



REGULATORY COMPLIANCE TEST REPORT

**FCC CFR 47 Part 15 Subpart C 15.247 (FHSS)
ISED RSS-247 Issue 4**

Report No.: DIGI144-U4 Rev A

Company: Digi International

Model Name: XBee HPX & XBee 9XRQ

REGULATORY COMPLIANCE TEST REPORT

Company Name: Digi International

Model Name: XBee HPX & XBee 9XRQ

To: FCC CFR 47 Part 15 Subpart C 15.247 (FHSS)
ISED RSS-247 Issue 4

Test Report Serial No.: DIGI144-U4 Rev A

This report supersedes: NONE

Applicant: Digi International
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Issue Date: 4th June 2026

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MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. Testing Accreditation

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard ISO/IEC 17025:2017. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; <http://www.a2la.org/scopepdf/2381-01.pdf>



1.2. Recognition

MiCOM Labs, Inc is widely recognized for its wireless testing and certification capabilities. In addition to being recognized for Testing and Certification under Phase 2 Mutual Recognition Agreements (MRA) with Canada, Europe, United Kingdom and Japan, our international recognition includes Conformity Assessment Body (CAB) designation status under agreements with Asia Pacific (APEC) MRA Phase 1 countries giving acceptance of MiCOM Labs test reports. MiCOM Labs test reports are accepted globally.

Country	Recognition Body	Status	MRA Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 Test Firm Designation#: US1084
Canada	Industry Canada (ISED)	FCB	APEC MRA 2	US0159 ISED#: 4143A
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	Japan MRA 2	RCB 210
	Japan Approvals Institute for Telecommunication Equipment (JATE)			
	VCCI			
Europe	European Commission	NB	EU MRA 2	A-0012 NB 2280
United Kingdom	Department for Business, Energy & Industrial Strategy (BEIS)	AB	UK MRA 2	AB 2280
Indonesia	Minister of Communication and Digital Education Keputusan Menteri Komunikasi Dan Digital	Number 13 List of Overseas Test Labs	--	Lab n°50/2025 of Decree n°13
Mexico	Instituto Federal de Telecomunicaciones (IFT)	CAB	Mexico MRA 1	US0159
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)			
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)			
Singapore	Infocomm Development Authority (IDA)			
Taiwan	National Communications Commission (NCC)			
	Bureau of Standards, Metrology and Inspection (BSMI)			
Vietnam	Ministry of Communication (MIC)			

TCB – Telecommunications Certification Bodies (TCB)

FCB – Foreign Certification Body

CAB – Conformity Assessment Body

NB – Notified Body

AB – Approved Body

MRA – Mutual Recognition Agreement

MRA Phase I - recognition for product testing

Phase II – recognition for both product testing and certification

1.3. Product Certification

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard ISO/IEC 17065:2012. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.02. MiCOM Labs test schedule is available at the following URL; <http://www.a2la.org/scopepdf/2381-02.pdf>



United States of America – Telecommunication Certification Body (TCB)
Industry Canada – Certification Body, CAB Identifier – US0159
Europe – Notified Body (NB), NB Identifier - 2280
UK – Approved Body (AB), AB Identifier - 2280
Japan – Recognized Certification Body (RCB), RCB Identifier - 210

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	21 st May 2026	Draft for comment
Draft #2	30 th May 2026	2 nd draft for comment
Rev A	4 th June 2026	Initial Release

In the above table the latest report revision will replace all earlier versions.

3. TEST RESULT CERTIFICATE

Manufacturer: Digi International 9350 Excelsior Blvd. Suite 700 Hopkins MN 55343 United States of America	Tested By: MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Model: XBee HPX & XBee 9XRQ	Telephone: +1 925 462 0304 Fax: +1 925 462 0306
Type Of Equipment: RF Radio Module	
S/N's: XBP-HPX-UT-001, XBP-9XRQ-UT-001	
Test Date(s): 23 rd April – 13 th May 2026	Website: www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15 Subpart C 15.247 (FHSS) ISED RSS-247	EQUIPMENT COMPLIES

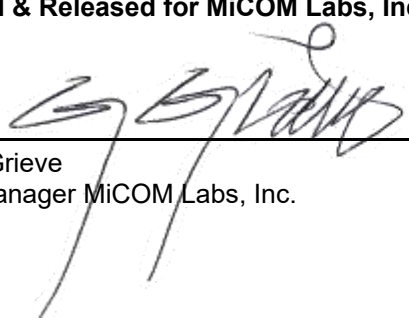
MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.
2. Details of test methods used have been recorded and kept on file by the laboratory.
3. Test results apply only to the item(s) tested.

Approved & Released for MiCOM Labs, Inc. by:




Graeme Grieve
Quality Manager MiCOM Labs, Inc.


Gordon Hurst
President & CEO MiCOM Labs, Inc.

4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 558074 D01 v05r02	Apr 2019	Guidance for Compliance Measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices operating under section 15.247 of the FCC Rules.
II	A2LA R105	24th February 2025	Requirements When Making Reference to A2LA Accreditation Status.
III	ANSI C63.10-2020+Amendment 1 C63.10a-2024 + Errata to C63.10a-2024	2024	American National Standard for Testing Unlicensed Wireless Devices
IV	ANSI C63.4	2014 + 2017 Amendment	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
V	ETSI TR 100 028	2001-12	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
VI	FCC 47 CFR Part 15, Subpart B	Nov 2017	Title 47: Telecommunication PART 15—RADIO FREQUENCY DEVICES, SubPart B; Unintentional Radiators
VII	FCC 47 CFR Part 15.247	Apr 2020	Radio Frequency Devices; Subpart C – Intentional Radiators
VIII	FCC Public Notice DA 00-705	Mar 2000	Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems
IX	ICES-003	Issue 7; Oct 2020	Information Technology Equipment (Including Digital Apparatus)
X	UKAS M3003	Edition 6 March 2024	The Expression of Uncertainty and Confidence in Measurements
XI	RSS-247 Issue 4	July 2025	RSS-247 — Digital Transmission Systems, Frequency Hopping Systems and Licence-Exempt Local Area Network Devices in 902-928 MHz, 2400-2483.5 MHz, 5150-5350 MHz, and 5470-5895 MHz bands.
XII	RSS-Gen Issue 5	Amendment 1,2 (Feb 2021)	General Requirements for Compliance of Radio Apparatus. With Amendments 1: March 2019 and 2: Feb 2021.
XIII	FCC 47 CFR Part 2.1033	Feb 2023	FCC requirements and rules regarding photographs and test setup diagrams.
XIV	UKAS LAB 12	Edition 5 December 2025	The Expression of Uncertainty in Testing

4.2. Test and Uncertainty Procedure

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor $k = 2$, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.

5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Digi International XBee HPX & XBee 9XRQ to FCC CFR 47 Part 15 Subpart C 15.247 (FHSS) Radio Frequency Devices; Subpart C – Intentional Radiators RSS-247 (FHSS).
Applicant:	Digi International 9350 Excelsior Blvd. Suite 700 Hopkins MN 55343 USA
Manufacturer:	Digi International
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	DIGI144–U4 Draft
Date EUT received:	17 th April 2026
Standard(s) applied:	FCC CFR 47 Part 15 Subpart C 15.247 (FHSS) 15.247 (FHSS)
Dates of test (from - to):	23 rd April – 13 th May 2026
No of Units Tested:	2
Product Family Name:	Digi XBee HPX/XR
Model/Part Numbers:	XBP-HPX-UT-001, XBP-9XRQ-UT-001
Location for use:	Both indoor and outdoor
Declared Frequency Range(s):	902 - 928 MHz;
Type of Modulation:	FSK
EUT Modes of Operation:	XBee HPX: FSK-10k; FSK-200k; XBee 9XRQ: FSK-10k; FSK-110k; FSK-250k;
Declared Nominal Output Power (dBm):	+7 dBm to +24 dBm
Transmit/Receive Operation:	Single Chain
Rated Input Voltage and Current:	3.3 Vdc nominal (2.1V to 3.6V) / 250 mA
Operating Temperature Range:	-40°C to +85°C (Client Declared)
ITU Emission Designator:	500KF1D for the 9XRQ 400KF1D for the HPX
Equipment Dimensions:	L: 33.1 mm, W: 24.3 mm, H: 7.83 mm
Weight:	3.01 g
Hardware Rev:	55002235-01 (u.fl receptacle) & 55002235-02 (RPSMA connector)
Software Rev:	8000A0 for the HPX & 9001A0 for the 9XRQ

5.2. Scope Of Test Program

Digi International XBee HPX & XBee 9XRQ

The scope of the test program was to test the Digi International, XBee HPX & XBee 9XRQ configurations in the frequency ranges 902 - 928 MHz; for compliance against the following specification:

FCC CFR 47 Part 15 Subpart C 15.247 (FHSS)

Radio Frequency Devices; Subpart C – Intentional Radiators

RSS-247 Issue 4 July 2025

RSS-247 — Digital Transmission Systems, Frequency Hopping Systems and License-Exempt Local Area Network Devices in 902-928 MHz.

Digi International XBee HPX & XBee 9XRQ

EUT Photos		
		
Part Description	XBP-HPX-UT-001	XBP-9XRQ-UT-001

5.3. Equipment Model(s) and Serial Number(s)

Type (EUT/Support)	Equipment Description	Mfr	Model/Part No.	Serial No.
EUT	Wireless module	DIGI	XBP-HPX-UT-001	-
EUT	Wireless module	DIGI	XBP-9XRQ-UT-001	-
EUT Support	XBee TH Development Board	DIGI	XBIB-CU-TH	(S)190642216C
Support	Laptop Computer	HP	Zbook 15 G3 Info	CND6235VDT

5.4. Cabling and I/O Ports

Port Type	Max Cable Length	# of Ports	Shielded	Conn Type	Data Type
U.FL	<3m	1	Yes	RF	Digital
USB-C	<3m	1	Yes	USB-C female	Digital

5.5. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
external	Laird	TRA8903	Dome	3.0	-	360	-	902 - 928
external	Laird/TE Connectivity	FG9026	Omni	8.0	-	360	-	902 - 928
external	Molex	2111400100	FPC	1.0	-	360	-	902 - 928
external	Mpdevice	ACE-915NF (Digi A09-HASM-675)	Dipole	2.1	-	360	-	902 - 928
external	Taoglas	FXUB65.07.0180C	FPC	2.0	-	360	-	902 - 928
external	TE Connectivity	PC9013N	Yagi	15.0	-	360	-	902 - 928

BF Gain - Beamforming Gain
Dir BW - Directional BeamWidth
X-Pol - Cross Polarization

5.6. Test Configurations

Results for the following configurations are provided in this report:

XBee HPX

Operational Mode(s)	Data Rate with Highest Power	Channel Frequency (MHz)		
		Low	Mid	High
		902 - 928 MHz		
FSK-10k	10k	902.40	914.8	927.6
FSK-200k	200k	902.40	914.8	927.6

XBee 9XRQ

Operational Mode(s)		Data Rate with Highest Power		Channel Frequency (MHz)		
				Low	Mid	High
		902 - 928 MHz				
FSK-10k	10k	902.50	915.00	927.50		
FSK-110k	110k	902.50	915.00	927.50		
FSK-250k	250k	902.75	915.25	927.25		

5.7. Operational Modes

Operating Mode(s)	Operating Mode Description
902 – 928 MHz FHSS	Frequency Hopping Spread Spectrum

5.8. Equipment Modifications

The following modifications were required to bring the equipment into compliance:

1. NONE

5.9. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:

1. NONE

6. TEST SUMMARY

List of Measurements

Test Header	Result	Data Link
20 dB & 99% Bandwidth	Complies	View Data
Frequency Hopping Tests	Complies	-
Number of Hopping Channels	Complies	View Data
Channel Separation	Complies	View Data
Dwell Time	Complies	View Data
Channel Occupancy	Complies	View Data
Output Power	Complies	View Data
Emissions	Complies	-
(1) Conducted Emissions	Complies	-
(i) Conducted Unwanted Spurious Emissions	Complies	View Data
(ii) Conducted Band-Edge Emissions	Complies	View Data
(2) Radiated Emissions	Complies	-
....(i) TX Spurious & Restricted Band Emissions (30 MHz -1 GHz)	Complies	View Data -
....(ii) TX Spurious & Restricted Band Emissions (1 GHz -18 GHz)	Complies	View Data
(3) Digital Emissions (0.03 - 1 GHz)	See MiCOM Labs FCC Part 15B Test Report DIGI144-U2	-
(4) AC Wireline Emissions	¹ Not Applicable	-

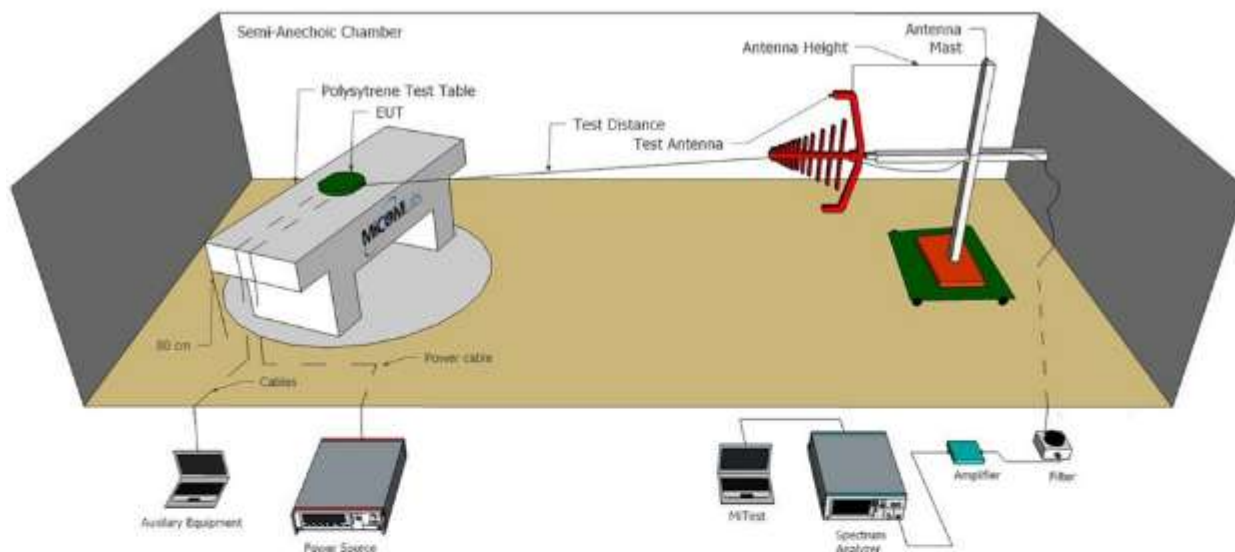
¹The XBee HPX & XBee 9XRQ are DC-powered via a USB-C interface and contain no AC power input ports

7. TEST EQUIPMENT CONFIGURATION(S)

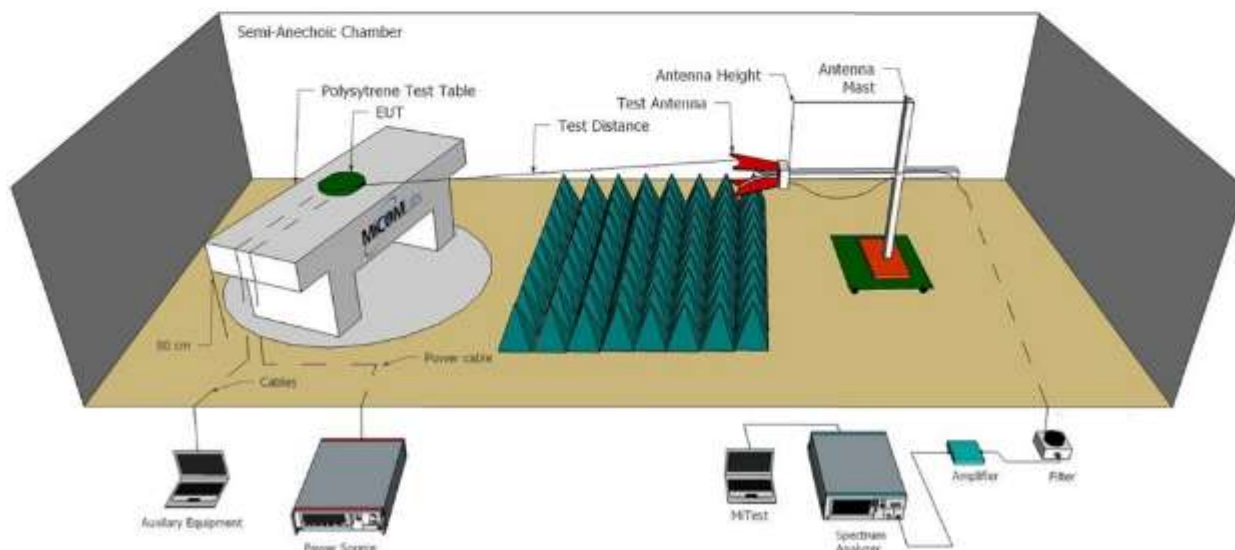
7.1.1. Radiated Test Setup

Test setup diagrams for Radiated Emissions below and above 1 GHz.

Radiated Emissions Below 1GHz Test Setup



Radiated Emissions Above 1GHz Test Setup



Test Equipment Utilized

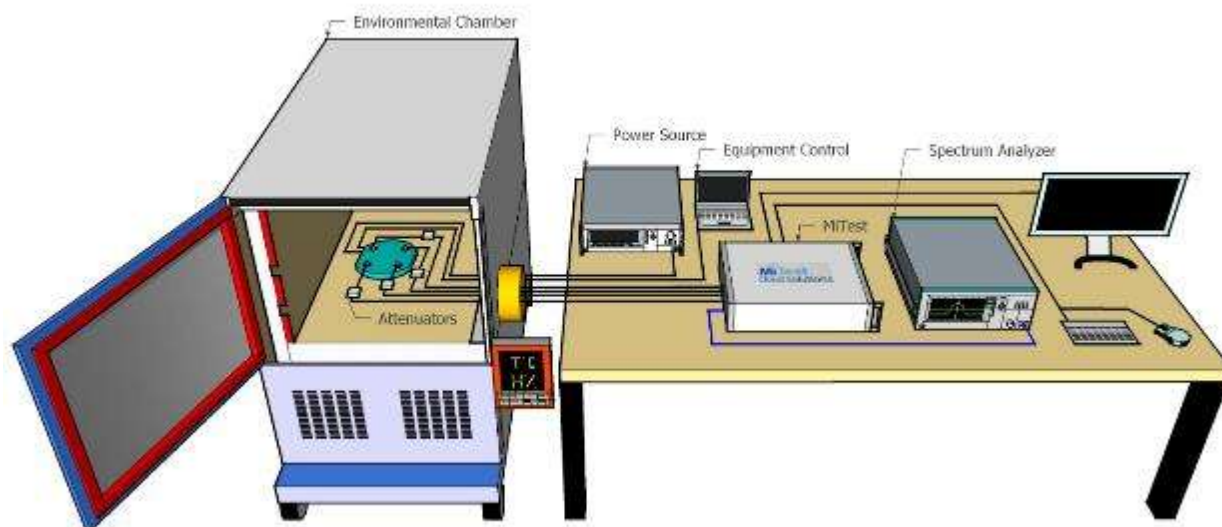
A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
170	Video System Controller for Semi Anechoic Chamber	Panasonic	WV-CU101	04R08507	Not Required
298	3M Radiated Emissions Chamber Maintenance Check	MiCOM	3M Chamber	298	22 Aug 2026
330	Variac 0-280 Vac	Staco Energy Co	3PN1020B	0546	Cal when used
338	Sunol 30 to 3000 MHz Antenna	Sunol	JB3	A052907	5 Dec 2026
341	900MHz Notch Filter	EWT	EWT-14-0199	H1	13 Sep 2026
346	1.6 TO 10GHz High Pass Filter	EWT	EWT-57-0112	H1	25 Aug 2026
382	Tunable Notch Filter	Wainwright Instruments GmbH	WRCT800/960-0.2/40-8EEK	64	Cal when used
397	Amp 10 - 2500MHz	MiCOM Labs	Amp 10 - 2500 MHz	NA	18 Aug 2026
399	ETS 1-18 GHz Horn Antenna	ETS	3117	00154575	7 Dec 2026
406	Amplifier for Radiated Emissions	MiCOM Labs	40dB 1 to 18GHz Amp	0406	18 Aug 2026
410	Desktop Computer	Dell	Inspiron 620	WS38	Not Required
411	Mast/Turntable Controller	Sunol Sciences	SC98V	060199-1D	Not Required
412	USB to GPIB Interface	National Instruments	GPIB-USB HS	11B8DC2	Not Required
413	Mast Controller	Sunol Science	TWR95-4	030801-3	Not Required
415	Turntable Controller	Sunol Sciences	Turntable Controller	None	Not Required
416	Gigabit ethernet filter	ETS-Lingren	Gigafoil 260366	None	Not Required
447	MiTest Rad Emissions Test Software	MiCOM	Rad Emissions Test Software Version 1.0	447	Not Required
462	Schwarzbeck cable from Antenna to Amplifier.	Schwarzbeck	AK 9513	462	18 Aug 2026
463	Schwarzbeck cable from Amplifier to Bulkhead.	Schwarzbeck	AK 9513	463	18 Aug 2026
464	Schwarzbeck cable from Bulkhead to Receiver	Schwarzbeck	AK 9513	464	18 Aug 2026
465	Low Pass Filter DC-1000 MHz	Mini-Circuits	NLP-1200+	VUU01901402	18 Aug 2026

469	Low pass filter	Mini Circuit	SLP-1000	None	18 Aug 2026
480	Cable - Bulkhead to Amp	SRC Haverhill	157-3050360	480	18 Aug 2026
481	Cable - Bulkhead to Receiver	SRC Haverhill	151-3050787	481	18 Aug 2026
510	Barometer/Thermometer	Digi Sense	68000-49	170871375	4 Jan 2027
554	Precision SMA Cable	Fairview Microwave	SCE18060101-400CM	554	18 Aug 2026
555	Rhode & Schwarz Receiver (Firmware Version : 3.10 SP1)	Rhode & Schwarz	ESW 44	101893	14 Aug 2026
578	DC Power Supply 0 - 60 V, 0 - 15 A	HP	6274B	2537A-08192	Not Required
596	DC Power Supply	Keysight	E36155A	MY63001023	17 Jan 2027
87	Uninterruptible Power Supply	Falcon Electric	ED2000-1/2LC	F3471 02/01	Cal when used
CC-05	Radiated Emissions Confidence Check	MiCOM	CC-05	None	10 July 2026

7.1.2. Conducted Test Setup

MiTest Automated Test System



Test Equipment Utilized

A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
#3 SA	MiTest Box to SA	Fairview Microwave	SCA1814-0101-72	#3 SA	8 July 2026
#3P1	EUT to MiTest box port 1	Fairview Microwave	SCA1814-0101-72	#3P1	8 July 2026
249	Thermocouple; Resistance Thermometer	Thermotronics	GR2105-02	9340 #2	22 Mar 2027
266	10 Hz to 50GHz MXA Signal Analyzer	Keysight	N9020B	MY60110791	25 Jul 2026
382	Tunable Notch Filter	Wainwright Instruments GmbH	WRCT800/960 -0.2/40-8EEK	64	Cal when used
398	MiTest RF Conducted Test Software	MiCOM	MiTest ATS	Version 4.2.3.0	Not Required
405	DC Power Supply 0-60V	Agilent	6654A	MY4001826	Cal when used
408	USB to GPIB interface	National Instruments	GPIB-USB HS	14C0DE9	Not Required
441	USB Wideband Power Sensor	Boonton	55006	9179	4 Dec 2026
442	USB Wideband Power Sensor	Boonton	55006	9181	12 Dec 2026

445	PoE Injector	D-Link	DPE-101GL	QTAH1E2000625	Not Required
461	Spectrum Analyzer	Agilent	E4440A	MY46185537	21 Aug 2027
494	USB Wideband Power Sensor	Boonton	55006	9726	12 Dec 2026
510	Barometer/Thermometer	Digi Sense	68000-49	170871375	4 Jan 2027
512	MiTest Cloud Solutions RF Test Box	MiCOM	2nd Gen	512	8 July 2026
516	USB Wideband Power Sensor	Boonton	RTP5006	10511	4 Dec 2026
555	Rhode & Schwarz Receiver	Rhode & Schwarz	ESW 44	101893	14 Aug 2026
592	Harmonic Mixer, 140 GHz to 220 GHz	Radiometer Physics	RPG FS-Z220	101105	7 Jun 2026
593	Harmonic Mixer, 90 GHz to 140 GHz	Radiometer Physics	RPG FS-Z140	101197	2 Aug 2026
596	DC Power Supply	Keysight	E36155A	MY63001023	17 Jan 2027
75	Environmental Chamber	Theratron	SE-300-2-2	27946	20 Jun 2026

8. MEASUREMENT AND PRESENTATION OF TEST DATA

The measurement and graphical data presented in this test report was generated automatically using state-of-the-art technology creating an easy to read report structure. Numerical measurement data is separated from supporting graphical data (plots) through hyperlinks. Numerical measurement data can be reviewed without scrolling through numerous graphical pages to arrive at the next data matrix.

Plots have been relegated into the Appendix 'Graphical Data'.

Test and report automation was performed by [MiTest](#). [MiTest](#) is an automated test system developed by MiCOM Labs. [MiTest](#) is the first cloud based modular test system enabling end-to-end automation of regulatory compliance testing for conducted RF testing.



The MiCOM Labs "[MiTest](#)" Automated Test System" (Patent Pending)