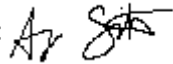


Test Report TR3871E

Equipment Under Test:	BD Neo Infusion Pump
Requirement(s):	15.247, 15.407, 15.225, 15.209
Test Date(s):	4/14/2025-4/15/2025
Prepared for:	DEKA Research Attn: Jack Murphy 340 Commercial Street Manchester, NH 03101

Report Issued by: Anthony Smith, EMC Engineering Specialist	
Signature: 	Date: 11/19/2025
Report Reviewed by: Adam Alger, Sr. Manager, EMC Laboratory	
Signature: 	Date: 11/19/2025
Report Constructed by: Anthony Smith, EMC Engineering Specialist	
Signature: 	Date: 6/9/2025

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Company: DEKA Research	Page 1 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200
Job: C-3871		BD Neo Pump Module: 9210
		Serial: 03010574, 03010575, 03010615

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Ezurio Test Services in Review

The Ezurio laboratory located at W66 N220 Commerce Court Cedarburg, Wisconsin, 53012 USA is recognized through the following organizations:



A2LA – American Association for Laboratory Accreditation

Accreditation based on ISO/IEC 17025:2017 with Electrical (EMC) Scope

A2LA Certificate Number: 1255.01

Scope of accreditation includes all test methods listed herein unless otherwise noted



Federal Communications Commission (FCC) – USA

Accredited Test Firm Registration Number: 953492

Recognition of two 3 meter Semi-Anechoic Chambers



Innovation, Science and Economic Development Canada

Accredited U.S. Identification Number: US0218

Recognition of two 3 meter Semi-Anechoic Chambers

Company: DEKA Research	Page 3 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200 BD Neo Pump Module: 9210
Job: C-3871		Serial: 03010574, 03010575, 03010615

1 TEST REPORT SUMMARY

During **4/14/2025** the Equipment Under Test (EUT), **BD Neo Infusion Pump**, as provided by **DEKA Research** was tested to the following requirements:

Simultaneous Transmission

Requirements	Description	Method	Compliant
FCC 15.209	Radiated Emissions – Simultaneous Transmission	ANSI C63.10	Yes

Notice:

The results relate only to the item tested as configured and described in this report. Any additional configurations, modes of operation, or modifications made to the equipment under test after the specified test date(s) are at the decision of the client and may not apply to the data seen in this test report.

The decision rule for Pass / Fail assessment to the specification or standard listed in this test report has been agreed upon by the client and laboratory to be as follows:

Measurement Type	Rule
Emissions – Amplitude	1 dB below specified limit
Emissions – Frequency	1% less than the specification
Immunity	Tested at specified level

2 CLIENT INFORMATION

Company Name	DEKA Research
Contact Person	Jack Murphy
Address	340 Commercial Street Manchester, NH 03101

2.1 Equipment Under Test (EUT) Information

The following information has been supplied by the client

Product Name	BD Neo Infusion Pump
Model Number	BD Neo PCU: 9200 BD Neo Pump Module: 9210
Serial Number	PCU 03010574: Config 33 used for comparison PCU 03010575: Config 34 used for reported test data PCU 03010615: Config 39 with antenna termination used for AC Mains Conducted Emissions
Date of Receipt	2/20/2025
Condition	Good
FCC ID	2ATGAST60

2.2 Product Description

The Neo Infusion Device is a modular system that accurately infuses a broad range of drugs fluids, parenteral nutrition solutions, blood, and blood products. The Neo Infusion Device is intended for use in professional Healthcare Facilities on adult, pediatric, and neonatal patients. The Neo Infusion Device consists of the Point-of-Care Unit (PCU), and up to four detachable Large Volume Pump (LVP) Modules, which provide infusion capabilities.

2.3 Modifications Incorporated for Compliance

None noted at time of test

2.4 Deviations and Exclusions from Test Specifications

None noted at time of test

Company: DEKA Research	Page 5 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200 BD Neo Pump Module: 9210
Job: C-3871		Serial: 03010574, 03010575, 03010615

2.5 Additional Information

Radio programmed via Labtool software. Two configurations exist for device. These are known as Config 33 and Config 34. Config 34 was used for reported test results. Devices were checked to compare any concerning areas, and no substantial differences were noted.

Transmitters in EUT:

125 kHz: Inductively coupled “proximity” identification or access control technology.

13.56 MHz: Inductively coupled and capable of reading NFC credentials as well as other credentials operating at 13.56 MHz.

2.4/5 GHz: WLAN – 802.11a/b/g/n/ac.

2.6 Additional Information

Device tested in worst case instances of individual radios to check for any intermodulation. See Test Reports 3871A, 3871B, and 3871C for individual radio performance. No intermodulations or effect on emissions otherwise observed.

2.7 Software Versions

Milestone 29 Wifi Test Version

Neo Clinical Application Version 1.3.7.6001

Normal Badge Reader software 2.3.3

Labtool Version 1.0.0.164

2.8 Auxiliary Equipment

Laptop

Dell Latitude 5450

MN: P165G

SN: 15702971583

Network Switch

Cisco SG200-08

MN: SLM2008T-V01

SN: PSJ150800KY

Company: DEKA Research	Page 6 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200 BD Neo Pump Module: 9210
Job: C-3871		Serial: 03010574, 03010575, 03010615

3 REFERENCES

Publication	Edition	Date	AMD 1	AMD 2
TR3871A	0	6/2025		
TR3871B	0	6/2025		
TR3871C	0	6/2025		
ANSI C63.10	-	2020	-	-

4 UNCERTAINTY SUMMARY

Using the guidance of the following publications the calculated measurement uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level, using a coverage factor of $k = 2$.

References
CISPR 16-4-1
CISPR 16-4-2
CISPR 32
ANSI C63.23
A2LA P103
A2LA P103c
ETSI TR 100-028

Measurement Type	Configuration	Uncertainty $\pm$
Radiated Emissions	Biconical Antenna	5.0 dB
Radiated Emissions	Log Periodic Antenna	5.3 dB
Radiated Emissions	Horn Antenna	4.7 dB
AC Line Conducted Emissions	Artificial Mains Network	3.4 dB
Telecom Conducted Emissions	Asymmetric Artificial Network	4.9 dB
Disturbance Power Emissions	Absorbing Clamp	4.1 dB
Radiated Immunity	3 Volts/meter	2.2 dB
Conducted Immunity	CDN/EM/BCI	2.4/3.5/3.4 dB
EFT Burst/Surge	Peak pulse voltage	164 volts
ESD Immunity	15 kV level	1377 Volts

Parameter	ETSI U.C. $\pm$	U.C. $\pm$
Radio Frequency, from F0	1×10^{-7}	0.55×10^{-7}
Occupied Channel Bandwidth	5 %	2 %
RF conducted Power (Power Meter)	1.5 dB	1.2 dB
RF conducted emissions (Spectrum Analyzer)	3.0 dB	1.7 dB
All emissions, radiated	6.0 dB	5.3 dB
Temperature	1° C	0.65° C
Humidity	5 %	2.9 %
Supply voltages	3 %	1 %

Company: DEKA Research	Page 8 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200
Job: C-3871		BD Neo Pump Module: 9210
		Serial: 03010574, 03010575, 03010615

5 TEST DATA

5.1 Radiated Emissions

Description of Measurement	The frequency spectrum is investigated for intentional and / or unintentional signals emanating from the EUT by use of a standardized test site and measurement antenna. The antenna, cable, pre-amp, and other necessary measurement system correction factors are loaded onto the EMI receiver / spectrum analyzer when the measurements are performed allowing the data to be gathered and reported as corrected values. The maximum emissions from the EUT are determined by turn-table azimuth rotation (360°) and scanning of the measurement antenna. Maximized levels are noted at degree values of azimuth, measurement antenna height, and measurement antenna polarity.
Example Calculations	Measurement (dBμV) + Cable factor (dB) + Other (dB) + Antenna Factor (dB/m) = Corrected Reading (dBμV/m) Margin (dB) = Limit (dBμV/m) - Corrected Reading (dBμV/m) Example at 4000 MHz: Reading = 40 dBμV + 3.4 dB + 0.9 dB + 6.5 dB/m = 50.8 dBμV/m Average Limit = 20 log (500) = 54 dBμV/m Margin = 54 dBμV/m - 50.8 dBμV/m = 3.2 dB

Block Diagram



5.1.1 Radiated Emissions

Operator	Anthony Smith	QA	Dylan Rosenfeldt
Temperature	23.0°C	R.H. %	30.6%
Test Date	4/14/2025, 4/15/2025	Location	Chamber 3
Requirement	FCC 15.209, 15.247, 15.225, 15.407	Method	ANSI C63.10

Limits:

Frequency (MHz)	Quasi-Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)
30-88	40.0	-	-
88-216	43.5	-	-
216-960	46.0	-	-
960-1000	54.0	-	-
1000-40000	-	54.0	74.0

Test Parameters

Frequency	30-40000 MHz	Distance	3m
Detector(s)	Peak, Quasi-Peak, Average	Table height	80cm Below 1 GHz 150cm Above 1 GHz
RBW	120 kHz Below 1 GHz 1 MHz Above 1 GHz	VBW	1.2 MHz Below 1 GHz 3 MHz Above 1 GHz (Peak)
Note	Worst Case Plots only shown No Intermod observed		

Instrumentation

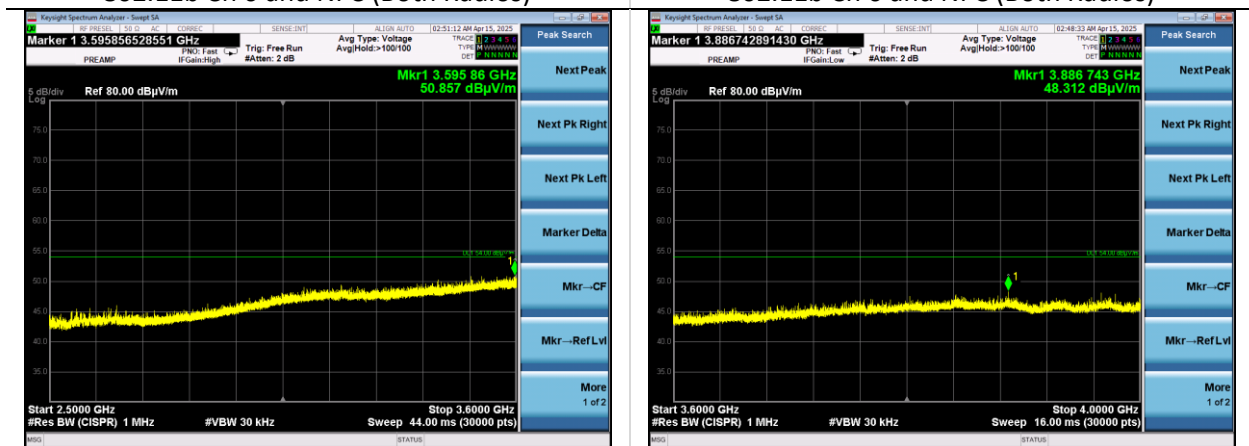
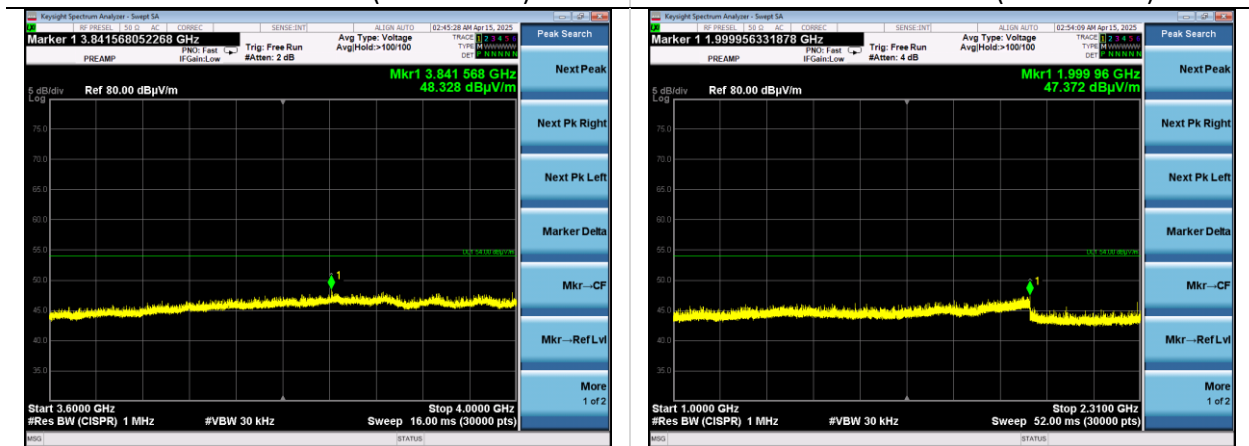
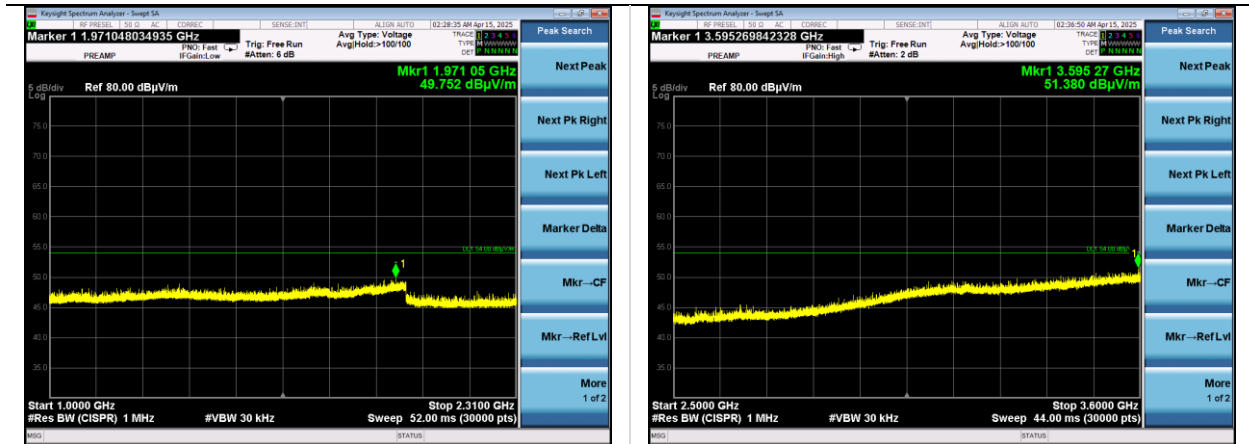
Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960007	Antenna - Double Ridge Horn	EMCO	3115	9311-4138	11/19/2024	11/19/2025	Active Calibration
AA 960153	Filter - High Pass 2.4 GHz	KWM	HPF-L-14186	7272-04	4/3/2025	4/3/2026	Active Calibration
AA 960161	Filter - Highpass 5 GHz	K&L Microwave	11SH10-8000	2	4/3/2025	4/3/2026	Active Calibration
AA 960220	Cable	A.H. Systems, Inc.	SAC-26G-6	552	1/28/2025	1/28/2026	Active Verification
EE 960203	Analyzer - EMI Receiver	Keysight	N9038A	MY56400072	4/2/2025	4/2/2026	Active Calibration
LSC-300	Cable	Chamber 3 Emissions	-	-	1/24/2025	1/24/2026	Active Verification

EUT Parameters

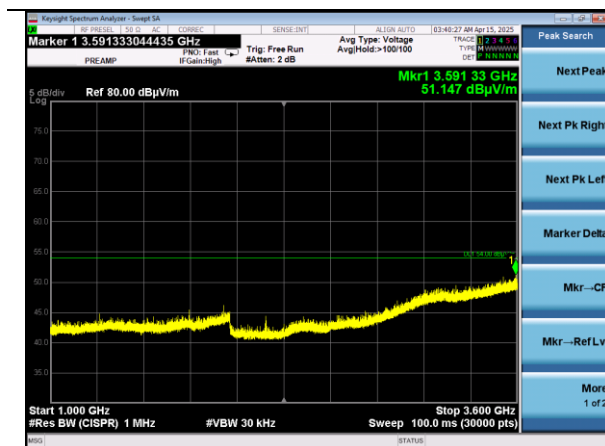
Company: DEKA Research	Page 10 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200 BD Neo Pump Module: 9210
Job: C-3871		Serial: 03010574, 03010575, 03010615

Input Power	120VAC 60 Hz	Mode	Transmit Simultaneously: WLAN 2.4/5 and NFC (125kHz and 13.56 MHz)
WLAN Channels	6, 48	EUT	802.11b 1M 802.11a 6M

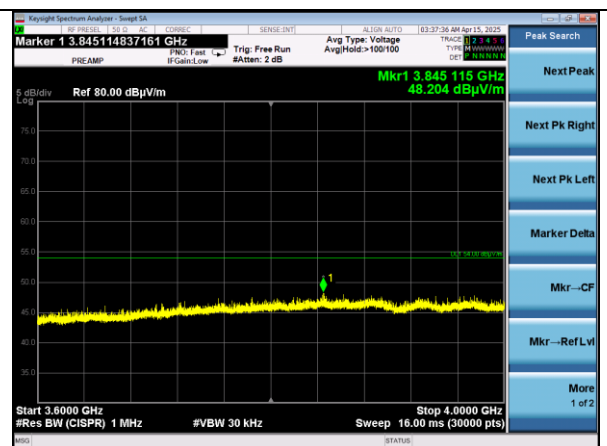
Plots



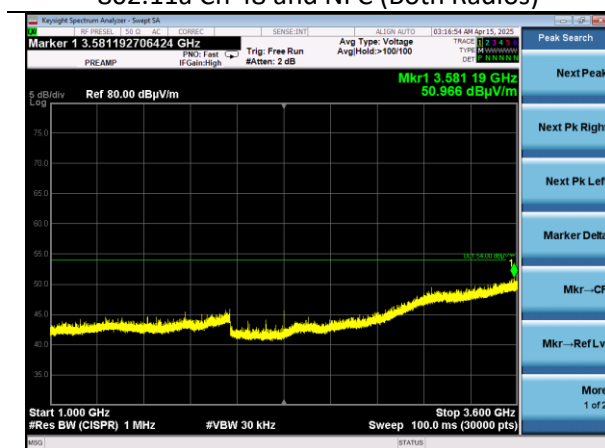
Company: DEKA Research	Page 12 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200 BD Neo Pump Module: 9210
Job: C-3871		Serial: 03010574, 03010575, 03010615



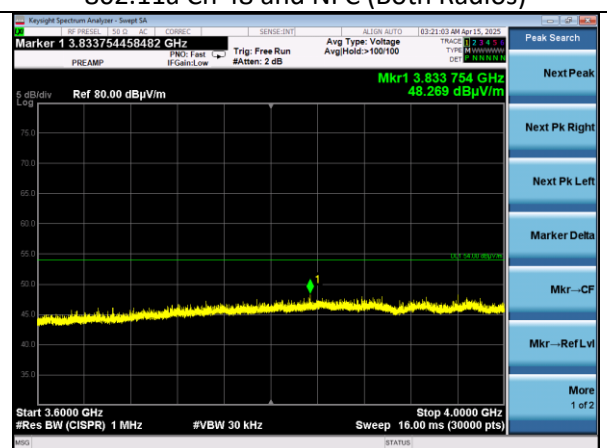
1-3.6 GHz Horizontal
802.11a Ch 48 and NFC (Both Radios)



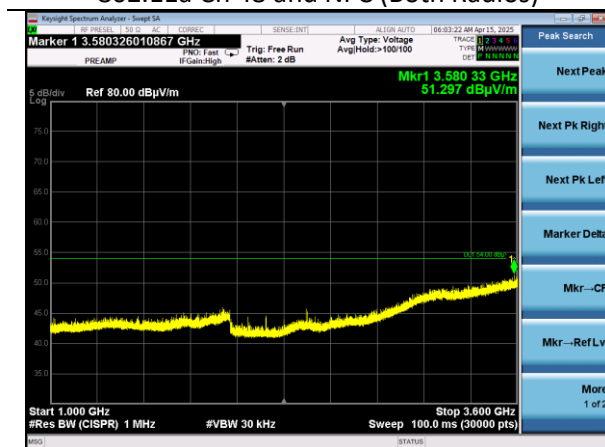
3.6-4.0 GHz Horizontal
802.11a Ch 48 and NFC (Both Radios)



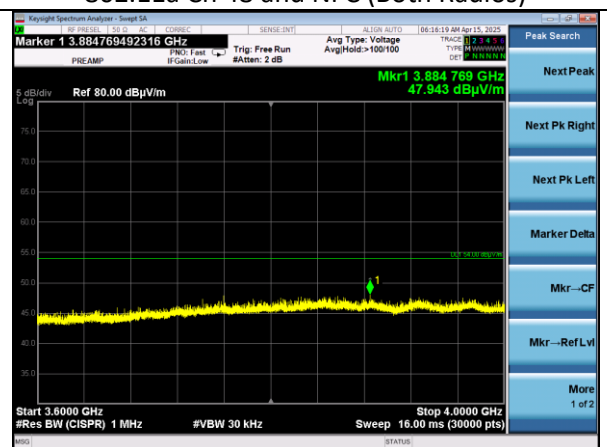
1-3.6 GHz Vertical
802.11a Ch 48 and NFC (Both Radios)



3.6-4.0 GHz Vertical
802.11a Ch 48 and NFC (Both Radios)

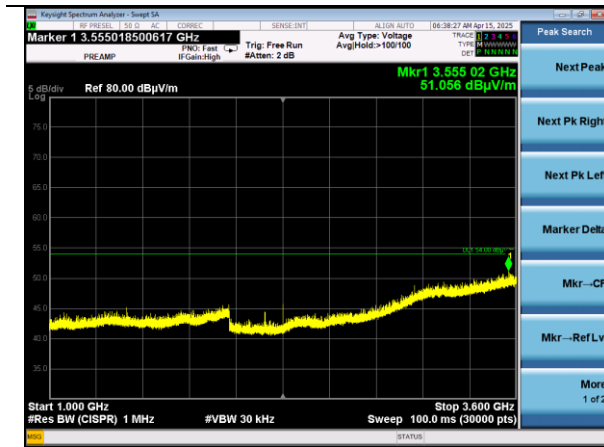


1-3.6 GHz Horizontal
No WLAN, just NFC

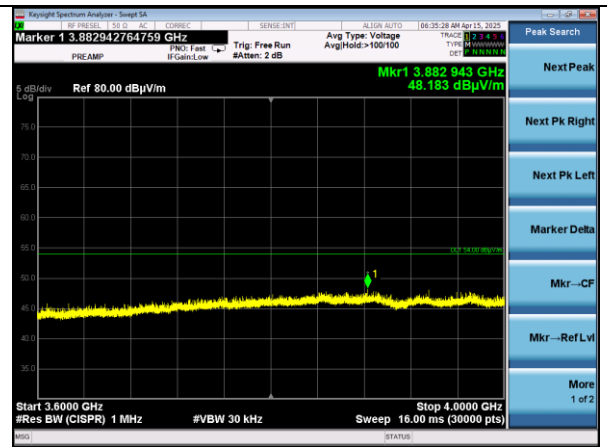


3.6-4.0 GHz Horizontal
No WLAN, just NFC

Company: DEKA Research	Page 13 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200
Job: C-3871		BD Neo Pump Module: 9210
		Serial: 03010574, 03010575, 03010615



1-3.6 GHz Vertical
No WLAN, just NFC



3.6-4.0 GHz Vertical
No WLAN, just NFC



4-18 GHz Horizontal
802.11b Ch 6 and NFC (Both Radios)



4-18 GHz Vertical
802.11b Ch 6 and NFC (Both Radios)



8-18 GHz Horizontal
802.11a Ch 48 and NFC (Both Radios)



8-18 GHz Vertical
802.11a Ch 48 and NFC (Both Radios)

Company: DEKA Research	Page 14 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200 BD Neo Pump Module: 9210
Job: C-3871		Serial: 03010574, 03010575, 03010615

5.2 AC Mains Conducted Emissions

A line impedance stabilization network (LISN) or artificial mains network (AMN) allows the emissions of the power supply conductors to be measured while isolating the EUT from the supply mains.

Description of Measurement

The AMN, cable, and other necessary measurement system correction factors are loaded onto the EMI receiver when the measurements are performed. The data is gathered and reported as the corrected values.

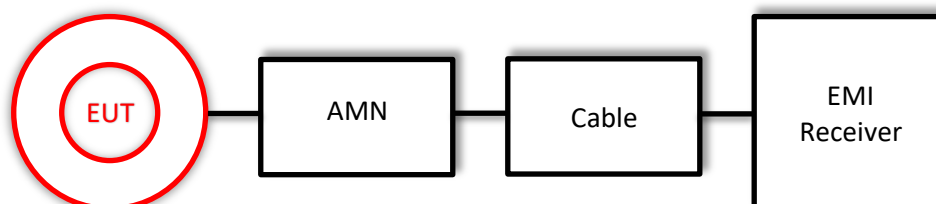
Maximum emissions are determined with a peak max hold trace then measurements at a selection of the highest points are made with quasi-peak and average detectors. Results are recorded and compared to limit for each line. (e.g. line and neutral)

Example Calculations

Measurement (dBμV) + Cable factor (dB) + Other (dB) = Corrected Reading (dBμV)

Margin (dB) = Limit (dBμV) - Corrected Reading (dBμV)

Block Diagram



5.2.1 AC Mains Conducted Emissions

Operator	Anthony Smith	QA	Dylan Rosenfeldt
Temperature	21.7, 21.2°C	R.H. %	30.0, 35.9%
Test Date	4/17/2025, 4/23/2025	Location	Conducted Bench
Requirement	FCC 15.207, FCC 15.407(b)(9)	Method	ANSI C63.10

Limits:

Frequency (MHz)	Quasi-Peak Limit (dBμV)	Average Limit (dBμV)
0.15-0.5	66.0-56.0*	56.0-46.0*
0.5-5	56.0	46.0
5-30	60.0	50.0

*Decreases with the logarithm of the frequency.

Test Parameters

Frequency	150 kHz - 30 MHz	Distance	80cm EUT to LISN
Detector(s)	Peak, QP, Avg	Table height	80cm
RBW	9 kHz	VBW	62 kHz

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
EE 960088	Analyzer - EMI Receiver	Agilent	N9038A	MY51210138	12/10/2024	12/10/2025	Active Calibration
EE 960089	LISN	COM-POWER	LI-215A	191943	3/31/2025	3/31/2026	Active Calibration
LSC-203	Cable	Micro-Coax	UFB311A-0-1440-70U70U	64639 224071-005	1/29/2025	1/29/2026	Active Verification

EUT Parameters

Input Power	120VAC 60Hz	Mode	Transmit
Channel	6 (2437 MHz), 48 (5240 MHz), 125 kHz NFC, 13.56 MHz NFC		
Notes	RFID Antenna Terminated during AC Mains testing – see TR3871C. Simultaneous check of WLAN 2.4 and 5 with NFC 125k and 13.56M.		

Company: DEKA Research	Page 16 of 19	Name: BD Neo Infusion Pump
Report: TR3871E		Model: BD Neo PCU: 9200 BD Neo Pump Module: 9210
Job: C-3871		Serial: 03010574, 03010575, 03010615

Table

WLAN 2.4G Transmit Channel 6 802.11b 1Mbps

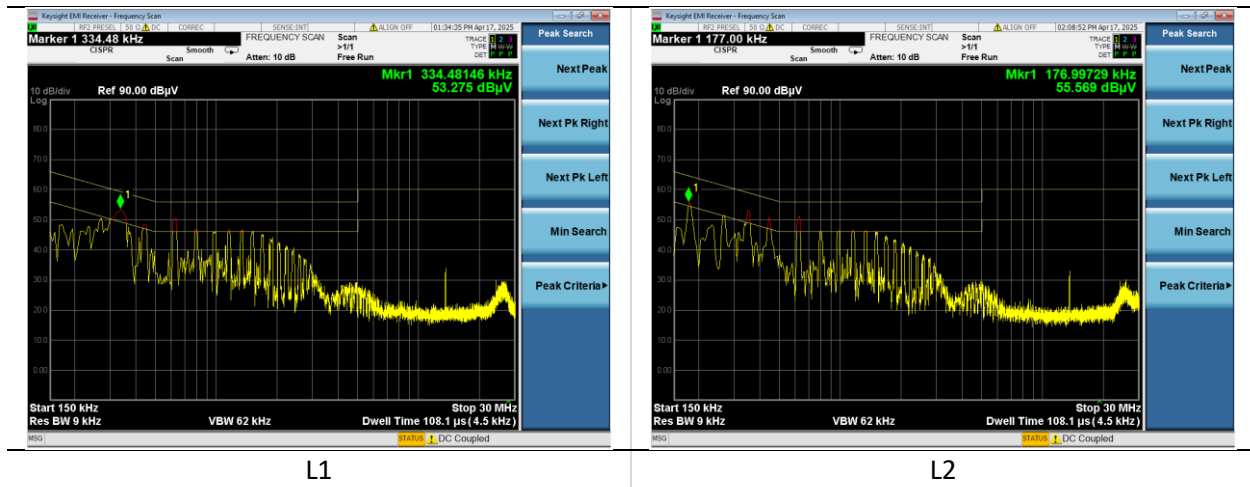
Line	Frequency (MHz)	Peak Reading (dBμV)	Quasi-Peak Reading (dBμV)	Average Reading (dBμV)	Quasi-Peak Limit (dBμV)	Average Limit (dBμV)	Quasi-Peak Margin (dB)
L1	13.697	49.2	41.8	22.8	60.0	50.0	18.2
L1	0.173	58.0	55.2	35.1	64.8	54.8	9.6
L1	0.339	56.8	52.2	37.3	59.2	49.2	7.0
L2	0.168	59.0	56.7	38.3	65.1	55.1	8.4
L2	0.254	53.4	51.6	46.8	61.6	51.6	10.0
L2	0.420	51.7	49.1	43.6	57.5	47.5	8.4

WLAN 5G Transmit Channel 48 802.11a 6M

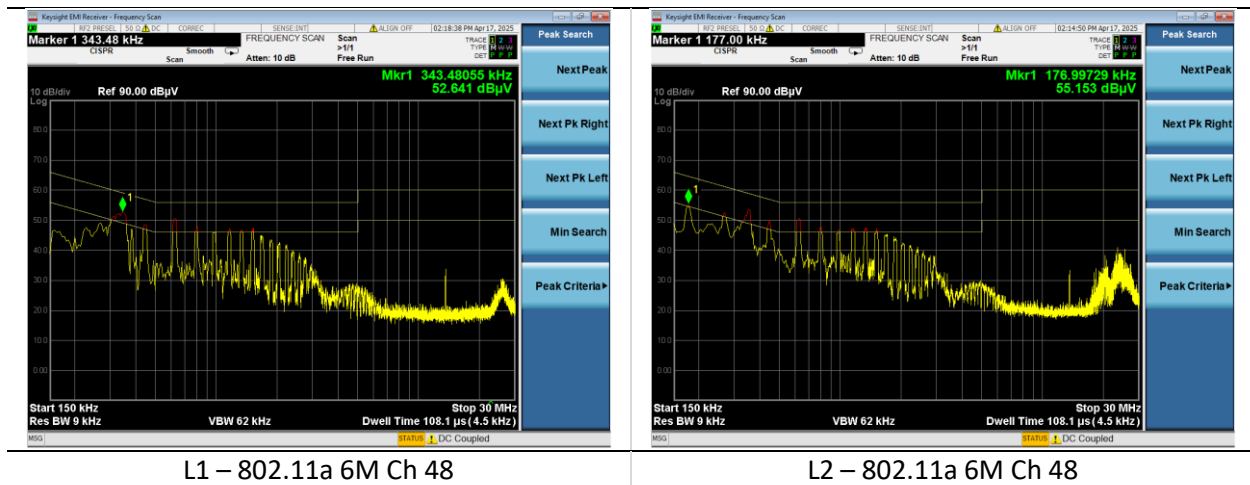
Line	Frequency (MHz)	Peak Reading (dBμV)	Quasi-Peak Reading (dBμV)	Average Reading (dBμV)	Quasi-Peak Limit (dBμV)	Average Limit (dBμV)	Quasi-Peak Margin (dB)	Average Margin (dB)
L2	13.600	55.1	52.8	34.9	60.0	50.0	7.2	15.1
L2	0.173	57.3	54.2	33.8	64.8	54.8	10.6	21.0
L2	0.339	55.6	50.9	37.9	59.2	49.2	8.3	11.3
L2	0.424	49.6	46.9	44.6	57.4	47.4	10.5	2.8
L2	0.595	49.3	47.4	45.0	56.0	46.0	8.6	1.0
L2	0.771	47.7	45.3	40.3	56.0	46.0	10.7	5.7
L1	0.173	57.2	54.1	33.8	64.8	54.8	10.7	21.0
L1	0.258	54.9	51.9	46.2	61.5	51.5	9.6	5.3
L1	0.339	54.7	52.0	38.3	59.2	49.2	7.2	10.9
L1	0.424	50.1	46.5	44.5	57.4	47.4	10.9	2.9
L1	0.600	49.9	47.4	43.6	56.0	46.0	8.6	2.4
L1	0.771	47.2	45.2	40.4	56.0	46.0	10.8	5.6
L1	13.609	54.4	50.6	33.0	60.0	50.0	9.4	17.0

Plots

WLAN 2.4



WLAN 5



6 REVISION HISTORY

Version	Date	Notes	Person
0	6/5/2025	Initial Draft	Anthony Smith
0.1	6/9/2025	Revised Draft	Anthony Smith
0.2	6/12/2025	Revisions to Client Information	Anthony Smith
0.3	6/17/2025	Further Revisions	Anthony Smith
1.0	6/24/2025	Client requested release prior to TCB review	Anthony Smith
1.1	7/24/2025	Typo Fixed	Anthony Smith
1.2	9/5/2025	Client info updated	Anthony Smith
1.3	11/19/2025	References updated	Anthony Smith

END OF REPORT