APEX STANDARDS

Standards, Contributions and Patent Evidence Search Platform

Analyst / Expert / Enterprise Feature Overview for Prior-Art, Standards, IPR, and R&D Review

Designed for **high-fidelity** search, clause-level reasoning, and high-rigour evidence handling where immediately verifiable fact must stay easy to interpret, compare, preserve, and defend.

Analyst ✦ **Expert** ✦ **Enterprise**

This brochure is organized around a practical progression of work: first-pass retrieval and screening, deeper human annotation and interpretation, and then higher-rigour evidentiary preservation and audit. In real client scenarios, that means helping teams move faster across prior-art review, **standard essential patent (SEP)** study, **claim chart** preparation, standards-meeting interpretation, **Change Request (CR)** review, licensing support, and broader R&D / standardization analysis—while keeping the strongest passages, comparisons, and review decisions easy to verify and explain to any stakeholder who joins later.

Reading Guide

Analyst is the efficient first-pass retrieval and screening layer. **Expert** is the subject-matter-expert layer for deeper human annotation and clause-level reasoning. **Enterprise** is the maximum evidentiary-precision and audit layer for higher-consequence review environments. Across all three, the platform emphasizes immediately verifiable fact in a clear, well-structured format so critical review and interpretation can happen directly in the result layer.

High-value review environments

Especially relevant to **standard essential patent (SEP)**, **claim chart**, **standardization**, **patent-office examination**, **corporate R&D**, **top-tier law-firm analysis**, **expert-report / deposition preparation**, **court-facing evidentiary matters**, and **high-stakes licensing negotiation**.

Analyst

CORE RETRIEVAL / SCREENING • EFFICIENT ANALYST REVIEW • SEP • CLAIM CHART • STANDARDIZATION

Advanced search operators, orderly **high-fidelity** result context, domain-aware keyword guidance, **high-value targets** anchoring, per-result comment support, CR-oriented review, and disciplined export workflow for broad first-pass screening with minimal blind spots.

Expert

FOCUSED HUMAN ANNOTATION / REASONING • SUBJECT-MATTER EXPERT REVIEW • SEP • CLAIM CHART • STANDARDIZATION

In-snippet highlights, inline notes, annotation-preserving working sessions, and selected / annotated export for deep clause-level reasoning, stronger review continuity, and faster matter-ready interpretation when experts need to explain why a passage matters.

Enterprise

MAXIMUM EVIDENTIARY PRECISION / AUDIT • PATENT-OFFICE EXAMINATION • CORPORATE R&D • TOP-TIER LAW-FIRM ANALYSIS • EXPERT-REPORT / DEPOSITION PREPARATION • COURT-FACING EVIDENTIARY MATTERS • HIGH-STAKES LICENSING NEGOTIATION

Variation-aware markup, explicit NEAR/x gap display, OCR / table reconstruction, Delta/Diff history, JSON audit trail, **immutable integrity-oriented recordkeeping**, and later reconstruction support for the most demanding review environments where evidentiary precision, defensibility, and reconstruction are mission-critical.

Why three tiers matter: the three package levels are optimized for different usage depths—efficient screening, deeper expert interpretation, and higher-rigour evidence preservation. That can be especially valuable where teams need clearer review continuity, stronger internal handoff, and more defensible recordkeeping for counsel, stakeholders, or billing-oriented professional work.

BROCHURE PAGE GUIDE

Website: www.apexstandards.com **Email:** support@apexstandards.com

APEX STANDARDS

Standards, Contributions and Patent Evidence Search Platform

Feature Matrix

A brochure-length summary of the most differentiating capabilities across the three package levels.

Feature	What it covers	Analyst	Expert	Enterprise
Shared professional foundation				
Advanced Query Operators CORE RETRIEVAL	Boolean, quoted phrase, exact-form control, wildcard / prefix, fuzzy recovery, grouping, and NEAR/x proximity handling. Positioned as a highest-industry-standard operator layer to minimize blind spots and support maximal due diligence.	V	V	V
High-Fidelity Context IMMEDIATE INTERPRETATION	Matched text is presented in a clear, well-structured format so immediately verifiable fact can be interpreted directly in the result layer rather than deferred to a separate document-open step.	V	V	V
High-Value Target Anchoring REVIEW PRIORITIZATION	Keeps the strongest hits organized and easy to revisit across prior-art, standards, CR, and claim-chart workflows.	V	V	V
Auto-Complete / DYM / Glossary DOMAIN GUIDANCE	Domain-aware technical wording, per-token correction, acronym chips, and concept guidance support more complete query formation and faster orientation inside specialized corpora.	V	V	V
Per-Result Comment + Export WORKFLOW CONTINUITY	Document-level comments, export packaging, glossary/concept appendices, and matter-ready Word/PDF output support organized review continuity.	V	V	V
Expert workflow layer				
Inline Highlight Annotation CLAUSE EVIDENCE	Quote-level highlight with orange wavy-underlined styling, timestamped label, and later revisit / audit visibility.		V	V
Inline Note Annotation CLAUSE REASONING	Quote-level note with red box label, red wavy underlining, timestamp, preserved note text, and annotation-aware export continuity.		V	V
Selected / Annotated Export FOCUSED HANDOFF	Export only the selected or annotated set rather than the full result set, preserving stronger matter focus.		V	V
Enterprise evidentiary / audit layer				
Variation-Aware Markup PRECISION HIGHLIGHTING	Shows preserved token core and visible morphology change, such as search word `beamform[ed]` versus matched word `beamform[ing]`.			V
Explicit NEAR/x Gap Visualization INTERPRETIVE CLARITY	Shows exact in-between words plus an explicit distance badge so reviewers can see not only that two terms are near, but how near.			V
OCR + Table Reconstruction VISUAL EVIDENCE	OCR match overlays and structured table rendering support figures, scans, screenshots, claim charts, parameter mapping, and standards comparison.			V
Audit Trail + JSON Record MACHINE-READABLE HISTORY	Page views, selections, comments, note/highlight actions, note-edit delta history, export actions, elapsed-time history, and JSON record state; includes **immutable review-record positioning** and integrity-oriented preservation language.			V

Search, Guidance, and Interpretation Examples

This page now focuses on the shared Analyst / Expert / Enterprise foundation and begins with the **AI Summary**, followed by the most immediately useful query and search-guidance examples.

INCLUDED IN Analyst Expert Enterprise

AI Summary

Structured intelligence extracted from query + top result snippets

You asked about "beam failure recovery". You are likely exploring how beam failure recovery (BFR) is defined, implemented, and evolved across NR / 5G contexts, including how UEs detect failures, how networks coordinate recovery, and how multiple beams or cells interact to improve reliability.

- **BFR core flow.** BFR typically begins when beam failure is detected through **Beam Failure Detection (BFD)**. Recovery often uses **MAC CE**-based reporting and may carry fields such as SP, Ci, TCi, TRP, AC, Candidate RSID, and R, which suggests increasing integration of reporting and network-side coordination.
- **SCells and inactive-state cases.** The material also points to BFR with **secondary cells (SCells)** and to **RRC_Inactive**-state recovery using preconfigured uplink resources and SIB-based setup, expanding recovery beyond a single fully active serving-cell case.
- **Trajectory.** The emphasis appears to move from secondary-cell and multi-beam coverage toward per-beam-group and inactive-state handling, indicating growing attention to more complex real-world NR deployments.

```
UE detects BFD
  → BFR trigger via BFI threshold or MAC CE formatting
  → UE reports to base station or triggers recovery using BFR–RS / NBI RS
  → network selects new beam(s) and may activate SCells or reconfigure RRC
```

Practical next searches.

- combine **BFR** and **BFD** with **BFI** thresholds
- add **SCells** / secondary cells for cross-cell recovery coverage
- search **MAC CE** reporting formats and fields such as SP, Ci, TCi, TRP, AC, Candidate RSID, and R
- include **NBI RS**, **BFD RS**, and **PDCCH** configuration terms
- look for **RRC_Inactive**, **PUR**, and **SIB** references

Term	Role / Note
BFR	Recovery flow after beam failure detection
BFD	Detection mechanism that triggers BFR
BFI	Indication count used to trigger recovery
MAC CE	Reporting / format to base station about beam failure and recovery
BFD RS	Measurement reference signals for BFD
NBI RS	Signals for identifying a new beam
PDCCH	Measurement / configuration context for BFR in control signaling
SCells	Secondary cells used during multi-cell BFR setups
RRC_Inactive	BFR in inactive UE state with preconfigured resources

Advanced query operators

INCLUDED IN Analyst Expert Enterprise

Shared foundation across Analyst, Expert, and Enterprise. Supports highest-industry-standard operator coverage intended to minimize blind spots and support maximal due diligence during first-pass retrieval and screening.

Operator examples
Best-effort emulation of the real query/operator layer.

Quoted phrase	`"beam failure recovery"` Quoted multi-word phrases are recognized.
Exact form	`=beamforming` Dedicated exact-form control for exact content matching.
Wildcard / prefix	`beamform*`
Fuzzy recovery	`beamformng~` Useful for typo-like or uncertain recall queries.
Boolean / grouping	`(beam OR beamforming) AND recovery NOT uplink`
Proximity	`"beam failure" NEAR/10 recovery`

Domain-aware auto-complete

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Shared foundation across Analyst, Expert, and Enterprise. Suggestion rows keep font size consistent and pair each term with technical snippet evidence for faster query refinement.

`beam failure`

beam failure
BFR (Beam **Failure** Recovery) … BFD (Beam **failure** detection) … BFI (beam **failure** instance)

beam failure
BFI (beam **failure** instance)

beam failure
BFD (Beam **failure** detection) … BFR (beam **failure** recovery)

beam failure
BF (Beam **Failure**) … RLF (Radio Link **Failure**)

beam failure
RLF (radio link **failure**) … CEF (connection establishment **failure**) … BFR (beam **failure** recovery) … BFD (beam **failure** detection)

Search Guidance and Higher-Tier Interpretation

This page continues the search-guidance layer with query refinement and glossary support, then adds the higher-tier interpretation features that begin in Expert and culminate in Enterprise precision.

Did-You-Mean correction

INCLUDED IN Analyst Expert Enterprise

Shared foundation across Analyst, Expert, and Enterprise. Per-token correction stays explicit rather than silently rewriting the query, so the reviewer can verify what changed.

Did you mean?

Original query: **beam faliure recovry sigal**

faliure → failure
recovry → recovery
sigal → signal

Glossary / concept guidance

INCLUDED IN Analyst Expert Enterprise

Shared foundation across Analyst, Expert, and Enterprise. Glossary and concept rows give fast corpus orientation through lightweight, curated chips rather than noisy filler.

GLOSSARY:

- DSP (digital signal processor)
- FPGA (field programmable gate array)
- ASIC (application specific integrated circuit)
- FM (frequency modulated)
- USB (universal serial bus)
- PMI (precoding matrix indicator)
- AM (acknowledged mode)
- UM (unacknowledged mode)
- CQI (channel quality indicator)
- RSRQ (reference signal received quality)
- CDM (code division multiplexing)

CONCEPT:

- random access procedure
- more RACH parameters
- NR user plane protocol stack
- wireless device
- configuration parameters
- resource selection procedure
- target base station
- more sidelink transmissions

Highlight / note annotation

INCLUDED IN Expert Enterprise

Begins in Expert and continues in Enterprise. Quote-level highlight-only markup uses orange wavy underlining; note-backed markup flips to a red note style with timestamped label for clause-level reasoning.

beam management based on coordinated beamforming

HIGHLIGHTED — on Apr 2, 2026, 9:41 AM UTC

Recorded for later revisit / audit history with timestamp.

beam recovery reference signal configuration

INLINE NOTE: possible partial support only — on Apr 2, 2026, 9:44 AM UTC

Quoted text + note label + timestamp remain available for later revisit / audit.

Variation-aware markup + explicit NEAR/x

INCLUDED IN Enterprise

Enterprise-only precision feature. Adds two especially high-value interpretive aids: visible morphology difference and visible NEAR/x gap distance.

SEARCH WORD **beamform**~~ed~~
matched in result →
MATCHED WORD **beamform***ing*

beam *failure* NEAR/10: beam↔recovery (1/10) **recovery** (BFR) medium access control (MAC)

Query logic shown to reviewer: `"beam failure" NEAR/10 recovery`

Workflow Control and Audit

This page is dedicated to workflow continuity, selected export control, and Enterprise audit history so the review-control layer has more room and reads less densely.

Per-result comment

INCLUDED IN Analyst Expert Enterprise

Shared workflow feature across Analyst, Expert, and Enterprise. Document-level comment state is useful for legal notes, technical observations, next-step planning, and matter-specific follow-up.

COMMENT ON THIS DOCUMENT *commented on Apr 2, 2026, 10:12 AM UTC*

Possible high-value target for claim charting; likely relevant to beam failure recovery timing. Check dependency and compare against Rel-18 CR wording.

Max 1000 characters. `842/1000 chars remaining`

Selected / annotated export scope

INCLUDED IN Expert Enterprise

Begins in Expert and continues in Enterprise. Export only the selected or annotated working set rather than the entire raw search output.

Export Report ✖

Export set: selected / annotated only • **Master**: n=100 • **Selected / annotated**: n=12

To PDF | To Word

All results | Only selected or annotated results

Objective: beam failure recovery prior-art review for attorney-client sharing; focus on high-value Rel-18 targets and next-step claim-chart preparation.

Cancel | Download

Audit trail + JSON review record + integrity

INCLUDED IN Enterprise

Enterprise-only audit feature. Captures page views, open/close events, result selection state, comments, highlight/note actions, note-edit delta history, export activity, fine-grained elapsed-time history, and machine-readable JSON review state; the Enterprise layer also supports cryptographic hash integrity wording, **immutable review-record positioning**, and preserved review-state checking.

Audit Trail Download JSON | Clear ✖

Baseline: first export action selected • **Session:** 42 events • **Scope:** selected / annotated set • **Latest file:** Apex_Search_Report_SELECTED.docx

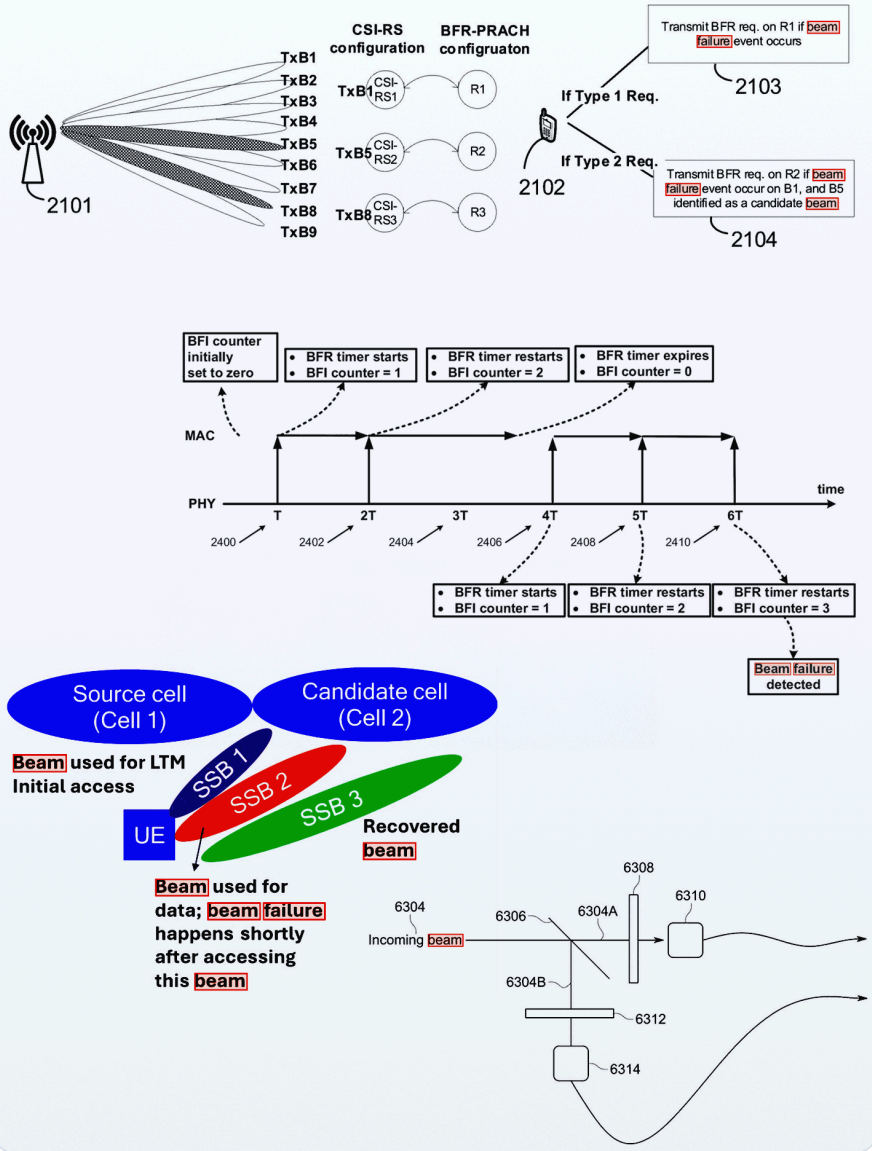
beam failure | All actions

Time (Local)	Relative time	Action	Document(s)	Quoted text	Details
2026-04-02 09:41:18	+00:00	HL_ADD	Result 014	beam management based on coordinated beamforming	Highlight added; label = HIGHLIGHTED; scope preserved for later export.
2026-04-02 09:44:07	+00:03	NOTE_ADD	Result 014	beam recovery reference signal configuration	INLINE NOTE captured with note text, quoted text, timestamp, and stored JSON review record.
2026-04-02 09:46:21	+00:05	NOTE_EDIT	Result 014	beam recovery reference signal configuration	~~*possible partial support only*~~ **possible partial support only — confirm Rel-18 dependency context**
2026-04-02 09:51:52	+00:10	EXPORT_WORD	EXPORT SET	-	Download Export (WORD); selected / annotated set; File: Apex_Search_Report_SELECTED.docx

Reserved Visual Evidence Space

INCLUDED IN **Enterprise**

Two higheest value Enterprise visuals: OCR overlay confirmation and structured table reconstruction.



Suggested use: figure / scan / screenshot example with visible OCR bounding boxes and matched text overlay.

L3: Beam-level spatial domain prediction	RAN1 RAN4	2 nd in RAN2 High priority in RAN4	Led by RAN4: ZTE, OPPO, LG, HW , vivo, Apple Coordination with RAN1/RAN4: SS , CATT WG for simulation evaluation is RAN4: ZTE Prediction accuracy evaluation is done by RAN1/4, while RAN2 focus on the mobility performance gain evaluation : Xiaomi
L1: Intra/inter-cell spatial domain prediction	RAN1 RAN4	2 nd in RAN2 Simulation evaluation of Intra cell beam prediction for serving cell has been done in RAN1 in 5G.	Coordination with RAN1/RAN2/RAN4: Apple , CATT Led by RAN1: LG, vivo, Apple Led by RAN4: HW RAN1 and RAN2 to study independently: OPPO RAN2 focus on the study mainly for LTM scheme by taking RAN1's outcome: OPPO Prediction accuracy evaluation is done by RAN1/4, while RAN2 focus on the mobility performance gain evaluation : Xiaomi Simulation is not needed: OPPO WG for simulation is RAN1: DCM
L3: Additional inter-frequency prediction : - non-co-located sites - co-located sites with different beam patterns/sectors	RAN1 RAN4	2 nd in RAN2; High priority in RAN4 (non-co-located inter-frequency prediction)	Led by RAN4: HW, ZTE, OPPO, LG , vivo, Apple Coordination in RAN2 and RAN4: SS , Apple , CATT Prediction accuracy evaluation is done by RAN1/4, while RAN2 focus on the mobility performance gain evaluation : Xiaomi Prioritize feasibility of L3 beam level measurement prediction of non-collocated cell: Ericsson

Sub-use case	Sub-case A: Inter-Cell/M-TRP DL Tx beam prediction and management	Sub-Case B: Cross frequency DL Tx beam prediction	Sub-Case C: Tx-Rx beam pair prediction
Model input	Measurements from Set B of one or more TRPs/Cells	Measurements in frequency A	Measurements from Set B DL Tx-Rx beam pairs.
Model output	Predicted best beam information and/or predicted measurements from Set A of target cell/TRP(s) [of current or future time instance]	Predicted cell/beam related information of frequency B [of current or future time instance]	Predicted best DL Tx-Rx beam pairs information from Set A DL Tx-Rx pairs.

Suggested use: reconstructed row/column view for claim charting, parameter mapping, or standards comparison.

List of Patent and Non-Patent/Standards Database

Representative standards, patent, and non-patent sources covered across major ICT domains.

Apex Standards Database	PTO/SDO	Start Year	Description	Telecom	LAN/Networking	Cybersecurity	Codec	IoT
ASXUSPTO	**USPTO**	**1975**	Patent and non-patent literature covering key ICT standards and technologies, including SEP, 3GPP, ETSI, IEEE, Wi-Fi, and multimedia codecs	Covered	Covered	Covered	Covered	Covered
ASX3GPP	**3GPP**	**1998**	Mobile telecom standards (GSM, UMTS, LTE, 5G).	All WGs	SA2/CT1/RAN3	SA3	SA4	SA1/SA2 (NB-IoT, LTE-M)
ASXETSI	**ETSI**	**1988**	European telecom standards (radio, networks, satellite, smart grids).	ISG NFV; ISG MEC	ISG NFV; ISG MEC	TC CYBER	TC SC (Multimedia/Broadcast)	TC M2M
ASXOMA	**OMA**	**2002**	Open Mobile Alliance - standards for interoperable mobile services.	All WGs				OMA LwM2M
ASXOPRAN	**O-RAN**	**2018**	Open, interoperable RAN specifications for modular networks.	All WGs	WG4 (O-Fronthaul), WG5 (O-X-Haul), WG6 (O-Cloud), WG7 (HW)	WG10 (Security)		WG3 (Near-RT RIC for low-latency IoT)
ASXITU	**ITU-T ITU-R ITU-D**	**1980**	Global telecommunication standards and recommendations for ICT networks.	ITU-T G.98X (PON)	ITU-T X-series (network protocols)	ITU-T SG17 (security)	ITU-T SG16 (multimedia codecs)	ITU-T SG20 (IoT / smart cities)
ASXOneM2M	**OneM2M**	**2012**	IoT/M2M service layer specifications for interoperable systems.			OneM2M Security		OneM2M All WGs
ASXIEEE802	**IEEE 802**	**1980**	LAN and wireless networking standards (Ethernet, Wi-Fi, WPAN).	802.3	All WGs	802.1X; 802.11i		802.15.4 (Zigbee, Thread)
ASXWIFI	**Wi-Fi Alliance**	**1999**	Wi-Fi certification profiles and interoperability guidelines for IEEE 802.11 variants.		Wi-Fi (IEEE 802.11)	802.11i (WPA/WPA2)		Wi-Fi HaLow (802.11ah)
ASXBTSIG	**Bluetooth SIG**	**1998**	Bluetooth wireless standards (core, profiles, mesh).		Bluetooth (IEEE 802.15.1)			Bluetooth Low Energy (BLE)
ASXIETF	**IETF**	**1986**	Internet protocol standards (TCP/IP suite) via open, consensus-driven process.	SIP (session signaling), MEGACO (gateway)	MPLS (label switching), BGP (inter-AS routing), OSPF (link-state)	TLS (secure transport), DTLS (datagram TLS), IPsec (IP security)	AVTCORE (RTP framework), MMUSIC (session control)	6MAN (IPv6 over WPAN), ROLL (LLN routing), CORE (CoAP framework)
ASXW3C	**W3C**	**1994**	Web and Internet standards (HTML, CSS, XML, HTTP).		W3C (HTTP, CSS)	WAS/WebCrypto/ WebAuthn	WebRTC/SVC/WebCodecs	WoT
ASXCVE	**CVE / NVD**	**1999**	Cybersecurity vulnerability identifiers and metadata.			CVE / NVD		
ASXCODEC	**MPEG (ISO/IEC JTC 1/SC 29); JVET; JCT-VC/3V; ITU-T H.26X AOMedia**	**1998**	Umbrella for codec bodies: MPEG (1988–), JCT-VC (2010→2020) → (2017–), JVET and AOMedia (2015–)				MPEG-1/2/4; AVC/H.264; HEVC/H.265; VVC/H.266; AV1/AV2	
ASXDVB	**DVB, ARIB, ATSC**	**DVB 1993 /ARIB 1995 /ATSC 1982**	Digital TV broadcasting standards (DVB, ARIB, ATSC).	DVB, DVB Native IP over 5G, ATSC			MPEG-2, H.264 (used in DVB)	