

Appendix A — Nodjoli-X34 product overview and manual

The following document constitutes the sole foundational material for the Nodjoli-X34 fictional system used in this study. It was generated entirely by ChatGPT in a single iterative session, initiated by the human interlocutor with the specification that the Nodjoli-X34 is a medical imaging device operating on principles of quantum physics, magnetism, and horsehair. No further content was provided by the human interlocutor at any stage. The document was not read or edited prior to completion. It is reproduced here verbatim, without correction or modification, exactly as generated.

Nodjoli-X34

Imagine device

Product overview and manual

Section 1 — System overview

Nodjoli-X34 is a non-invasive imaging system used to examine soft tissue by detecting very early changes that are not visible on standard scans.

Unlike systems such as Magnetic Resonance Imaging, which show structure directly, the X34 works by measuring how tissue responds to a controlled magnetic field. It focuses on small instabilities in tissue behavior, referred to as **biological coherence gradients (BCG)**.

These signals are very weak and cannot be measured directly. The system therefore uses a specialized internal sensor called the **equine keratin lattice (EKL)**. This is a fixed array of treated keratin filaments that temporarily stabilizes these weak signals so they can be recorded.

The system produces two types of output:

- a **structural image** (basic tissue layout)
- a **coherence image** (areas of instability or abnormal behavior)

These are displayed together to support interpretation.

What the system is used for

The Nodjoli-X34 is intended for:

- early detection of tissue abnormalities
- assessment of soft tissue where standard imaging is unclear
- monitoring of known areas of concern

It is not a replacement for conventional imaging, but an additional tool.

Key idea for users

You are not directly imaging tissue.

You are imaging:

how tissue reacts to the magnetic field, captured through the keratin lattice.

Keeping that in mind helps when interpreting images and troubleshooting.

Main system components (simplified)

- **Magnetic field unit**
Creates the controlled field used during scanning
- **Keratin lattice chamber (EKL)**
Contains the filament array that captures the signal

- **Sensor and reader system**
Measures small changes in the filaments
 - **Processing unit**
Converts signals into images
-

What to expect during use

- The scan runs in short sequences
 - The system requires a brief **alignment cycle** before imaging
 - Images are built from multiple passes, not a single exposure
 - Small movements or environmental changes can affect results
-

Safety summary

- No ionizing radiation (unlike Computed Tomography)
- Uses low-intensity magnetic fields
- Internal keratin lattice is fully enclosed and does not contact the patient

Section 2 — Operating principle

Overview

The Nodjoli-X34 works by applying a controlled magnetic field to the body and observing how the tissue responds.

This response is not measured directly. Instead, it is captured through the **equine keratin lattice (EKL)**, which converts very weak signals into something the system can read.

The process happens in short, repeated cycles.

Step-by-step process

1. System alignment (X34 alignment cycle)

Before scanning, the system performs an automatic alignment cycle.

During this step:

- the magnetic field is stabilized
- the keratin lattice is brought into a **phase-ready state**
- background noise is measured

This step is required before every scan.

If alignment is incomplete, image quality will be reduced.

2. Magnetic field activation (magnetophase induction)

The system generates a low-intensity, changing magnetic field.

This field:

- passes through the target tissue
- creates a controlled disturbance in the tissue's internal state

These disturbances are called **coherence perturbations**.

They are very small and cannot be detected directly.

3. Tissue response

As the field changes:

- normal tissue responds in a stable, predictable way
- abnormal or unstable tissue responds differently

This difference is what the system is designed to detect.

At this stage, the signal still exists only inside the tissue and is not yet measurable.

4. Signal capture by the keratin lattice (EKL)

The disturbed signals reach the **equine keratin lattice**.

The lattice:

- temporarily stabilizes these signals
- converts them into tiny physical changes in the filaments

These changes are called **filament drift**.

In some areas, the signal becomes stronger. This is referred to as **phase bloom**.

5. Signal reading

The system's sensors detect:

- filament drift
- phase bloom patterns

This is done using a combination of optical and magnetic reading.

Because the signal is short-lived, this must happen quickly during the **transitional imaging window (TIW)**.

6. Image reconstruction

The system collects data from many cycles and combines them.

It produces two linked outputs:

- **Structural layer**
A general map of tissue layout
- **Coherence layer**
Highlights areas where tissue response is unstable or abnormal

These are displayed together on the screen.

Timing and repetition

A full scan is not a single event.

Instead:

- the system runs multiple short cycles
- each cycle captures a small part of the signal
- the final image is built from all cycles combined

This is why:

- patient stillness is important
 - repeated scans may improve clarity
-

What affects the signal

The system is sensitive to small changes.

Common factors that influence results:

- patient movement
- nearby metal objects
- environmental vibration
- condition of the keratin lattice

These do not stop the scan, but may affect image quality.

Practical summary for users

During a scan, the system:

1. prepares itself (alignment)
 2. applies a magnetic field
 3. causes a small response in the tissue
 4. captures that response in the keratin lattice
 5. converts it into an image
-

If you keep this flow in mind, most system behavior — including errors and artifacts — will make sense.

Section 3 — System components

Overview

The Nodjoli-X34 consists of four main subsystems:

1. Magnetic field unit
2. Keratin lattice chamber (EKL)
3. Sensor and reader system
4. Processing and control unit

Each part has a clear role in the imaging process.

Understanding these roles helps with both operation and troubleshooting.

1. Magnetic field unit

Function

The magnetic field unit generates the controlled field used during scanning (**magnetophase induction**).

What it does

- Produces low-intensity, changing magnetic fields
- Controls field direction and timing
- Drives the scanning cycles

What the user should know

- The system will not scan without a stable field
- Field instability leads to unclear or noisy images
- Metallic objects near the unit can interfere with performance

Practical notes

- Keep the area around the unit clear of loose metal
 - Do not place tools or equipment on the scanner housing
 - If repeated alignment failures occur, check the environment first
-

2. Keratin lattice chamber (EKL)

Function

The EKL is the core sensing element. It captures and stabilizes weak signals from tissue.

What it contains

- Arrays of aligned keratin filaments
- A fixed support frame to maintain structure
- A sealed chamber to protect the lattice

What it does

- Receives coherence perturbations from the tissue
- Converts them into measurable filament changes (**filament drift**)
- Amplifies local signals (**phase bloom**)

What the user should know

- The EKL does not touch the patient
- Its condition directly affects image quality
- It requires regular calibration

Practical notes

- Do not open the chamber unless instructed
 - Avoid exposure to humidity and dust
 - If image quality drops gradually over time, check the **keratin fatigue index (KFI)**
-

3. Sensor and reader system

Function

This system detects the changes in the keratin lattice and converts them into signals.

What it does

- Monitors filament movement in real time
- Captures optical and magnetic changes
- Sends data to the processing unit

What the user should know

- This system works only during the **transitional imaging window (TIW)**
- Timing is critical — delayed readings will miss the signal

Practical notes

- Sensor misalignment can cause asymmetric images
 - Sudden noise spikes may indicate sensor instability
 - If signals appear weak across all scans, check both sensors and EKL status
-

4. Processing and control unit

Function

This is the system's control center and image generator.

What it does

- Controls scan sequences
- Processes incoming signals
- Builds the final image

- Displays structural and coherence layers

What the user should know

- Most system messages and warnings originate here
- Image reconstruction takes place after multiple scan cycles
- Software settings affect image clarity and sensitivity

Practical notes

- Always verify patient and scan settings before starting
 - If reconstruction errors occur, repeat the scan rather than adjusting mid-process
 - Keep system software updated as instructed
-

5. User interface and controls

Function

Allows the operator to run scans and monitor system status.

Main features

- Scan selection and start/stop controls
- Alignment cycle initiation
- Real-time status display
- Image viewing and export

What the user should know

- The system will guide you through alignment and scanning
 - Warning messages should not be ignored, even if scanning continues
 - Most issues can be traced through the status display
-

6. Component interaction (simple view)

During a scan:

1. Magnetic field unit activates
2. Tissue responds
3. EKL captures the response
4. Sensors read the EKL
5. Processing unit builds the image

If one part fails, the chain is interrupted.

Practical summary

- Magnetic unit → creates the signal
- EKL → stabilizes and converts the signal

- Sensors → detect the signal
- Processing unit → turns it into an image

Section 4 — Image formation and output

Overview

The Nodjoli-X34 produces a **combined image** made of two layers:

1. **Structural layer**
2. **Coherence layer**

These are displayed together on the screen and should always be interpreted as a pair.

1. Structural layer

What it shows

- Basic tissue layout
- Organ boundaries
- Larger anatomical features

This layer is similar in purpose to images from systems like Magnetic Resonance Imaging, but with lower detail.

What it is used for

- Orientation
- Locating the area of interest
- Comparing with other imaging if available

Important note

The structural layer is **not the primary diagnostic output**.

It is there to help you read the coherence layer correctly.

2. Coherence layer

What it shows

- Areas where tissue response is unstable or abnormal
- Changes that may appear before visible structural damage

This is the main output of the Nodjoli-X34.

How it is displayed

The coherence layer is shown as a color overlay on top of the structural image.

Typical color pattern:

- **Low activity (stable tissue)**
→ faint or no overlay

- **Moderate activity**
→ soft color gradient (often blue/green range)
 - **High activity (possible abnormality)**
→ strong signal (yellow to red range)
-

Key concept

You are not seeing “damage.”

You are seeing:

how strongly the tissue reacts during scanning.

3. Common image patterns

Normal tissue

- Even, low-level signal
 - Smooth transitions
 - No sharp boundaries in the coherence layer
-

Local instability

- Small, clearly defined areas of increased signal
 - Often appears as a focused “hot spot”
 - May or may not match visible structure
-

Diffuse instability

- Widespread, uneven signal
 - Patchy or cloud-like appearance
 - Often harder to interpret
-

Phase bloom

- Very bright, localized signal
- May appear larger than the actual affected area
- Caused by signal amplification in the EKL

👉 Important:

Phase bloom does not always mean a large lesion.

It means a strong local response.

4. Image building process

The final image is created from multiple scan cycles.

During scanning:

- each cycle captures a small part of the signal
- the system combines these into one image

This means:

- small variations between scans are normal
 - repeating a scan can improve clarity
-

5. Resolution and limits

Structural resolution

- Lower than Magnetic Resonance Imaging
- Not suitable for fine anatomical detail

Coherence sensitivity

- High sensitivity to early or subtle changes
 - Can detect abnormalities before structural changes appear
-

6. What affects image quality

Common factors:

- patient movement
- nearby metal objects
- poor system alignment
- degraded keratin lattice (high KFI)

These may cause:

- blurred overlays
 - uneven signal
 - false high-activity areas
-

7. Practical interpretation tips

- Always look at **structure first, then coherence**
 - Do not rely on color intensity alone — check location and pattern
 - Compare with previous scans when possible
 - If unsure, repeat the scan before making conclusions
-

8. When to repeat a scan

Repeat the scan if:

- the image appears uneven or noisy
 - there is unexpected asymmetry
 - the system reports alignment issues
 - the result does not match clinical expectations
-

Practical summary

- Structural layer → *where things are*
- Coherence layer → *how they behave*

Used together, they give a more complete picture.

Section 5 — Installation and system setup

Overview

Proper installation and setup are required for stable imaging.

The Nodjoli-X34 is sensitive to its environment, especially:

- magnetic interference
- vibration
- humidity

Incorrect setup will not stop the system from running, but it will reduce image quality.

1. Room requirements

Space and placement

- Place the system on a stable, level surface
 - Allow free space around the unit (minimum 0.5 m on all sides)
 - Do not place near heavy machinery or moving equipment
-

Magnetic environment

- Keep the area free of large metal objects
- Avoid installing near strong magnetic sources
- Remove loose metal tools from the immediate area

👉 Even small items can affect alignment and signal stability.

Vibration control

- Avoid placing the system near:
 - elevators
 - heavy doors
 - high foot traffic zones
 - If vibration cannot be avoided, use a stabilized platform
-

Temperature and humidity

- Maintain normal indoor temperature
- Avoid rapid temperature changes
- Keep humidity low and stable

👉 High humidity can affect the **equine keratin lattice (EKL)** and lead to signal distortion.

2. System installation

Initial setup

1. Position the system in the selected room
 2. Connect power and control unit
 3. Start the system and allow it to reach stable operating state
 4. Run initial system check (automatic)
-

EKL verification

Before first use, verify the keratin lattice:

- System will display **Keratin status**
- Check:
 - alignment: OK
 - baseline noise: within range
 - **keratin fatigue index (KFI): low**

If any values are out of range:

- do not proceed with patient scanning
 - run calibration or contact service
-

3. Daily startup procedure

At the start of each day:

1. Power on the system
2. Allow warm-up period (as indicated on screen)
3. Run **X34 alignment cycle**
4. Confirm:
 - alignment complete
 - noise level acceptable
 - no system warnings

Only proceed when all checks are passed.

4. Pre-scan setup (before each patient)

Environment check

- Remove metal objects near the scanner
 - Ensure no unnecessary equipment is placed on the system
 - Confirm room is stable (no unusual vibration)
-

System check

- Run alignment cycle if not recently completed
 - Confirm EKL status is stable
 - Check for warning messages
-

Patient preparation

- Remove metal objects from patient (jewelry, accessories)
 - Position patient comfortably to reduce movement
 - Explain need to remain still during scanning
-

5. EKL handling and care

General rules

- The EKL is sealed and should not be opened during normal use
 - Avoid exposing the system to high humidity
 - Do not attempt to clean internal components
-

When to check EKL status

- gradual loss of image clarity
 - increased noise across scans
 - repeated alignment warnings
-

Signs of EKL degradation

- rising **keratin fatigue index (KFI)**
- unstable or inconsistent signals
- increased **phase bloom** in normal tissue

If these occur:

- run calibration
 - if unresolved, schedule maintenance
-

6. Calibration procedures

When calibration is required

- at first installation
- after system relocation
- when image quality declines
- after EKL-related warnings

Basic calibration steps

1. Start calibration from control panel
2. System runs controlled magnetic cycles
3. EKL is brought into phase-ready state
4. Baseline signal is recorded

Calibration is automatic.

Do not interrupt unless instructed.

7. Common setup issues

Poor image quality from first scan

- Check environment (metal, vibration)
 - Repeat alignment cycle
-

Repeated alignment failure

- Check for nearby interference
 - Verify system is on stable surface
-

High noise level

- Check humidity and temperature
 - Verify EKL status
-

Practical summary

Before scanning:

- stable room
- clear magnetic environment
- aligned system
- stable EKL

If these are correct, most scans will work as expected.

Section 6 — Operating procedures

Overview

This section describes how to perform a standard Nodjoli-X34 scan.

Each scan follows the same basic flow:

1. Prepare the system
 2. Prepare the patient
 3. Run alignment
 4. Perform the scan
 5. Review the result
-

1. Start-up check

Before starting a scan, confirm:

- System is powered on
- No active warnings on the display
- **X34 alignment cycle** completed
- EKL status stable (no high KFI warning)

If any issues are present:

- resolve before continuing
-


2. Patient preparation

Before positioning

- Remove all metal objects (jewelry, accessories)
 - Ask the patient to remain as still as possible during the scan
-

Positioning

- Place the patient in the scanning position
- Align the target area with the center of the scanner
- Ensure the patient is comfortable and supported

 Movement is one of the most common causes of poor image quality.

3. Pre-scan alignment

Even if alignment was recently completed, confirm before each scan:

1. Start **X34 alignment cycle**

2. Wait for confirmation:
 - alignment complete
 - noise level acceptable


If alignment fails:

- repeat once
 - if still unsuccessful, check environment and system status
-

4. Selecting scan settings

On the control panel:

- Select scan type (standard, focused, repeat)
- Confirm target area
- Review default settings

 For most cases, use standard settings unless instructed otherwise.

5. Running the scan

Start scan

- Press “Start” on the control panel
 - The system begins a series of short scan cycles
-

During scanning

- Monitor system status on screen
- Ensure the patient remains still
- Watch for warning messages

The system will:

- apply magnetic field cycles
 - capture signals through the EKL
 - build the image gradually
-

Scan duration

- Depends on scan type
 - Typically consists of multiple short cycles rather than one continuous scan
-

6. During the scan — what to watch for

Normal behavior

- steady progress indicator
 - no major warnings
 - gradual image formation
-

Warning signs

- repeated noise alerts
- alignment drift warnings
- uneven signal display

If these occur:

- allow the scan to complete
 - review image carefully
 - repeat scan if needed
-

7. Completing the scan

When the scan finishes:

- The system displays the combined image:
 - structural layer
 - coherence layer
 - Review image for:
 - clarity
 - symmetry
 - unexpected artifacts
-

8. Post-scan actions

If image is clear

- Save and export as needed
 - Document findings
-

If image is unclear

- Repeat scan
- Check:
 - patient movement
 - alignment status
 - environment

9. When to repeat immediately

Repeat the scan if:

- strong asymmetry is present
 - signal appears unstable or patchy
 - system reported alignment issues
 - result does not match clinical expectation
-

10. Ending the session

After completing scans:

- Remove patient from scanner
 - Check system status
 - Prepare system for next use
-

Practical workflow summary

For each patient:

1. Check system
2. Prepare patient
3. Run alignment
4. Start scan
5. Monitor
6. Review image
7. Repeat if needed

Section 7 — Calibration and maintenance

Overview

Regular calibration and basic maintenance are required to keep the Nodjoli-X34 stable and reliable.

The system is sensitive to:

- small environmental changes
- gradual changes in the **equine keratin lattice (EKL)**
- repeated use over time

Most maintenance is guided by the system and can be performed by trained staff.

1. Calibration

Purpose

Calibration ensures that:

- the magnetic field is stable
- background noise is correctly measured
- the EKL is in a **phase-ready state**

Without proper calibration, image quality will decrease.

Types of calibration

Daily calibration

Performed at the start of each day.

Includes:

- system check
- baseline noise measurement
- EKL phase alignment

👉 This is part of the **X34 alignment cycle** and must be completed before scanning.

Extended calibration

Performed when needed.

Required:

- after system relocation
- after repeated scan issues
- when EKL performance declines

How to run calibration

1. Select “Calibration” from the control panel
2. Choose standard or extended calibration
3. Start the process

The system will:

- run controlled magnetic cycles
- adjust internal settings
- measure EKL response

Do not interrupt calibration unless instructed.

2. Equine keratin lattice (EKL) maintenance

Overview

The EKL changes gradually with use.

This is normal and expected.

Keratin fatigue index (KFI)

The system tracks EKL condition using the **KFI**.

- **Low KFI** → optimal performance
 - **Moderate KFI** → stable but reduced sensitivity
 - **High KFI** → increased noise and unreliable signals
-

Monitoring KFI

Check KFI:

- at system startup
 - if image quality changes
 - after repeated scans
-

Managing EKL condition

If KFI rises:

1. Run extended calibration
2. Repeat test scan
3. Recheck KFI

If KFI remains high:

- schedule service or replacement
-

Handling precautions

- Do not open the EKL chamber
 - Avoid exposing the system to high humidity
 - Do not move or shake the unit unnecessarily
-

3. Routine maintenance

Daily

- Run alignment cycle
 - Check system status
 - Verify no warnings
-

Weekly

- Review system logs
 - Check for repeated warnings
 - Confirm stable scan quality
-

As needed

- Run extended calibration
 - Investigate changes in image quality
 - Contact service if unresolved
-

4. Cleaning and external care

External surfaces

- Clean with standard approved wipes
 - Do not use excessive moisture
-

Internal components

- No user cleaning required
 - Do not attempt to access internal parts
-

5. Signs of system drift

Over time, the system may show:

- increased **coherence noise**
 - inconsistent signal strength
 - more frequent **phase bloom** in normal tissue
 - longer alignment times
-

What to do

If these appear:

1. Run extended calibration
2. Repeat test scan
3. Check EKL status and KFI

If issues continue:

- report for service
-

6. Common maintenance issues

Frequent recalibration needed

- Check environment (temperature, vibration)
 - Verify system placement
-

Gradual loss of sensitivity

- Likely EKL fatigue
 - Check KFI and run extended calibration
-

Sudden drop in image quality

- Check for environmental changes
 - Verify alignment
 - Repeat scan
-

7. When to contact service

Contact technical support if:

- KFI remains high after calibration
- alignment repeatedly fails
- system shows persistent errors

- image quality cannot be restored
-

Practical summary

To keep the system reliable:

- run alignment daily
- monitor EKL condition
- respond early to changes in image quality
- maintain a stable environment

Section 8 — Artifacts and limitations

Overview

The Nodjoli-X34 is sensitive to small changes in:

- environment
- system condition
- patient behavior

These can produce image artifacts or reduce reliability.

Understanding common artifacts helps avoid misinterpretation.

1. Phase smear

Description

- Blurred or stretched coherence signal
 - Loss of clear boundaries
 - “Smearred” appearance across the image
-

Common causes

- high humidity
 - degraded EKL (elevated KFI)
 - incomplete alignment
-

What to do

- run alignment cycle
 - check environment (humidity, temperature)
 - repeat scan
-

2. Motion artifact

Description

- irregular or broken signal patterns
 - duplicated or shifted structures
 - uneven coherence overlay
-

Common causes

- patient movement during scan

- poor positioning
-

What to do

- reposition patient
 - repeat scan
 - ensure patient comfort before scanning
-

3. Magnetic interference artifact

Description

- localized distortion
 - unexpected high-signal areas
 - asymmetry not matching anatomy
-

Common causes

- metal objects near scanner
 - nearby equipment
 - environmental magnetic sources
-

What to do

- remove nearby metal objects
 - check room environment
 - repeat scan
-

4. Quantum echo artifact

Description

- repeated or delayed signal patterns
 - faint “ghost” areas near strong signals
-

Cause

- delayed release of signal from the EKL
 - occurs when phase retention persists beyond the expected window
-

What to do

- repeat scan
 - check EKL status
 - ensure proper calibration
-

5. Phase bloom (excess)**Description**

- very bright, expanded signal
 - appears larger than expected
 - may obscure nearby structures
-

Cause

- local signal amplification in the EKL
 - can occur in both normal and abnormal tissue
-

Important note

Phase bloom indicates strong response, not necessarily large pathology.

What to do

- interpret with caution
 - compare with structural layer
 - repeat scan if uncertain
-

6. Coherence noise**Description**

- low-level, uneven signal across the image
 - “grainy” or unstable appearance
-

Common causes

- elevated KFI
 - environmental instability
 - poor alignment
-

What to do

- run calibration
 - check EKL status
 - repeat scan
-

7. Alignment drift artifact**Description**

- gradual shift in signal across the image
 - loss of symmetry
-

Cause

- incomplete or unstable alignment
 - environmental changes during scan
-

What to do

- rerun alignment cycle
 - stabilize environment
 - repeat scan
-

8. System limitations**Structural detail**

- Lower resolution than Magnetic Resonance Imaging
 - Not suitable for fine anatomical assessment
-

Signal interpretation

- Coherence changes do not always indicate disease
 - Clinical correlation is required
-

Sensitivity to conditions

- Affected by:
 - movement
 - environment
 - EKL condition

Repeatability

- Small differences between scans are normal
 - Multiple scans may be needed for confirmation
-

9. When not to rely on a single scan

Use caution if:

- image quality is poor
 - artifacts are present
 - results are inconsistent
 - system warnings occurred during scanning
-

Practical summary

If something looks unusual:

1. Check for artifacts
2. Review system status
3. Repeat the scan
4. Compare with previous images

Section 9 — Safety considerations

Overview

The Nodjoli-X34 is designed for safe, non-invasive imaging.

It uses:

- low-intensity magnetic fields
- a fully enclosed sensing system (EKL)

There is **no ionizing radiation**, unlike Computed Tomography.

1. Magnetic field safety

General use

- The system operates at low magnetic field strength
 - No special shielding is required under normal conditions
-

Precautions

- Remove all metal objects from the patient before scanning
 - Keep loose metal tools away from the system
 - Avoid placing electronic devices directly on the scanner
-

Patients with implants

Use caution in patients with:

- implanted electronic devices
- metallic implants

👉 Follow local guidelines for magnetic field exposure when in doubt.

2. Patient safety

During scanning

- The patient remains fully outside the EKL system
 - No direct contact with internal components
 - No sensation is expected from the scan
-

Positioning

- Ensure patient comfort to reduce movement

- Monitor patients who may have difficulty remaining still
-

3. EKL safety

Handling

- The **equine keratin lattice (EKL)** is sealed within the system
 - It does not come into contact with the patient
-

Precautions

- Do not open the EKL chamber
 - Do not attempt to clean or handle internal components
-

4. Electrical and system safety

- Use only approved power connections
 - Do not operate the system if visible damage is present
 - Follow standard equipment safety procedures
-

5. Environmental safety

- Keep the system in a stable, dry environment
 - Avoid exposure to moisture
 - Maintain adequate ventilation around the unit
-

6. Operator safety

- No special protective equipment is required
 - Standard clinical safety procedures apply
-

7. Contraindications (use with caution)

Use caution or consult guidelines if the patient has:

- implanted electronic devices
 - unknown metallic objects
 - inability to remain still
-

8. Emergency situations

If any of the following occur:

- system malfunction
- unexpected noise or behavior
- patient distress

→ Stop the scan immediately and assess the situation.

Practical summary

- No radiation exposure
- Low magnetic field
- No direct contact with internal components
- Standard precautions are sufficient

Section 10 — Clinical applications

Overview

The Nodjoli-X34 is used to detect **early and subtle changes in tissue behavior** that may not be visible with standard imaging.

It is most useful as a **complement** to established methods such as Magnetic Resonance Imaging, especially when:

- findings are unclear
 - early-stage changes are suspected
 - functional instability is of interest
-

1. General use

The system is designed to identify:

- localized tissue instability
- early abnormal response patterns
- changes over time in known areas of concern

It does not replace structural imaging, but adds information about **how tissue behaves**.

2. Soft tissue assessment

When to use

- unclear findings on standard imaging
 - persistent symptoms without clear structural cause
 - follow-up of known soft tissue changes
-

What to look for

- focal areas of increased coherence signal
 - asymmetry between sides
 - changes compared to previous scans
-

3. Early detection of abnormalities

Purpose

The Nodjoli-X34 may detect changes before visible structural damage appears.

Typical findings

- small areas of increased signal (“hot spots”)
 - subtle, localized instability
 - changes not yet visible on Magnetic Resonance Imaging
-

👉 Important:

These findings require clinical interpretation and follow-up.

4. Monitoring over time

When to use

- follow-up of known lesions
 - monitoring treatment response
 - tracking changes in previously abnormal areas
-

What to compare

- signal intensity
 - size and shape of affected areas
 - overall pattern of coherence response
-

5. Oncology support (adjunct use)

Potential role

- identifying areas of abnormal tissue behavior
 - guiding further imaging or biopsy
-

Typical patterns

- strong localized coherence signal
 - possible **phase bloom** in active regions
-

👉 Important:

Findings are not diagnostic on their own.

6. Neurological applications (exploratory use)

Possible uses

- detecting areas of altered tissue response
 - identifying asymmetry in brain tissue behavior
-

Limitations

- lower structural detail than Magnetic Resonance Imaging
 - results must be interpreted carefully
-

7. Inflammatory conditions

When to consider

- suspected inflammation without clear imaging findings
 - monitoring known inflammatory conditions
-

Typical patterns

- diffuse or patchy coherence signal
 - variable intensity
-

8. When the system is most helpful

The Nodjoli-X34 is particularly useful when:

- structural imaging is normal but symptoms persist
 - early changes are suspected
 - repeated monitoring is needed
 - additional functional information is required
-

9. When not to rely on the system alone

Do not rely solely on Nodjoli-X34 when:

- detailed anatomy is required
- clear structural diagnosis is needed
- image quality is poor

Always correlate with:

- clinical findings
- other imaging methods
- patient history

Practical summary

Use Nodjoli-X34 to understand:

- where tissue may be unstable
- how tissue behavior changes over time

Not just:

- what tissue looks like

Section 11 — Troubleshooting guide

Overview

If the system does not behave as expected:

1. Check the image
2. Check system status
3. Check environment
4. Repeat the scan if needed

Most issues are resolved without service intervention.

1. Image is unclear or blurry

Possible causes

- patient movement
 - incomplete alignment
 - early **phase smear**
 - environmental instability
-

What to do

- repeat **X34 alignment cycle**
 - ensure patient is still and comfortable
 - repeat scan
 - check room conditions
-

2. Image is noisy (grainy or unstable)

Possible causes

- elevated **keratin fatigue index (KFI)**
 - poor calibration
 - environmental interference
-

What to do

- run extended calibration
- check EKL status
- repeat scan

If noise persists:

- consider EKL degradation

3. Unexpected high-signal areas

Possible causes

- **phase bloom**
- magnetic interference
- patient movement

What to do

- compare with structural layer
- remove nearby metal objects
- repeat scan

👉 Do not assume abnormality without confirmation.

4. Asymmetric or distorted image

Possible causes

- sensor misalignment
- **alignment drift**
- environmental interference

What to do

- rerun alignment cycle
- check system placement
- repeat scan

5. Repeated alignment failure

Possible causes

- magnetic interference
- unstable surface
- system drift

What to do

- remove nearby metal objects
- check system position

- restart system
- attempt alignment again

If failure continues:

- contact service
-

6. Weak signal across entire image

Possible causes

- EKL fatigue (high KFI)
 - incomplete calibration
 - sensor issue
-

What to do

- run extended calibration
- check KFI
- repeat scan

If unresolved:

- schedule maintenance
-

7. Scan stops or fails to complete

Possible causes

- system error
 - interruption during scan
 - unstable conditions
-

What to do

- restart scan
- check system messages
- ensure stable environment

If repeated:

- contact service
-

8. Image does not match clinical expectation

Possible causes

- artifact
 - early or subtle changes
 - incorrect interpretation
-

What to do

- repeat scan
 - review image layers separately
 - compare with previous scans
 - correlate clinically
-

9. Frequent need to repeat scans

Possible causes

- environmental instability
 - EKL degradation
 - improper setup
-

What to do

- review installation conditions
 - check KFI
 - run extended calibration
-

10. System warnings appear

What to do

- read warning message carefully
- follow on-screen instructions
- do not ignore repeated warnings

If unsure:

- pause use and investigate
-

11. When to stop and seek support

Stop using the system and contact technical support if:

- alignment repeatedly fails
 - KFI remains high after calibration
 - image quality cannot be restored
 - system errors persist
-

Practical summary

Most problems can be solved by:

- rerunning alignment
- checking the environment
- repeating the scan

If the issue continues, check EKL status and calibration.

Section 12 — Technical specifications

Overview

The following specifications describe standard operating parameters for the Nodjoli-X34 system.

Values may vary slightly depending on configuration and environment.

1. Magnetic field system

- **Field type:** dynamic, low-intensity gradient field
 - **Operating range:** sub-Tesla (controlled modulation)
 - **Field stability requirement:** high (alignment-dependent)
 - **Cycle mode:** pulsed, multi-sequence
-

2. Equine keratin lattice (EKL)

- **Material:** aligned equine keratin filaments
 - **Configuration:** planar lattice array, modular cartridge
 - **Operating state:** phase-retentive (post-alignment)
 - **Monitoring parameter:** keratin fatigue index (KFI)
-

3. Signal detection

- **Detection method:** optical and magnetic sensing
 - **Primary signals:**
 - filament drift
 - phase bloom
 - **Capture window:** transitional imaging window (TIW)
-

4. Image formation

- **Image type:** dual-layer (structural + coherence)
 - **Acquisition mode:** multi-cycle accumulation
 - **Output format:** composite overlay
-

5. System performance

- **Structural resolution:** moderate (lower than Magnetic Resonance Imaging)
 - **Coherence sensitivity:** high (early change detection)
 - **Repeatability:** moderate (cycle-dependent)
-

6. Environmental requirements

- **Temperature:** standard indoor range
 - **Humidity:** low and stable recommended
 - **Vibration:** minimal preferred
 - **Magnetic environment:** low interference
-

7. Power and operation

- **Power supply:** standard clinical electrical connection
 - **Warm-up time:** short (system-indicated)
 - **Operation mode:** continuous, cycle-based scanning
-

8. Safety profile

- **Radiation:** none (non-ionizing system, unlike Computed Tomography)
 - **Patient contact:** none with internal components
 - **Magnetic exposure:** low-intensity
-

Practical summary

- Low-field system
 - EKL-based signal capture
 - Dual-layer imaging
 - Sensitive to environment and calibration
-

Section 13 — Glossary

Overview

This glossary defines key terms used throughout the manual.

Terms are used consistently and should be understood as defined here.

Biological coherence gradient (BCG)

Small-scale variations in tissue response detected during scanning.

Magnetophase induction (MPI)

The controlled magnetic field process used to stimulate tissue response.

Coherence perturbation

The change in tissue behavior caused by magnetophase induction.

Coherence transduction

The process by which the EKL converts weak signals into measurable changes.

Equine keratin lattice (EKL)

The internal filament array made of aligned keratin fibers that captures and stabilizes signals.

Phase-retentive behavior

The ability of the EKL to temporarily hold signal states for measurement.

Filament drift

Small physical changes in keratin filaments used as a measurable signal.

Phase bloom

Local amplification of signal within the EKL, appearing as a strong image response.

Keratin fatigue index (KFI)

A measure of EKL condition and performance over time.

X34 alignment cycle

The system calibration process required before scanning.

Transitional imaging window (TIW)

The short time period in which signals are stable and measurable.

Coherence noise

Background signal that reduces image clarity.

Quantum echo artifact

A repeated or delayed signal caused by extended phase retention.

Phase smear

Blurred or spread signal caused by instability in the EKL or environment.