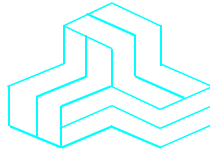


ENGINEERING TEST REPORT



Nova RF Antenna
Model: FS-715
FCC ID: 2BRCDP0200502X

Applicant:

Global Security Solutions LLC
598 Hillsboro Technology Drive
Deerfield Beach, FL 33441

In Accordance With
Federal Communications Commission (FCC)
Part 15, Subpart C, Section 15.223 Operation In The Band 1.705-10 MHz

UltraTech's File No.: 26PRD002_FCC15C223

This Test report is Issued under the Authority of
Tri M. Luu
Vice President of Engineering
UltraTech Group of Labs

Date: June 10, 2026

Report Prepared by: Dan Huynh

Tested by: Angus Au

Issued Date: June 10, 2026

Test Dates:
April 30 – June 24, 2024

- *The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.*
- *This report must not be used by the client to claim product endorsement by any agency of the US Government.*
- *This test report shall not be reproduced, except in full, without a written approval from UltraTech*

UltraTech

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Lab Code: 0685



APEC TEL CA0001



1309



CA 0001/2049



AT-1945



SL2-IN-E-1119R



Korea KCC-RRA
CA0001

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EXHIBIT 1. INTRODUCTION

1.1. SCOPE

Reference:	FCC Part 15, Subpart C, Section 15.223
Title:	Code of Federal Regulations (CFR), Title 47, Telecommunication - Part 15
Purpose of Test:	Equipment Certification for FCC Part 15C
Test Procedures:	- ANSI C63.4 - ANSI C63.10
Environmental Classification:	Commercial, industrial or business environment

1.2. RELATED SUBMITTAL(S)/GRANT(S)

None.

1.3. NORMATIVE REFERENCES

Publication	Year	Title
FCC 47 CFR 15	2024	Code of Federal Regulations, Title 47 – Telecommunication, Part 15 - Radio Frequency Devices
ANSI C63.4	2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 KHz to 40 GHz
ANSI C63.10	2020	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

EXHIBIT 2. PERFORMANCE ASSESSMENT

2.1. CLIENT INFORMATION

Applicant	
Name:	Global Security Solutions LLC
Address:	598 Hillsboro Technology Drive Deerfield Beach, FL 33441 USA

Manufacturer	
Name:	SHOPGUARD KFT.
Address:	Szepvolgyi ut 41. 1037 Budapest HUNGARY

2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

Brand Name:	Global Security Solutions LLC
Product Name:	Nova RF Antenna
*Model Name or Number:	FS-715
Serial Number:	Test Sample
Type of Equipment:	Anti-Pilferage Device
Input Power Supply Type:	120 VAC 60 Hz
Primary User Functions of EUT:	Electronic Article Surveillance

*This model is not equipped with a Wi-Fi module for wireless communication. For the purposes of compliance evaluation, the test data provided in this report were obtained from a representative unit incorporating an ESPRESSIF SYSTEMS (SHANGHAI) CO., LTD Wi-Fi module with PCB antenna (FCC ID: 2AC7Z-ESP32WROVERE). This configuration was selected as the worst-case operational condition to demonstrate compliance for the model variant without the Wi-Fi module.

2.3. EUT'S TECHNICAL SPECIFICATIONS

Transmitter		
Equipment Type:	Mobile Device	
Intended Operating Environment:	Commercial, light industry & heavy industry	
Power Supply Requirement:	120V 60Hz	
RF Output Power Rating:	8.2 MHz Tx (Center Frequency) : 66.02 dBμV/m total peak (25.11 dBμV/m average) at 10m distance	
Operating Frequency Range:	Swept Step Frequencies operating in 16 Channels:	
	Step	Tx Frequency (MHz)
	1	7,436548
	2	7,513119
	3	7,620812
	4	7,718274
	5	7,801523
	6	7,905076
	7	8,004569
	8	8,106091
	9	8,205584
	10	8,301015
	11	8,400508
	12	8,504061
	13	8,609645
	14	8,698985
	15	8,802538
	16	8,914213
Duty Cycle:	0.901 %.	
Modulation Type:	Unmodulated carrier frequency	
Antenna Connector Type:	Integral	
Antenna Description:	Manufacturer: Shopguard Type: Loop antenna, double 8 and 8 shaped Model: N/A Frequency Range: 8.2 MHz Gain: -4dBi at 8.2MHz	

2.4. ASSOCIATED ANTENNA DESCRIPTIONS

Manufacturer	Antenna Type	Model	Frequency Range	Maximum Gain
Shopguard	Loop antenna, double 8 and 8 shaped	N/A	8.2 MHz	-4dBi at 8.2MHz

2.5. LIST OF EUT'S PORTS

Port Number	EUT's Port Description	Number of Identical Ports	Connector Type	Cable Type (Shielded/Non-shielded)
No I/O port.				

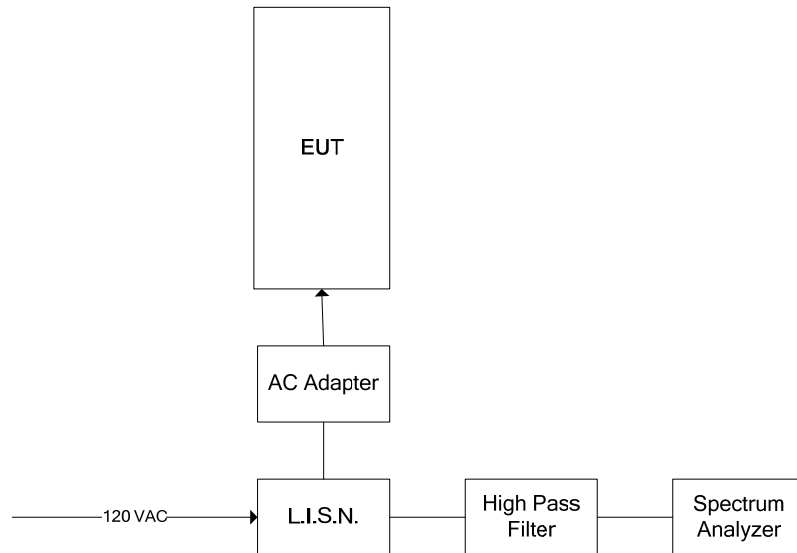
2.6. ANCILLARY EQUIPMENT

The EUT was tested while connected to the following representative configuration of ancillary equipment necessary to exercise the ports during tests:

Ancillary Equipment # 1	
Description:	AC Adapter
Brand name:	LG
Model Name or Number:	DA-65F19
Serial Number:	N/A
Connected to EUT's Port:	Power Input

2.7. TEST SETUP BLOCK DIAGRAM

AC Power-line Conducted Emissions



Tx Radiated Emissions, Duty Cycle and Bandwidth Measurements

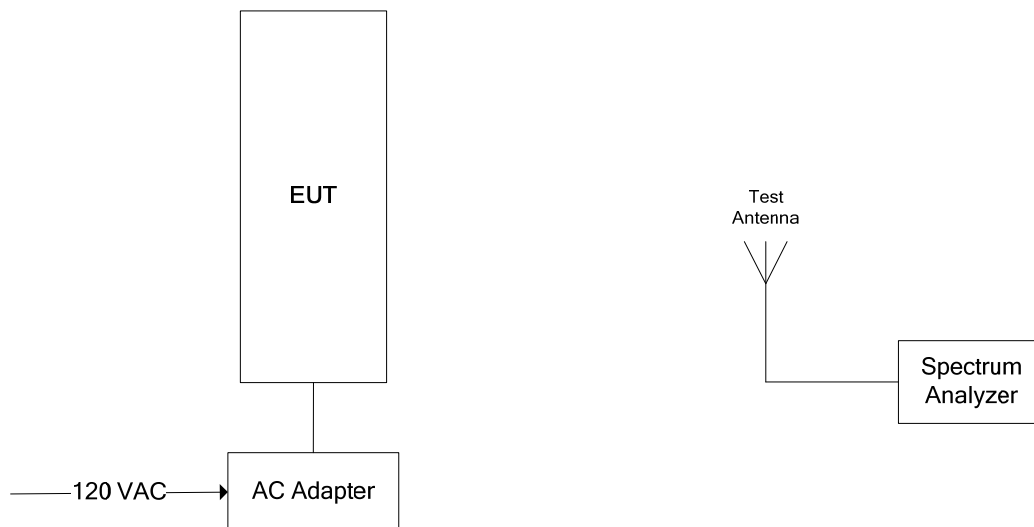


EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS

3.1. CLIMATE TEST CONDITIONS

The climate conditions of the test environment are as follows:

Temperature:	21 to 23 °C
Humidity:	45 to 58%
Pressure:	102 kPa
Power input source:	120 VAC 60 Hz

3.2. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TESTS

Operating Modes:	EUT was continuously transmitting and monitoring for the presence of a security tag.
Special Test Software:	N/A
Special Hardware Used:	N/A
Transmitter Test Antenna:	Tx antenna is integral.

Transmitter Test Signals	
Frequency Band(s):	7.436548 - 8.205584 MHz 8.301015 - 8.301015 MHz 8.400508 - 8.400508 MHz 8.504061 - 8.914213 MHz
Test Frequency(ies):	8.2 MHz, center frequency.
RF Power Output:	66.02 dBµV/m total peak (25.11 dBµV/m average) at 10m distance
Normal Test Modulation:	Unmodulated carrier frequency
Modulating Signal Source:	Internal

EXHIBIT 4. SUMMARY OF TEST RESULTS

4.1. TEST LAB AND LOCATION

Company Name:	Ultratech Engineering labs Inc.	
Address:	3000 Bristol Circle, Oakville, Ontario, Canada, L6H 6G4 Tel.: (905) 829-1570 Fax.: (905) 829-8050 Website: www.ultratech-labs.com ,	
Test Site/Company Number:	FCC	ISED
	MRA: APEC TEL Designation no. CA0001 FRN: 0003781366	Company No.: 2049A CAB Identifier: CA0001

4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS

FCC Section(s)	Test Requirements	Compliance (Yes/No)
15.203	Antenna Requirement	Yes*
15.207(a)	AC Power Line Conducted Emissions	Yes
15.215(c) 15.223 (a)	6 dB Bandwidth	Yes
15.223 (a)	Field strength of any emission within the band 1.705-10.0 MHz	Yes
15.223 (b)	Field strength of emissions outside of the band 1.705-10.0 MHz	Yes

* The EUT complies with the requirement; it employs integral antenna.

4.3. MODIFICATIONS INCORPORATED IN THE EUT FOR COMPLIANCE PURPOSES

None.

EXHIBIT 5. TEST DATA

5.1. POWER LINE CONDUCTED EMISSIONS [§15.207(a)]

5.1.1. Limit(s)

The equipment shall meet the limits of the following table:

Frequency of emission (MHz)	Conducted Limits (dB μ V)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

*Decreases linearly with the logarithm of the frequency

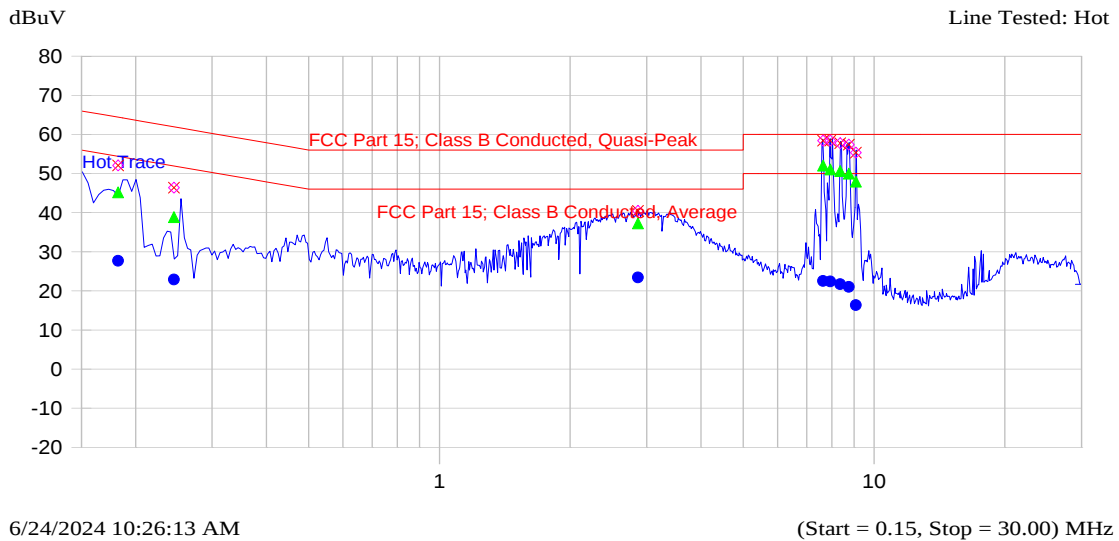
5.1.2. Method of Measurements

ANSI C63.4

5.1.3. Test Data

Plot 5.1.3.1. Power Line Conducted Emissions
Line Voltage: 120 VAC 60 Hz; Line Tested: Hot

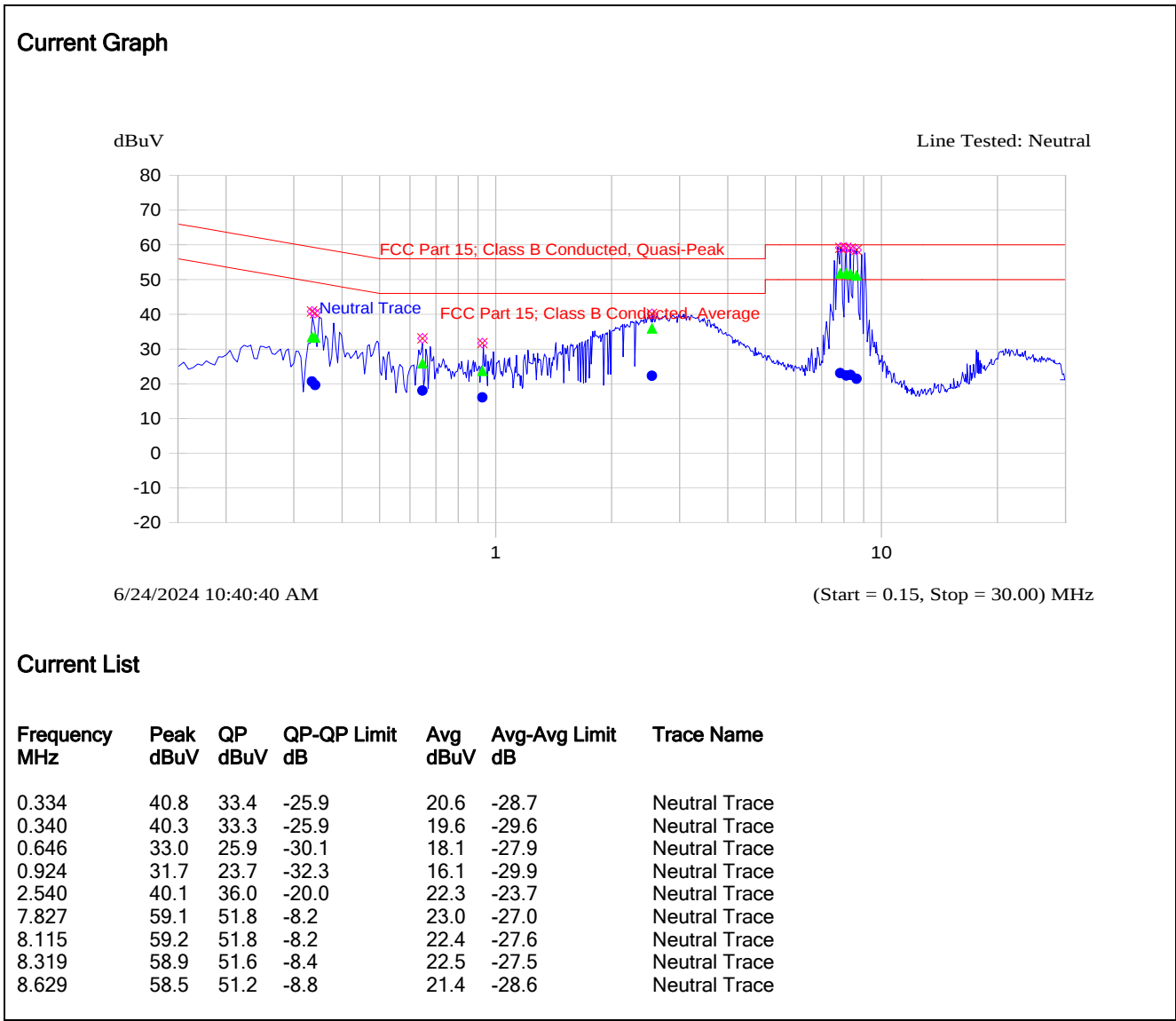
Current Graph



Current List

Frequency MHz	Peak dBuV	QP dBuV	QP-QP Limit dB	Avg dBuV	Avg-Avg Limit dB	Trace Name
0.182	52.1	45.2	-19.2	27.7	-26.7	Hot Trace
0.245	46.4	38.9	-23.1	22.9	-29.0	Hot Trace
2.864	40.5	37.2	-18.8	23.4	-22.6	Hot Trace
7.632	58.4	52.0	-8.0	22.5	-27.5	Hot Trace
7.932	58.4	51.0	-9.0	22.4	-27.6	Hot Trace
8.358	57.7	50.6	-9.4	21.7	-28.3	Hot Trace
8.755	57.4	50.0	-10.0	21.0	-29.0	Hot Trace
9.081	55.3	47.9	-12.1	16.3	-33.7	Hot Trace

Plot 5.1.3.2. Power Line Conducted Emissions
Line Voltage: 120 VAC 60 Hz; Line Tested: Neutral



5.2. 6 dB BANDWIDTH [47 CFR §§ 15.215(c) & 15.223(a)]

5.2.1. Limit(s)

15.215(c) the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

15.223 (a) The 6 dB bandwidth is measured to determine the applicable field strength limit.

5.2.2. Method of Measurements

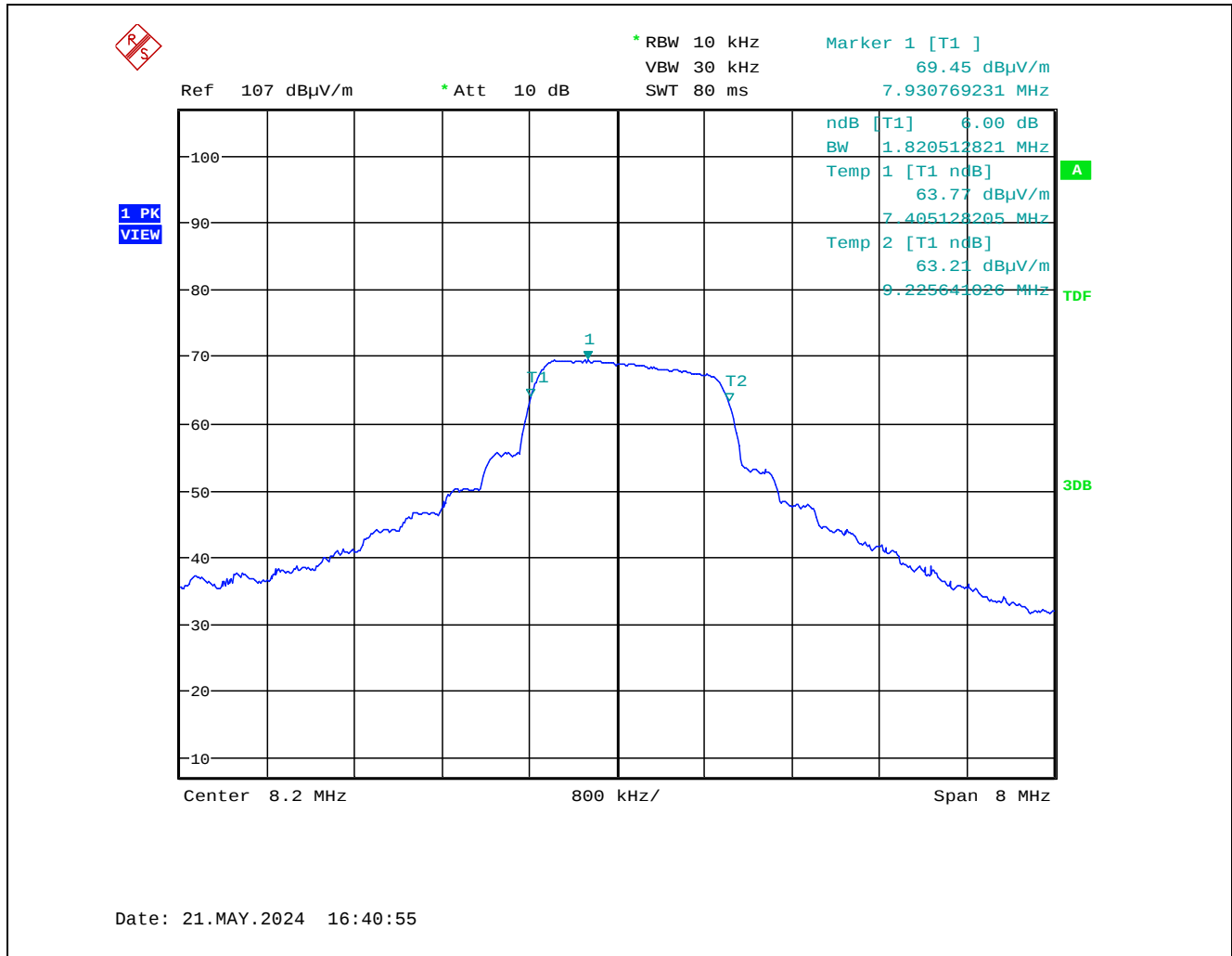
The measurements were performed in accordance with ANSI C63.4

5.2.3. Test Data

Center Frequency	6 dB Bandwidth
8.2 MHz	1.821 MHz

See the following plot for detail.

Plot 5.2.3.1. 6 dB Bandwidth, Fc: 8.2 MHz (Close distance measurement)



5.3. FIELD STRENGTH OF EMISSION WITHIN & OUTSIDE OF THE PERMITTED BAND 1.705-10.0 MHz [47 CFR § 15.223(a)]

5.3.1. Limit(s)

47 CFR 15.223(a)

The field strength of any emission within the band 1.705-10.0 MHz shall not exceed 100 microvolts/meter at a distance of 30 meters. However, if the bandwidth of the emission is less than 10% of the center frequency, the field strength shall not exceed 15 microvolts/meter or (the bandwidth of the device in kHz) divided by (the center frequency of the device in MHz) microvolts/meter at a distance of 30 meters, whichever is the higher level. For the purposes of this section, bandwidth is determined at the points 6 dB down from the modulated carrier. The emission limits in this paragraph are based on measurement instrumentation employing an average detector. The provisions in § 15.35(b) for limiting peak emissions apply.

47 CFR 15.223(b)

The field strength of emissions outside of the band 1.705-10.0 MHz shall not exceed the general radiated emission limits in § 15.209.

47 CFR 15.209(a) General Field Strength Limits

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100 **	3
88–216	150 **	3
216–960	200 **	3
Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.		

5.3.2. Method of Measurements

ANSI C63.4 and/or ANSI C63.10

5.3.3. Test Data

Remarks:

- Radiated transmitter/spurious emissions measurements were performed at a measuring distance of 10m or 3m, from 10 kHz – 25 GHz and all spurious emissions that are in excess of 20 dB below the specified limit shall be recorded.
- For frequencies below 30 MHz, the results measured at 10 m distance shall be extrapolated as applicable to compare with limit and measurement distance specified in sections 15.223 and 15.209, using an extrapolation factor of 40 dB/decade for determining compliance.
- Duty Cycle: measured maximum duty cycle is 0.901 %.
- The peak-average correction factor = -40.91 dB. See Section 5.3.3.4 for details.

5.3.3.1. Field Strength of Emissions Within the Permitted Band (1.705-10.0 MHz) at 10 m

Frequency (MHz)	Total Peak Field Strength at 10m (dBµV/m)	Average Field Strength at 10m (dBµV/m)	Antenna Plane (H/V)	Field Strength Extrapolated Value (dBµV/m)		§ 15.223 Field Strength Limits (dBµV/m)		Margin (dB)	
				Peak	Average	Peak	Average	Peak	Average
8.2	66.02	25.11	V	46.94	6.03	60.0	40.0	-13.06	-33.97
8.2	49.74	8.83	H	30.66	-10.25	60.0	40.0	-29.34	-50.25

5.3.3.2. Field Strength of Emissions Outside the Permitted Band Below 30 MHz at 10 m

Frequency (MHz)	Peak Field Strength at 10m (dBµV/m)	Average Field Strength at 10m (dBµV/m)	Antenna Plane (H/V)	Field Strength Extrapolated Value (dBµV/m)	§ 15.209 Field Strength Limits (dBµV/m)	Margin (dB)
All spurious emissions are more than 20 dB below the specified limit.						

5.3.3.3. Field Strength of Emissions Outside the Permitted Band at 3 m (30 MHz to 25 GHz)

Frequency (MHz)	Measured Field Strength @ 3 m (dBµV/m)	Detector Used (Peak/QP/Avg)	Antenna Plane (H/V)	§ 15.209 Field Strength Limits (dBµV/m)	Margin (dB)
32.80	20.4	QP	V	40.0	-19.6
41.00	23.2	QP	V	40.0	-16.8
49.20	30.5	QP	V	40.0	-9.5
57.40	33.3	Peak	V	40.0	-6.7
65.60	29.9	Peak	V	40.0	-10.1
73.80	29.0	Peak	V	40.0	-11.0
32.80	25.7	Peak	H	40.0	-14.3
41.00	21.7	Peak	H	40.0	-18.3
49.20	29.5	Peak	H	40.0	-10.5
57.40	25.8	Peak	H	40.0	-14.2
65.60	25.8	Peak	H	40.0	-14.2
73.80	25.6	Peak	H	40.0	-14.4
4814	61.9 / 34.2	Peak / Avg	V	74.0 / 54.0	-12.1 / -19.8
4814	61.3 / 33.5	Peak / Avg	H	74.0 / 54.0	-12.7 / -20.5

ULTRATECH GROUP OF LABS

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File #: 26PRD002_FCC15C223
June 10, 2026

All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

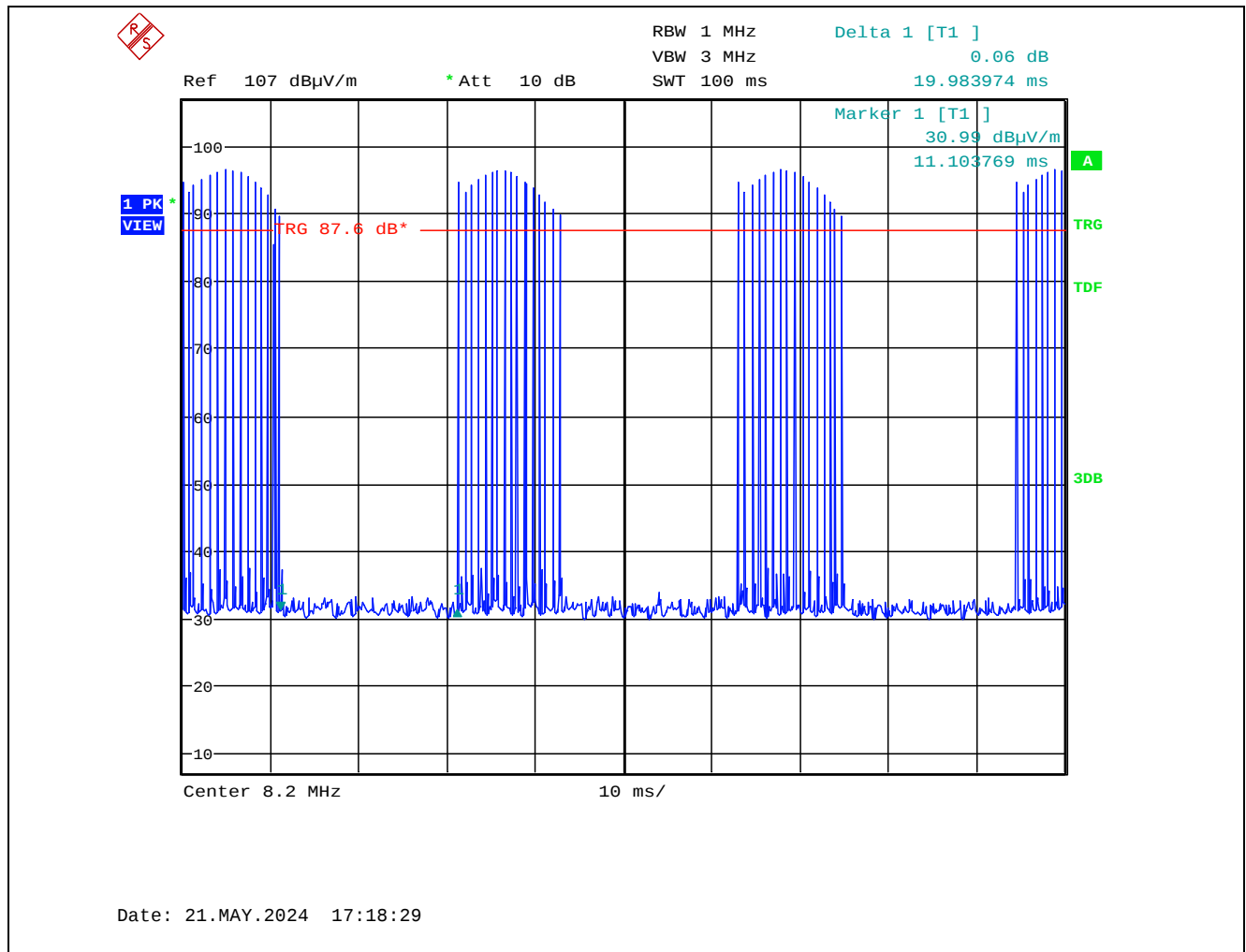
5.3.3.4. Duty-Cycle Correction Factor

The duty cycle correction factor is the total “on time” divided by the period of the pulse train (or 100 ms).

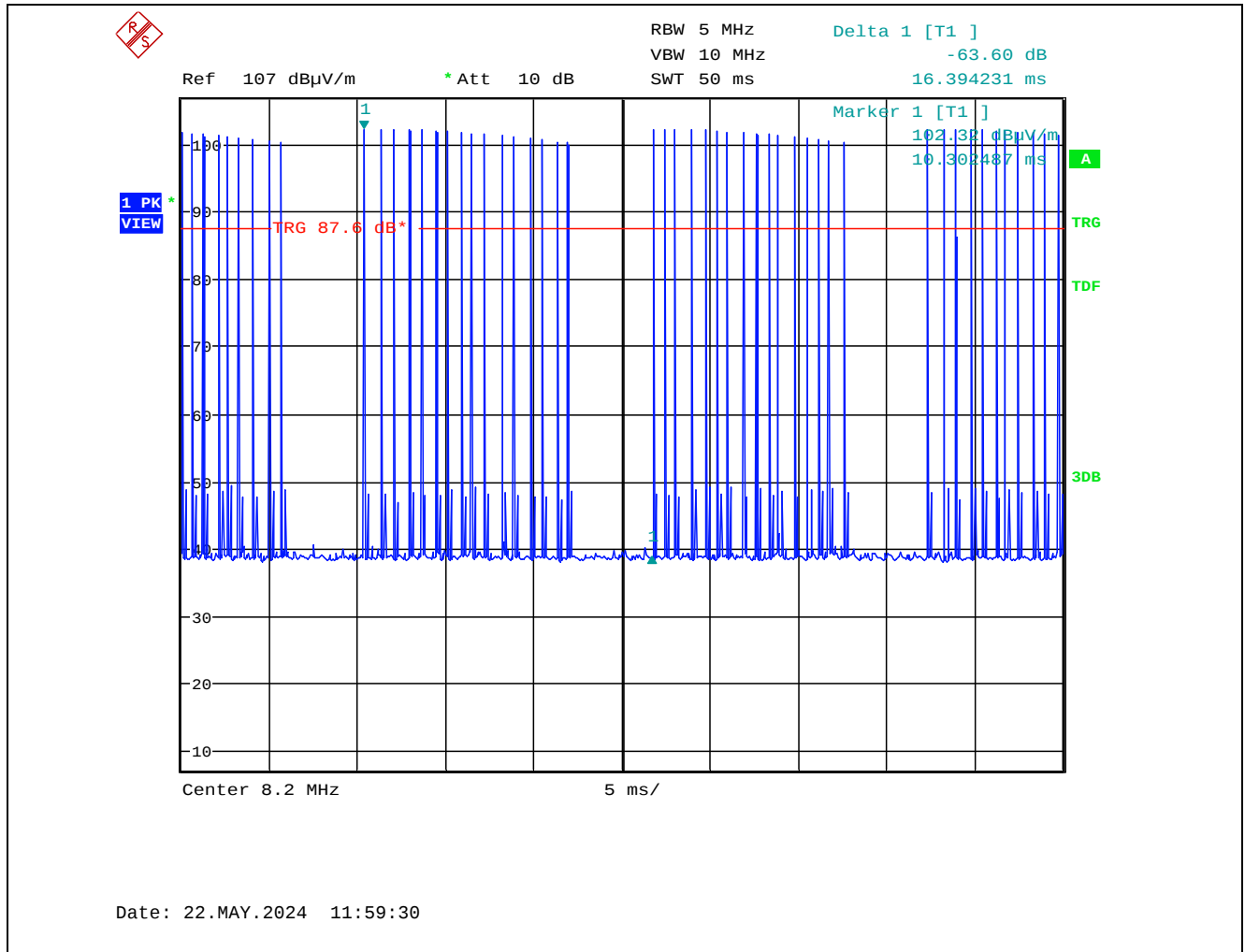
Computation of duty-cycle correction factor

Sub-Pulse	Duration (ms)	Number of pulses	Sub-Pulse “On Time” (ms)
1	0.00923	16	0.14768
		TOTAL ON TIME:	0.14768
Duty cycle correction factor:	$20 \cdot \log (T_{ON}/\text{Period}) = 20 \cdot \log (0.14768 \text{ ms} / 16.39 \text{ ms}) = -40.91 \text{ dB}$		

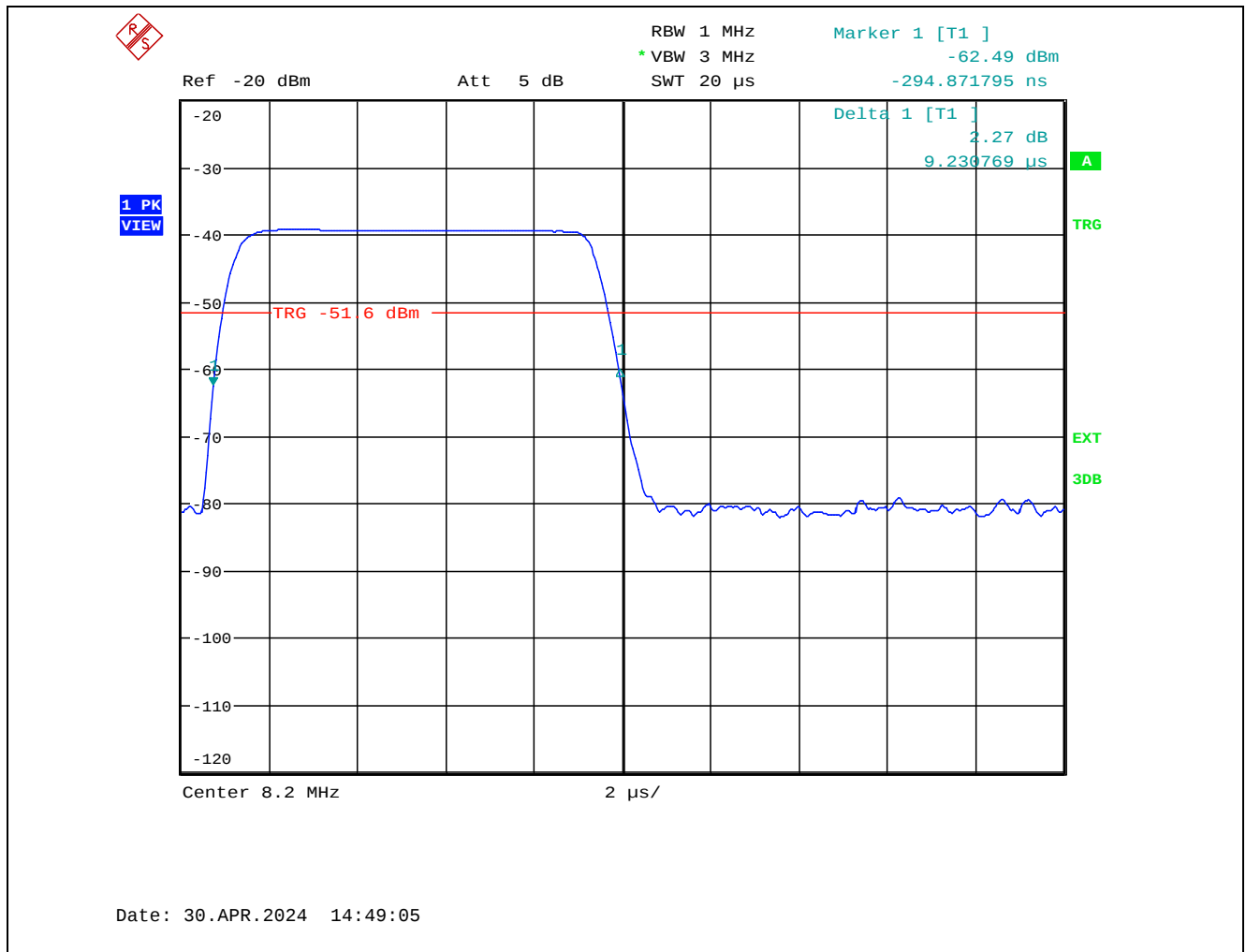
Plot 5.3.3.4.1. Duty Cycle (Pulse Train)



Plot 5.3.3.4.2. Duty Cycle (Period)



Plot 5.3.3.4.3. Duty Cycle (Pulse Width)



5.4. RF EXPOSURE REQUIREMENTS [§§ 1.1310 & 2.1091]

Per § 1.1307(b)(3)(i)(A), a single RF source is *exempt RF device* (from the requirement to show data demonstrating compliance to RF exposure limits) if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance.

5.4.1. RE Evaluation

The measured total peak field strength of 66.02 dBμV/m at 10 m corresponds to 0.0113 mW EIRP. This value is below the 1 mW threshold; therefore, the device is exempt from routine environmental evaluation in accordance with Section 1.1307(b)(3)(i)(A).

Calculation using the following formula:

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

where:

- EIRP = equivalent (or effective) isotropically radiated power in watts,
- E = electric field strength in V/m,
- d = measurement distance in meters (m).

$$E = 66.02 \text{ dB}\mu\text{V/m} = 1999.86 \mu\text{V/m} = 0.00199986 \text{ V/m}$$
$$d = 10 \text{ m}$$

$$\text{EIRP} = (0.00199986 \times 10)^2 / 30 = 0.0000133 \text{ W} = 0.0133 \text{ mW}$$

5.5. TEST EQUIPMENT LIST

Test Instruments	Manufacturer	Model No.	Serial No.	Frequency Range	Cal. Due Date
Spectrum Analyzer	Agilent	E7401A	US40240432	9 kHz–22 GHz	06 Nov 2024
High Pass filter	Rohde & Schwarz	EZ-25	100064	Cut off 150kHz	09 Nov 2024
LISN	Schwarzbeck	NSLK 8127	8127276	9 kHz–30 MHz	13 Dec 2024
Spectrum Analyzer	Rohde & Schwarz	ESU40	100037	20Hz–40 GHz	21 Sep 2024
Spectrum Analyzer	Rohde & Schwarz	FSU26	100398	20Hz–26.5 GHz	21 Sep 2025
Loop Antenna	EMCO	6502	9104-2611	10kHz-30MHz	13 Jun 2026
Biconilog Antenna	EMCO	3142C	00034792	26MHz-3000MHz	16 Dec 2025
Horn Antenna	EMCO	3115	9911-5955	1GHz-18GHz	04 Nov 2024
Horn Antenna	ETS	3160-09	00118385	18GHz-26GHz	23 Feb 2025
Pre-Amplifier	Com-Power	PAM-118A	550152	500MHz-18GHz	06 Oct 2024
Pre-Amplifier	Com-Power	PAM-840A	18050002	18GHz-40GHz	25 Oct 2024

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File #: 26PRD002_FCC15C223
June 10, 2026

All test results contained in this engineering test report are traceable to National Institute of Standards and Technology (NIST)

EXHIBIT 6. MEASUREMENT UNCERTAINTY

The measurement uncertainties stated were calculated in accordance with the requirements of CISPR 16-4-2 @ IEC:2011 and JCGM 100:2008 (GUM 1995) – Guide to the Expression of Uncertainty in Measurement.

Test description		Uncertainty (dB)
Power Line Conducted Emission		± 2.62
Radiated Emission	<30 MHz	± 3.05
	30-1000 MHz	± 4.82
	>1 GHz	± 3.43

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor $k=2$