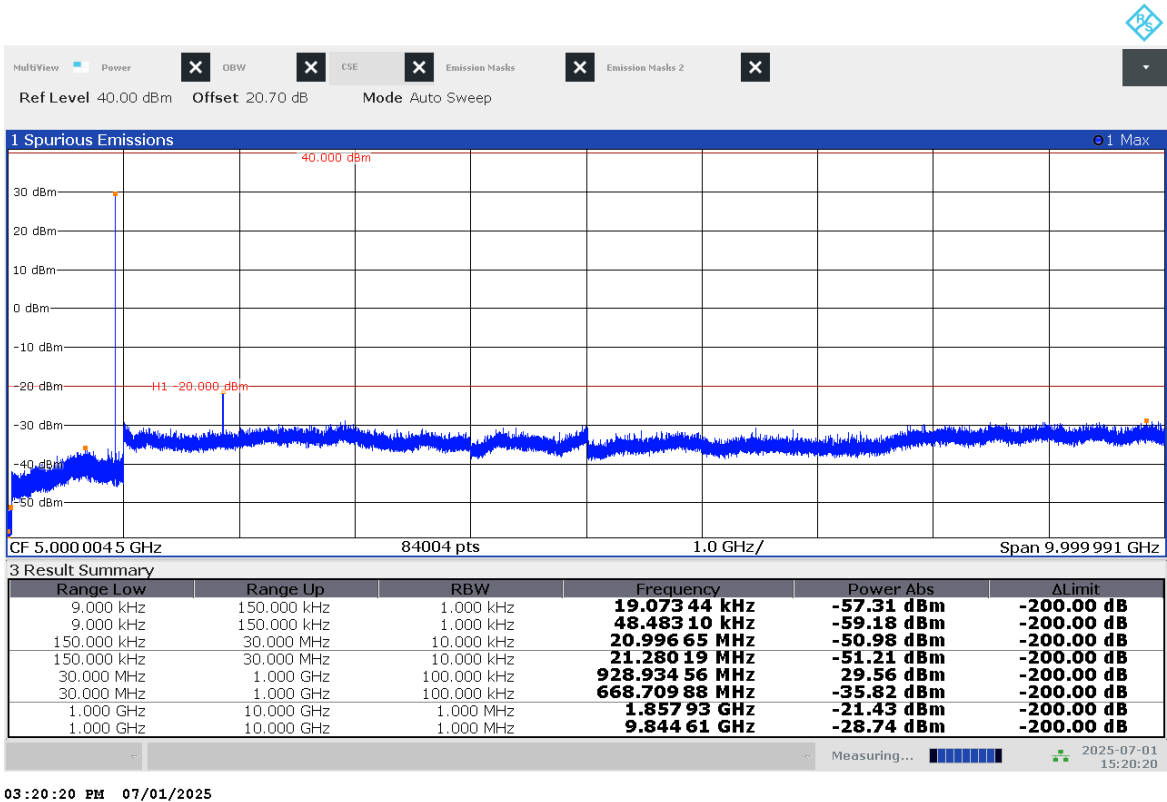
930.5MHz –mPass 5k Mode (Part 24 / RSS-134)



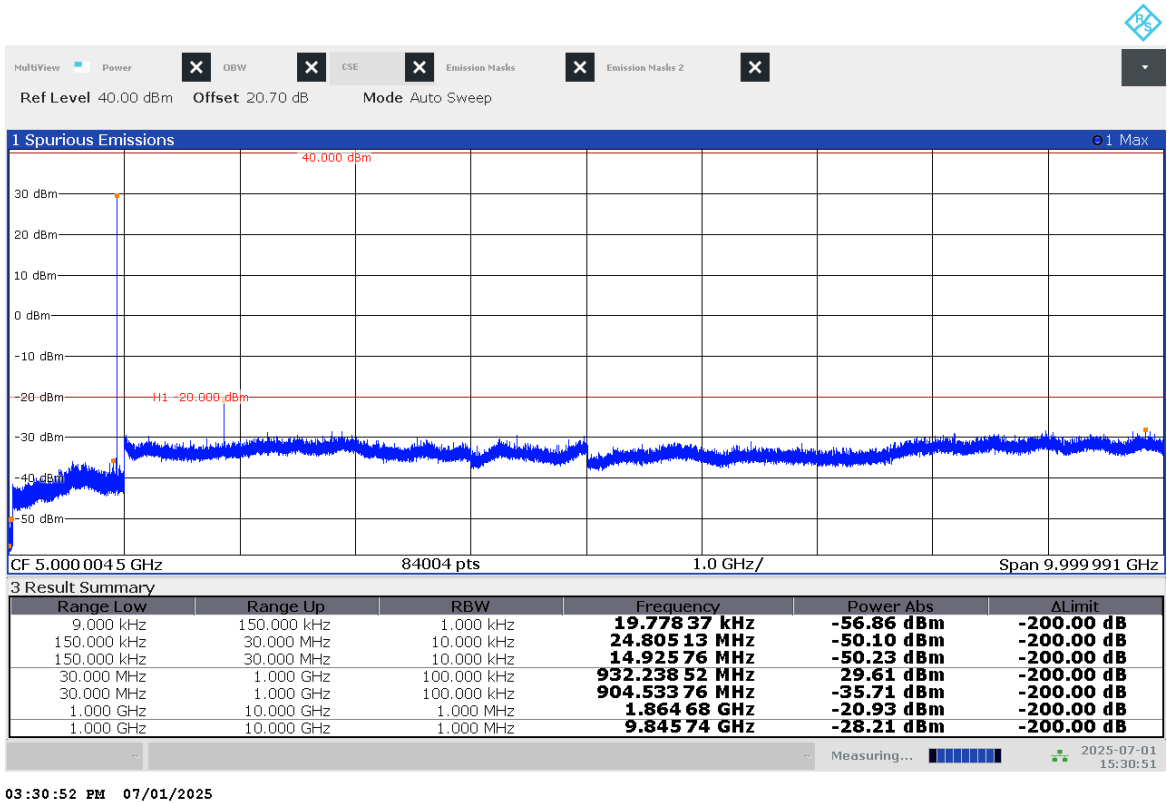
940.0125MHz -mPass 5k Mode (Part 24 / RSS-134)



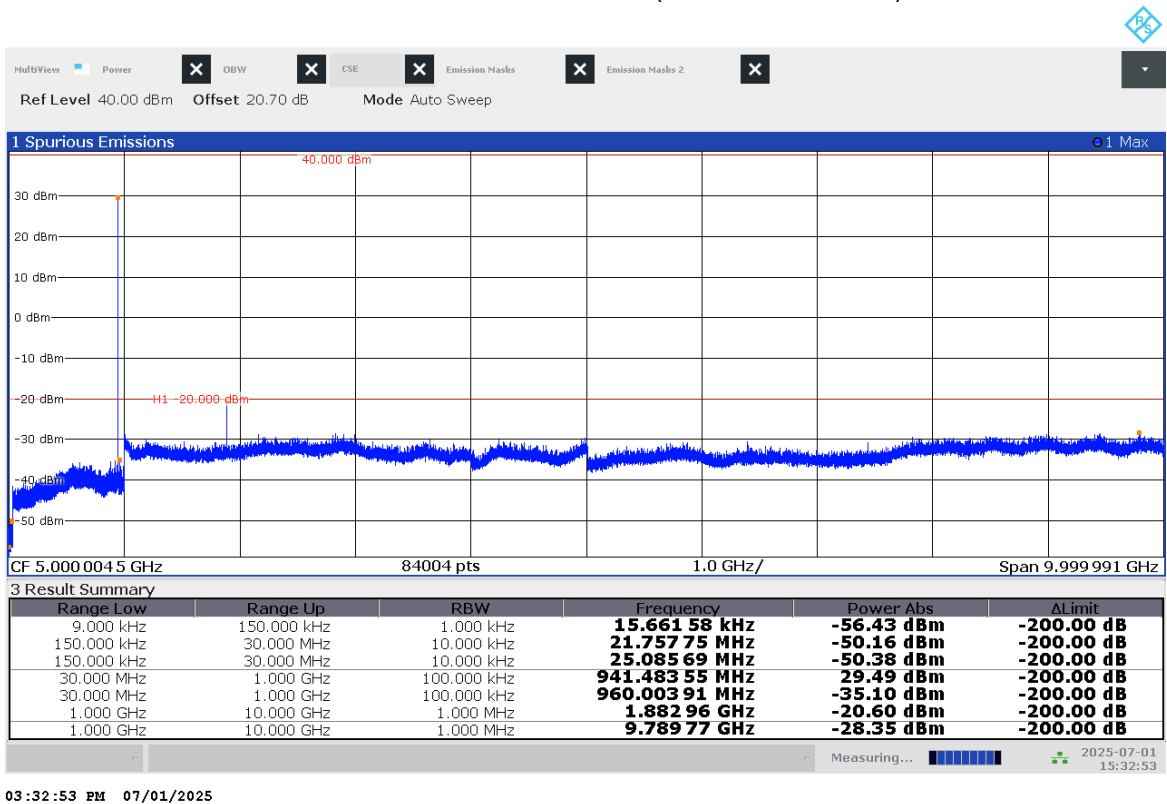
928.925MHz -Normal Mode (Part 101 / RSS-119)



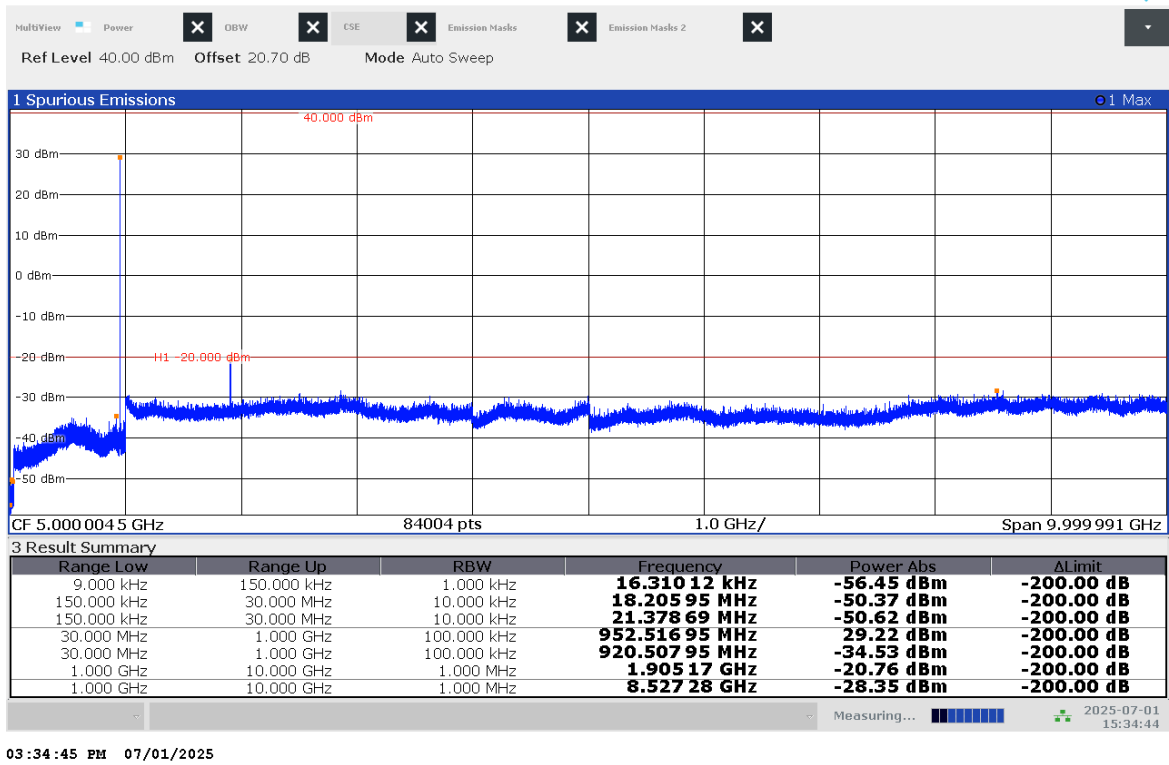
932.25MHz –Normal Mode (Part 101 / RSS-119)



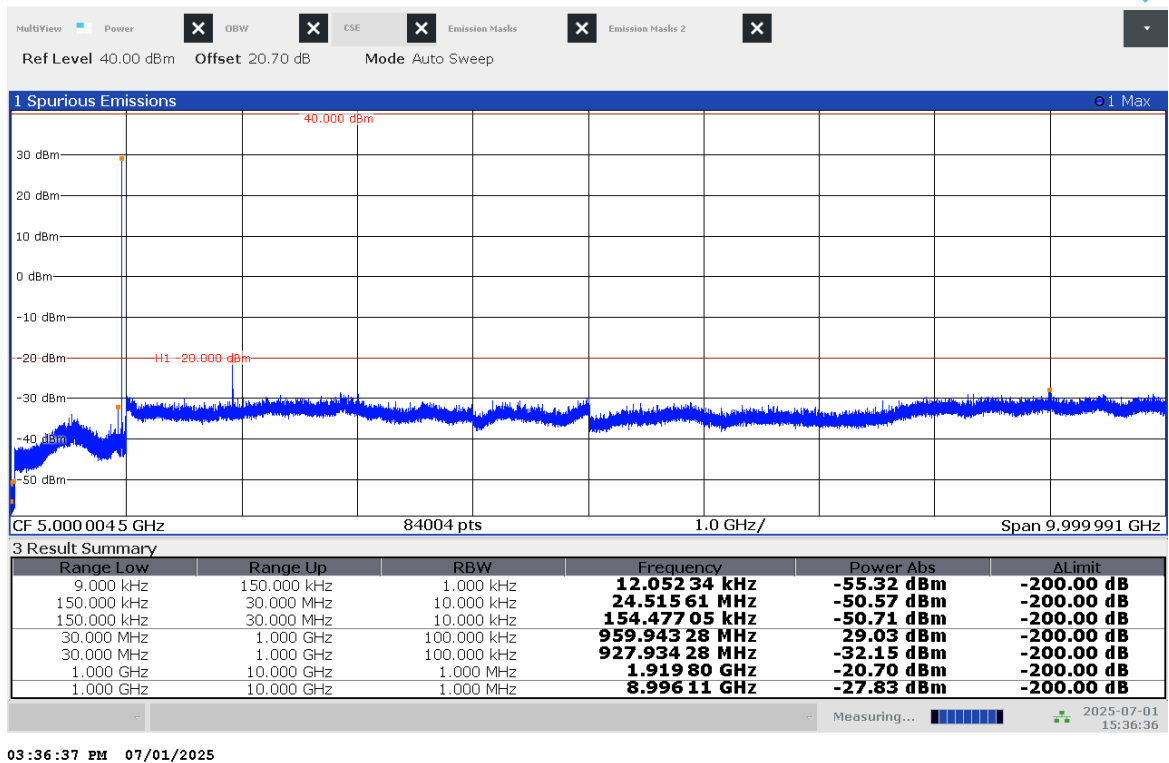
941.4875MHz –mPass 5k Mode (Part 101 / RSS-119)



952.5MHz – mPass 5k Mode (Part 101 / RSS-119)



959.925MHz – mPass 5k Mode (Part 101)



Test Personnel: Jeremy Pickens 

Test Date: 01 July 2025

Ambient Temperature: 22.7°C

Reference Standard: ANSI C63.26

Relative Humidity: 43.9%

Atmospheric Pressure: 98.2kPa

Note: Only the worst-case modulation was evaluated for each band.

10 Field Strength of Spurious Emissions

10.1 Method

The field strength methods defined in ANSI C63.26, Section 5.5.4 were applied for measuring the radiated spurious emissions. The EUT was tested at a height of 0.8m for measurements below 1GHz and at 1.5 meters for measurements above 1GHz. Radiated field strength pre-scans were performed at a distance of 3 meters using a bandwidth of 200Hz (9kHz to 150kHz), 10kHz (15kHz-30MHz), 100kHz (30MHz-1GHz), and 1MHz above 1GHz. The video bandwidth (VBW) was set to at least 3 times the RBW. The results were compared to the EIRP limits by applying a 95.2dB conversion to the applicable limit (e.g. -13dBm + 95.2 = 82.2dBμV/m at 3 meters). For tabular data, the resulting field strength measurements were converted to EIRP using the same 95.2dB correction and compared to the applicable EIRP limit.

TEST SITE: 10 Meter Chamber

10 Meter Semi-Anechoic Chamber The test site for radiated emissions is located at 1950 Evergreen Blvd, Suite 100, Duluth, Georgia 30096. It is a 10-meter semi-anechoic chamber manufactured by Panashield. Embedded in the floor is a 3-meter diameter turntable.

Sample Calculation

The field strength was calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength in dBμV/m
- RA = Receiver Amplitude (including preamplifier) in dBμV
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dBμV/m

$$\begin{aligned} FS &= 32 \text{ dB}\mu\text{V/m} \\ RA &= 52.0 \text{ dB}\mu\text{V} \\ CF &= 1.6 \text{ dB} \\ AF &= 7.4 \text{ dB/m} \\ AG &= 29.0 \text{ dB} \end{aligned}$$

To convert from field strength to EIRP, the following equations were used

$$EIRP = (E \times d)^2 / 30$$

Where:

- E = field strength in V/m
- d = measurement distance in m
- EIRP = equivalent isotropically radiated power in W

Working in dB units:

$$EIRP_{dBm} = E_{dB\mu V/m} + 20\log(d_m) - 104.77$$

For d = 3:

$$EIRP_{dBm} = E_{dB\mu V/m} - 95.2$$

Example

$$\begin{aligned} FS &= RA + AF + CF - AG = 52.0 + 7.4 + 1.6 - 29.0 = 32.0 \text{ dB}\mu\text{V/m} \\ EIRP_{dBm} &= 39.8 - 95.2 = -55.4 \text{ dBm} \end{aligned}$$

10.2 Test Equipment

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
200162	EMI Receiver (20Hz-40GHz)	Rohde & Schwarz	ESU 40	100314	09/26/2024	09/26/2025
211262	Controller - Turntable and Mast	Sunol	SC99V	SC99V-1	VBU	VBU
211264	Mast - Antenna	Sunol	TWR95	NNN2	VBU	VBU
212166	Barometric Pressure/Humidity Datalogger	Extech	SD700	110392	04/02/2025	04/02/2026
213073	Antenna positioning tower	Sunol	TLT2	040314-5	VBU	VBU
213451	Omni -directional Comb Generator	Com-Power	CGO-520	281266	VBU	VBU
213453	Preamplifier 500MHz-18GHz	Com-Power	PAM-118A	18040030	10/16/2024	10/16/2025
213103	High Pass Filter - Rated 1GHz	Micro-Tronics	HPM50108	140	06/18/2025	06/18/2026
213312	Bilog Antenna	Teseq	CBL 6112D	40527	06/10/2025	06/10/2026
213365	Preamplifier 100Hz-30MHz	Com-Power	PAL-010	181492	06/18/2025	06/18/2026
MM5	RF Coax Cable 9KHz-18GHz	Maury Microwave	UC-N-MM-118	163203	04/01/2025	04/01/2026
MM5	RF Coax Cable 9KHz-18GHz	Maury Microwave	UC-N-MM78	1514381	07/08/2024	07/08/2025
MM12	RF Coax Cable 9KHz-18GHz	Fairview Microwave	SCE18110505-600CM	MM12	08/23/2024	08/23/2025
MP10	RF Coax Cable 9KHz-18GHz	Fairview Microwave	FMCA1282-394	MP10	06/18/2025	06/18/2026
MP12	RF Coax Cable 9KHz-18GHz	Fairview Microwave	SCE180060505-700CM	MP12	01/23/2025	01/23/2026
MP-HF-3	RF Coax Cable 1-40GHz	Megaphase	GC12-K1K1-233-H	20809305001	10/21/2024	10/21/2025
NYM-EMC-36	Antenna, Loop, Passive (10 kHz - 30 MHz)	EMCO	6512	9810-1228	08/10/2024	08/10/2025

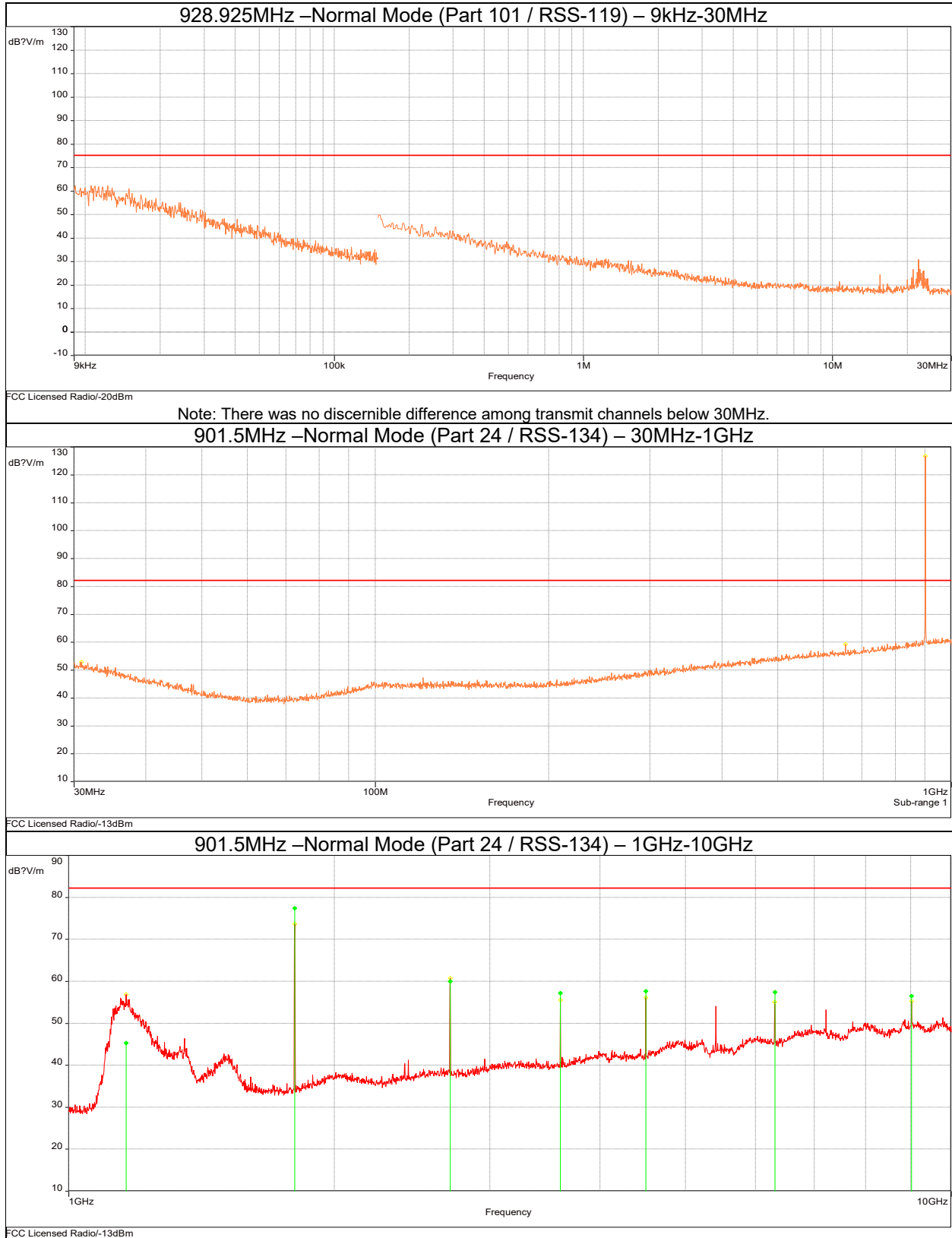
Software Utilized

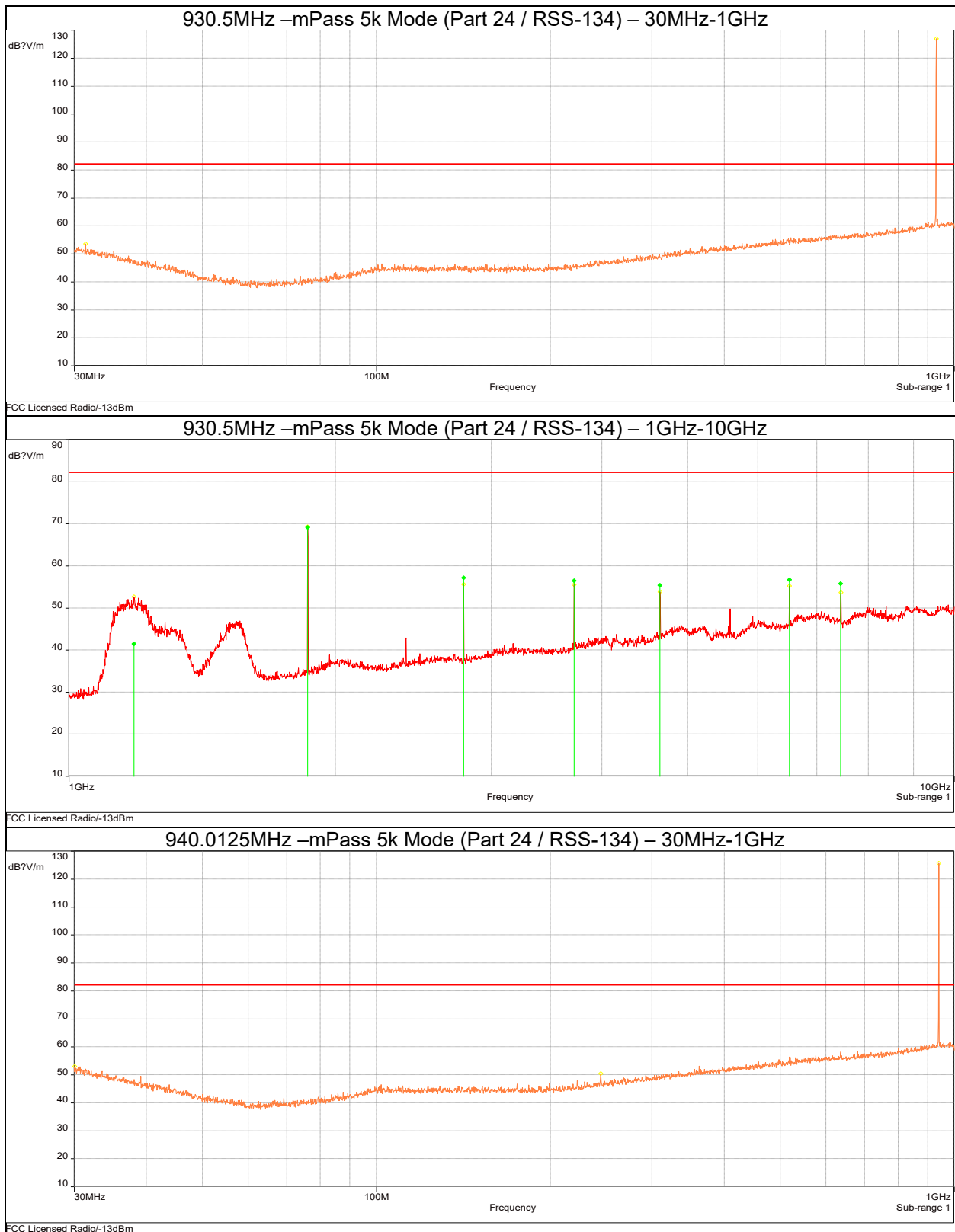
Name	Manufacturer	Version
BAT EMC	NEXIO	3.19.1.18

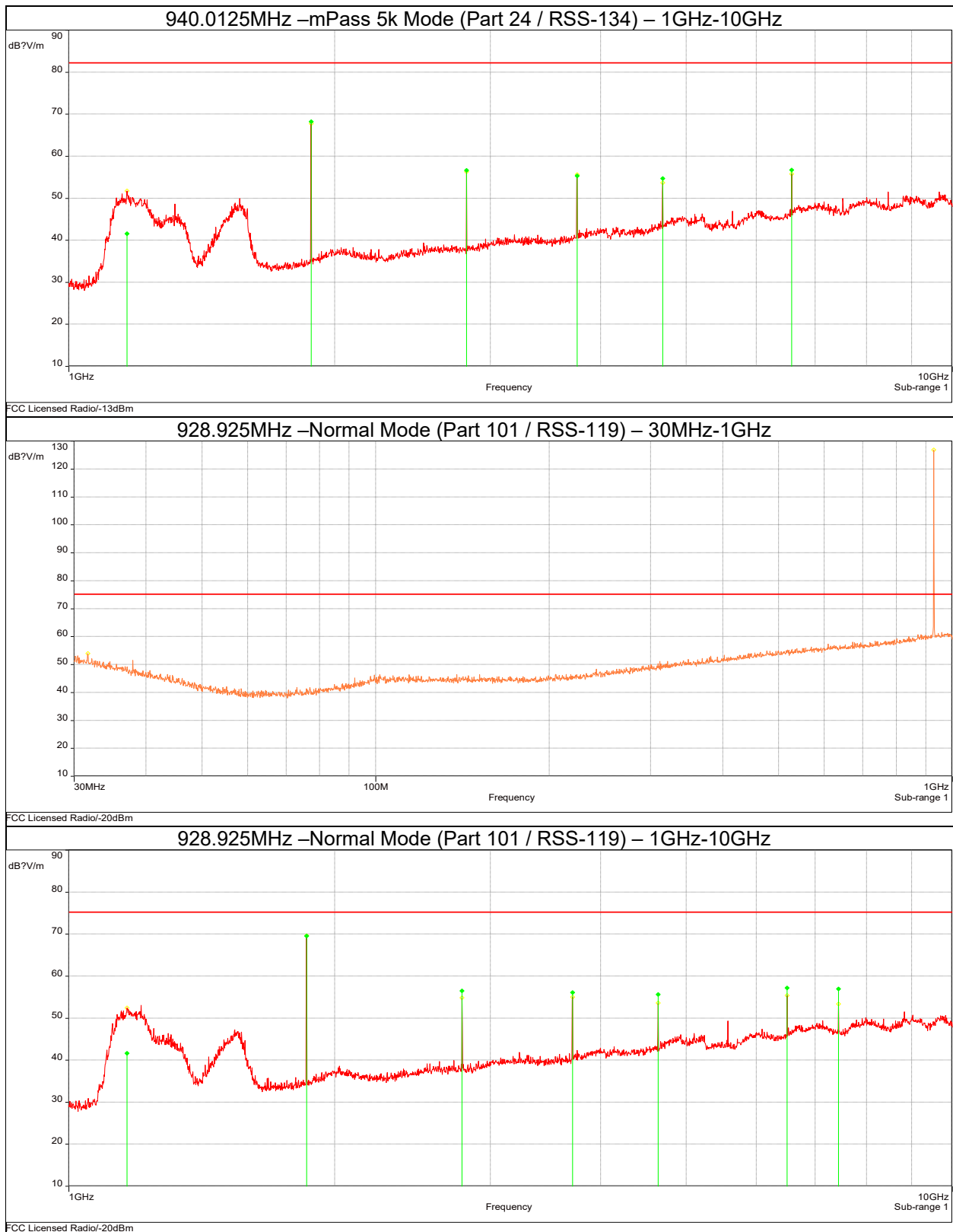
10.3 Results

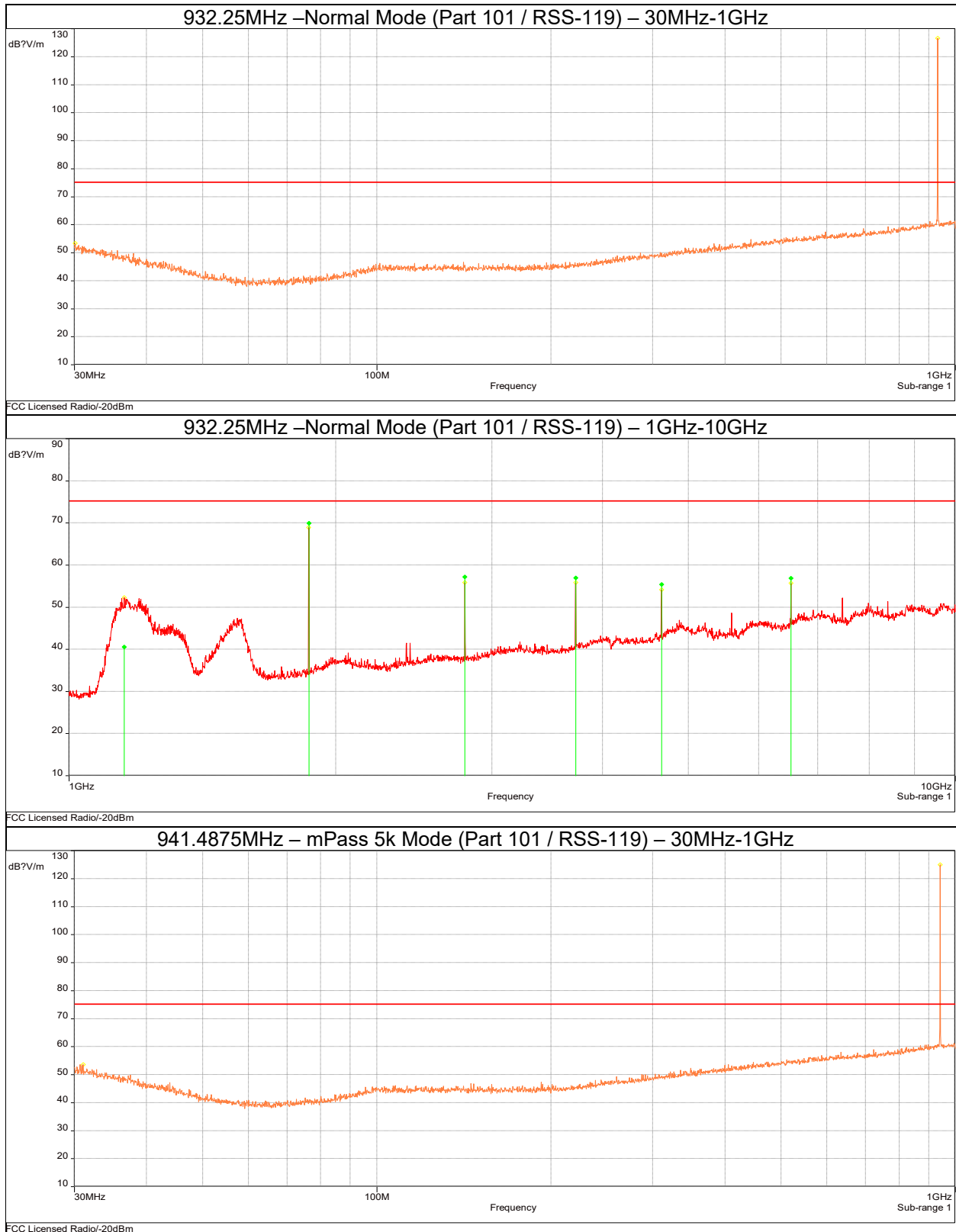
The sample tested was found to Comply.

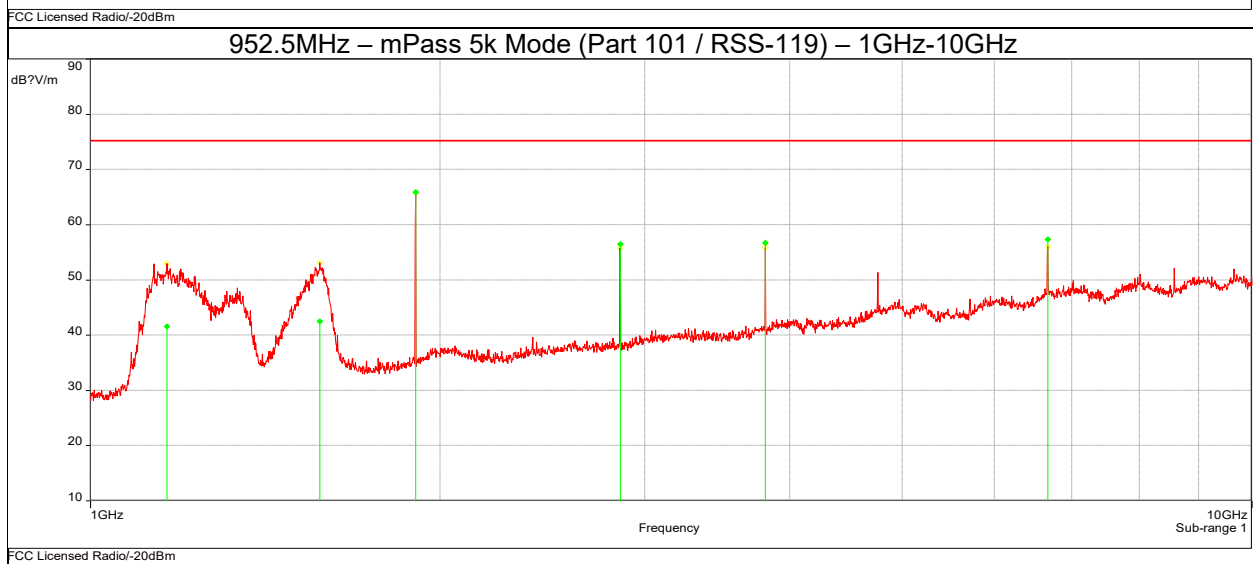
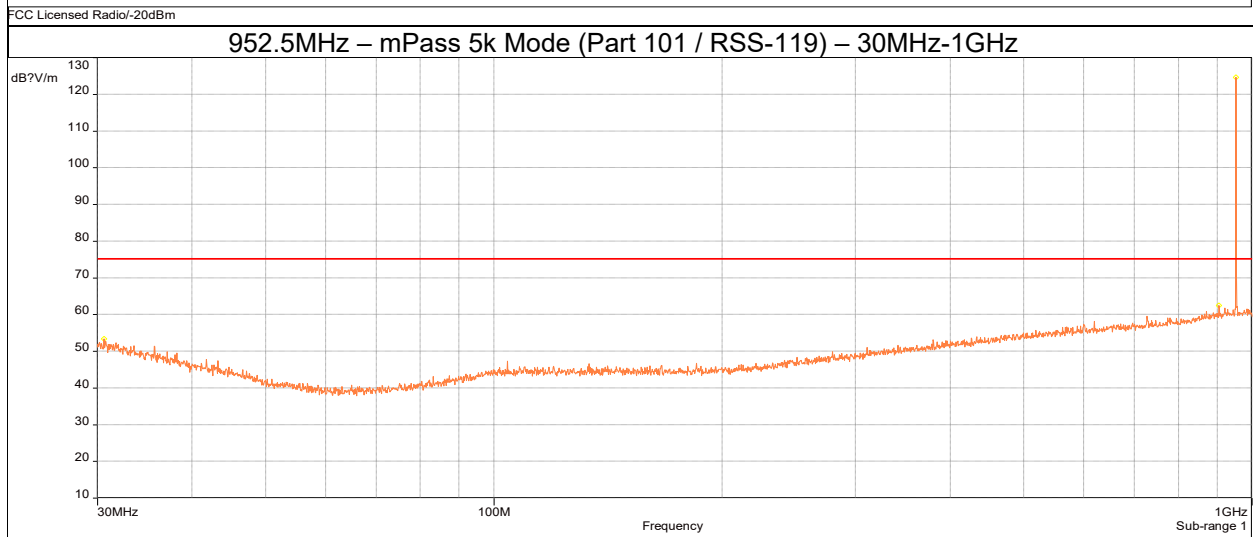
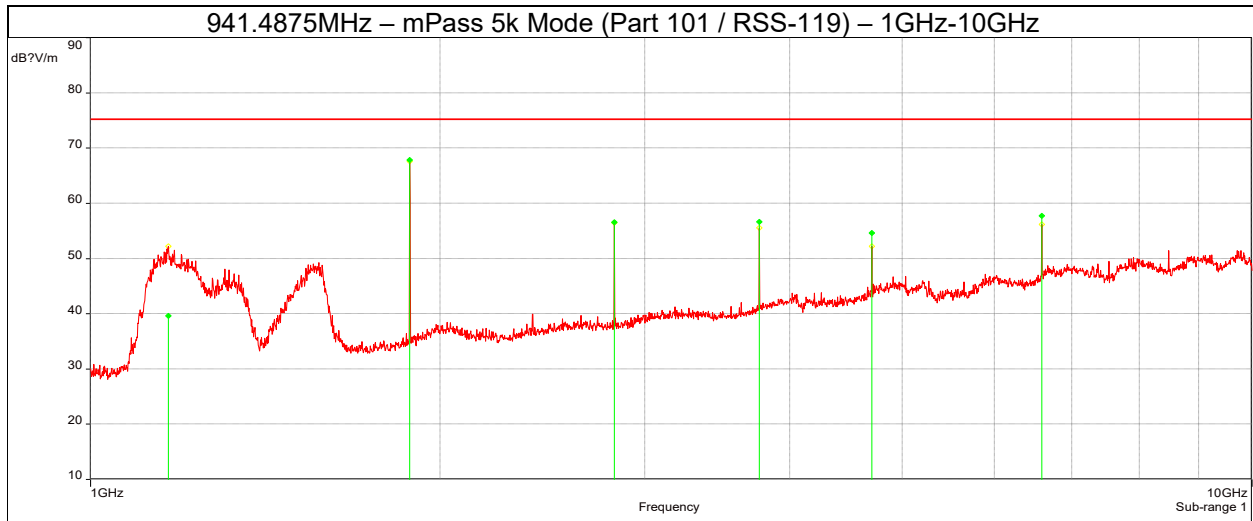
10.4 Plots/Data

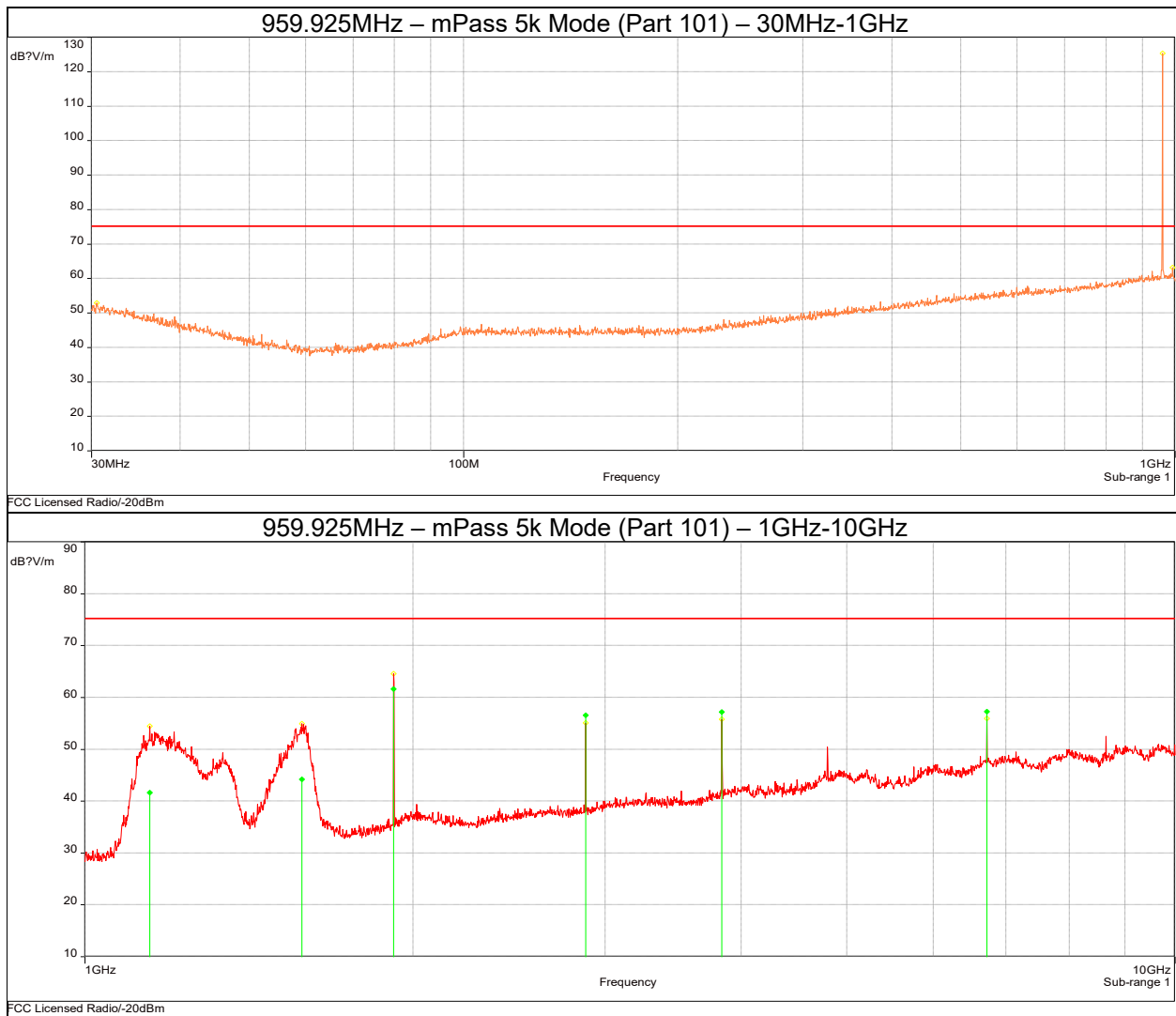












Tabular Data

TX Frequency (MHz)	Frequency (MHz)	Reading (dBµV)	Correction (dB/m)	Field Strength (dBµV/m)	Free Space Conversion	EIRP (dBm)	Limit (dBm)	Margin (dB)
901.5	1161.957	32.62	-12.7	45.32	95.2	-49.88	-13	-36.88
901.5	1802.994	66.82	-10.59	77.41	95.2	-17.79	-13	-4.79
901.5	2704.488	52.32	-7.64	59.96	95.2	-35.24	-13	-22.24
901.5	3606.010	50.65	-6.54	57.19	95.2	-38.01	-13	-25.01
901.5	4507.499	53.84	-3.83	57.67	95.2	-37.53	-13	-24.53
901.5	6310.489	57.94	0.55	57.39	95.2	-37.81	-13	-24.81
901.5	9015.012	61.24	4.77	56.47	95.2	-38.73	-13	-25.73
930.5	1183.600	28.78	-12.71	41.49	95.2	-53.71	-13	-40.71
930.5	1861.000	59.25	-9.95	69.2	95.2	-26	-13	-13
930.5	2791.499	49.41	-7.8	57.21	95.2	-37.99	-13	-24.99
930.5	3722.006	50.36	-6.15	56.51	95.2	-38.69	-13	-25.69
930.5	4652.492	52.22	-3.2	55.42	95.2	-39.78	-13	-26.78
930.5	6513.488	58.05	1.3	56.75	95.2	-38.45	-13	-25.45
930.5	7444.013	58.05	2.27	55.78	95.2	-39.42	-13	-26.42
940.0125	1163.500	28.83	-12.71	41.54	95.2	-53.66	-13	-40.66
940.0125	1880.025	58.48	-9.75	68.23	95.2	-26.97	-13	-13.97
940.0125	2820.037	48.88	-7.79	56.67	95.2	-38.53	-13	-25.53
940.0125	3760.043	49.4	-5.95	55.35	95.2	-39.85	-13	-26.85
940.0125	4700.054	51.82	-2.92	54.74	95.2	-40.46	-13	-27.46
940.0125	6580.099	58.3	1.53	56.77	95.2	-38.43	-13	-25.43
928.925	1163.704	28.96	-12.71	41.67	95.2	-53.53	-20	-33.53
928.925	1857.841	59.6	-9.98	69.58	95.2	-25.62	-20	-5.62
928.925	2786.766	48.66	-7.8	56.46	95.2	-38.74	-20	-18.74
928.925	3715.695	49.96	-6.18	56.14	95.2	-39.06	-20	-19.06
928.925	4644.618	52.43	-3.24	55.67	95.2	-39.53	-20	-19.53
928.925	6502.457	58.48	1.25	57.23	95.2	-37.97	-20	-17.97
928.925	7431.410	59.25	2.28	56.97	95.2	-38.23	-20	-18.23
932.25	1154.500	27.85	-12.68	40.53	95.2	-54.67	-20	-34.67
932.25	1864.492	60	-9.92	69.92	95.2	-25.28	-20	-5.28
932.25	2796.738	49.4	-7.81	57.21	95.2	-37.99	-20	-17.99
932.25	3729.004	50.82	-6.11	56.93	95.2	-38.27	-20	-18.27
932.25	4661.264	52.29	-3.15	55.44	95.2	-39.76	-20	-19.76
932.25	6525.738	58.26	1.35	56.91	95.2	-38.29	-20	-18.29
941.4875	1167.100	26.87	-12.73	39.6	95.2	-55.6	-20	-35.6
941.4875	1882.975	58.15	-9.69	67.84	95.2	-27.36	-20	-7.36
941.4875	2824.469	48.79	-7.78	56.57	95.2	-38.63	-20	-18.63
941.4875	3765.957	50.73	-5.92	56.65	95.2	-38.55	-20	-18.55
941.4875	4707.446	51.76	-2.88	54.64	95.2	-40.56	-20	-20.56
941.4875	6590.423	59.34	1.56	57.78	95.2	-37.42	-20	-17.42
952.5	1163.200	28.84	-12.71	41.55	95.2	-53.65	-20	-33.65
952.5	1574.800	30.85	-11.69	42.54	95.2	-52.66	-20	-32.66
952.5	1904.996	56.57	-9.37	65.94	95.2	-29.26	-20	-9.26
952.5	2857.499	48.78	-7.71	56.49	95.2	-38.71	-20	-18.71
952.5	3810.007	51.08	-5.63	56.71	95.2	-38.49	-20	-18.49
952.5	6667.488	59	1.62	57.38	95.2	-37.82	-20	-17.82
959.925	1146.100	28.96	-12.68	41.64	95.2	-53.56	-20	-33.56
959.925	1581.100	32.59	-11.66	44.25	95.2	-50.95	-20	-30.95
959.925	1919.850	52.45	-9.19	61.64	95.2	-33.56	-20	-13.56
959.925	2879.774	48.96	-7.64	56.6	95.2	-38.6	-20	-18.6
959.925	3839.693	51.79	-5.37	57.16	95.2	-38.04	-20	-18.04
959.925	6719.463	58.89	1.62	57.27	95.2	-37.93	-20	-17.93

Test Personnel: Jeremy PickensTest Date: 02 - 03 July 2025Ambient Temperature: 22.0 – 22.5°CReference Standard: ANSI C63.26Relative Humidity: 43.1 – 43.8%Atmospheric Pressure: 98.2 – 98.3kPa

Note: Only the worst-case modulation was evaluated for each band.

11 Measurement Uncertainty

Parameter	Expanded Uncertainty for Normal k factor equal to 2
Radio Frequency	0.07 PPM
Total RF Power (Conducted)	0.65 dB
Power Density (Conducted)	0.65 dB
RF Spurious (Conducted)	1.8 dB
Radiated Emissions (9kHz-30MHz)	4.7 dB
Radiated Emissions (30MHz-1GHz)	4.1 dB
Radiated Emissions (1GHz-18GHz)	4.5dB
Radiated Emissions (18GHz-40GHz)	4.7 dB
AC Line Conducted Emissions	2.8 dB
Temperature	0.7°
Humidity	3.9%

12 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	09 July 2025	106182196ATL-001	JOP	BZ	Original Issue