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Dear Client, we are pleased to present this Intellectual Property (IP) Analysis Report to help keep you informed of potentially impactful developments in the patent landscape.

**Report for the Subject file: WO2025025039A1.pdf**

**Ue and network specific ai and ml model configuration and transfer**Inventor: Onur Sahin
Date range filter:
After: 2000-01-01 Before: 2025-03-27
Top CPCs used: H04W76/27, H04W24/02, G06N20/00, H04L41/16, H04W8/24, H04W24/02, H04B7/06, H04W76/27, G06N20/00, H04L41/16
Number of Top Patents for Claims Breakdown: 25

-------------------------------------------------------------------------------------------------------------------**Subject Description Overview:**

The Subject invention (H04W76/27) focuses on the method of communication between a UE and a network, specifically for managing AI models in RRC IDLE or INACTIVE states. It involves determining the need for an AI model, sending an AI indicator to the network, and receiving the AI model or training dataset. The methodologies include using RACH procedures, SIB signals, and other communication protocols to facilitate the transfer of AI-related data. The design incorporates AI indicators sent through various RACH messages and the use of different communication channels for receiving AI models or datasets. The architecture supports the dynamic updating of AI models based on UE type or location, ensuring that the AI model is tailored to specific conditions.

-------------------------------------------------------------------------------------------------------------------**Compared file: US12244468B2**Artificial intelligence based enhancements for idle and inactive state operations
**Inventor: KUMAR RAJEEV
Assignee: QUALCOMM INC
Priority Date: 09-28-2021
Publication Date: 03-04-2025
CPC: H04L1/16
IPV™ Rating: 7.1727
Inferred Equivalence: High**

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The primary function of the Compared invention (H04L1/16) is to enhance wireless communication by implementing error control or detection mechanisms. This involves receiving AI model configuration information for IDLE/INACTIVE state procedures, retrieving an AI model based on this information, and performing IDLE/INACTIVE state procedures using the AI model to improve communication efficiency and reliability.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is an overall anticipated overlap between the patents, particularly in the methodologies, designs, and architectures related to the use of AI models in wireless communication, especially in IDLE/INACTIVE states. Both patents address the integration of AI into network operations, including the use of RACH procedures and the management of AI models. The potential commercial impact of these patents could be significant, as they aim to enhance network efficiency and user experience through AI-driven optimizations. The 'Subject' patent focuses on the interaction between UE and the network, while the 'Compared' patent provides detailed methods and apparatuses for implementing these optimizations, suggesting a complementary approach to AI in wireless communication.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The Compared invention operates on systemic principles of error control and detection in wireless communication. It uses AI models to optimize IDLE/INACTIVE state procedures, which are foundational processes for managing communication states. The underlying functions include receiving AI model configuration information, which can be transmitted via various methods such as SIB messages, dedicated RRC signaling, or RRCReconfiguration messages. Essential components include the wireless communication device, which processes the AI model configuration information, and the model repository, which may be collocated with or separate from the base station. Core interactions involve the retrieval of the AI model from the model repository based on model ID information, and the subsequent use of this model to perform IDLE/INACTIVE state procedures. Internally, the invention employs AI algorithms to analyze UE speed, mobility patterns, and other parameters to adjust communication strategies dynamically. The practical applications include enhancing the efficiency of wireless communication in IDLE/INACTIVE states, potentially reducing power consumption and improving network performance.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in the management of AI models in wireless communication, particularly in the RRC IDLE or INACTIVE states. It differs from the Compared invention by focusing on the dynamic interaction between the UE and the network for AI model updates, using specific indicators and protocols like RACH and SIB signals. The Subject invention's use of AI indicators and the detailed process for sending and receiving AI models or datasets through various communication channels represent a unique approach to AI model management. While both inventions aim to enhance wireless communication through AI, the Subject invention's emphasis on real-time updates and specific communication protocols for AI model management sets it apart. The practical applications of the Subject invention include improving the adaptability of AI models to different UE conditions and network environments, potentially leading to more efficient and personalized communication services. Both inventions target the wireless communication industry, but the Subject invention offers a more tailored approach to AI model management, which could lead to significant advantages in terms of network efficiency and user experience.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from 'Subject' and 'Compared' both involve the use of artificial intelligence (AI) models in the context of wireless communication, specifically in IDLE/INACTIVE states. The 'Subject' claims focus on methods performed by user equipment (UE) and networks to manage AI models, including sending AI indicators, receiving AI models or training datasets, and updating AI models based on UE type or location. The 'Compared' claims detail methods and apparatuses for wireless communication that involve receiving AI model configuration information, retrieving AI models, and performing IDLE/INACTIVE state procedures based on these models. Both sets of claims discuss the use of AI in optimizing network procedures, such as cell selection, reselection, and RACH procedures. The methodologies include determining the need for AI models, sending and receiving model-related data, and applying these models to enhance network operations. The designs and architectures involve the integration of AI into the protocol stack and network signaling, with specific mention of RRC states and RACH procedures. Both sets of claims also mention practical applications in enhancing network efficiency and user experience through AI-driven optimizations.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claims from 'Subject' and 'Compared' show a significant overlap in the use of AI models for enhancing wireless communication procedures in IDLE/INACTIVE states. Both sets of claims discuss the retrieval and application of AI models, the use of RACH procedures for model transmission, and the optimization of network operations. The 'Subject' claims provide detailed methods for sending AI indicators and receiving models or datasets, while 'Compared' claims focus on the configuration and retrieval of AI models for specific procedures. The overlap is notable in the context of AI model management and application in network operations, with both sets of claims addressing similar methodologies and practical applications.

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**Claims Breakdown and Comparison Summary:
Compared Patent (US12244468B2) Claim number: 1 and Subject Claim: 4**

Both claims focus on the process of obtaining an AI model in an IDLE/INACTIVE state. The Compared claim specifies the transmission of a model ID and the reception of the AI model through various communication methods, while the Subject claim describes the determination of AI model usage in association with a protocol stack and the transmission and reception within a RACH procedure. The scope of the Compared claim is broader in terms of the methods of receiving the AI model, whereas the Subject claim is more specific to the RACH procedure. The similarity lies in the context of AI model acquisition in an IDLE/INACTIVE state and the use of RACH procedures.

------------------------------------------------------------------------------------------------------------------- **Compared Patent (US12244468B2) Claim number: 4 and Subject Claim: 0**

Both claims address the retrieval of an AI model in an IDLE/INACTIVE state. The Compared claim details the process of determining and downloading the AI model based on model ID information, while the Subject claim describes the process of sending an AI indicator and receiving the AI model or training dataset. The scope of the Compared claim is more focused on the identification and retrieval process, whereas the Subject claim includes the broader context of AI task performance. The similarity is in the action of retrieving an AI model in an IDLE/INACTIVE state.

------------------------------------------------------------------------------------------------------------------- **Compared Patent (US12244468B2) Claim number: 10 and Subject Claim: 2**

Both claims deal with the reception of AI model-related information in an IDLE/INACTIVE state. The Compared claim specifies receiving AI model configuration information via a SIB message, while the Subject claim describes the use of an AI model in association with an application layer and the use of SDT within a RACH procedure. The scope of the Compared claim is narrower, focusing on the SIB message, whereas the Subject claim is broader, encompassing the application layer and RACH procedure. The similarity is in the context of receiving AI model information in an IDLE/INACTIVE state.

------------------------------------------------------------------------------------------------------------------- **Compared Patent (US12244468B2) Claim number: 8 and Subject Claim: 1**

Both claims address the identification of an AI model or related information. The Compared claim specifies the use of RRC signaling, RRCReconfiguration, or SIB messages for AI model identification, while the Subject claim describes the AI indicator containing dataset or model identifiers. The scope of the Compared claim is more specific to the signaling methods, whereas the Subject claim is broader, focusing on the content of the AI indicator. The similarity is in the identification of AI models or related data.

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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US12081412B2**Federated learning across UE and RAN
**Inventor: LI ZIYI
Assignee: INTEL CORP
Priority Date: 10-19-2020
Publication Date: 09-03-2024
CPC: H04L41/16
IPV™ Rating: 6.9964
Inferred Equivalence: High**

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The primary function of the Compared invention (H04L41/16) is to manage and configure network resources efficiently, particularly in complex network environments. This involves handling the increasing diversity and number of communication devices, ensuring optimal performance and resource allocation across routers, switches, and other network components.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is an anticipated overlap between the patents described in 'Subject' and 'Compared', primarily in the area of AI/ML model management within 5G networks. Both patents address the transmission and reception of AI models or training datasets between UE and network elements, utilizing RRC states and specific protocols. However, 'Subject' focuses more on the UE's role and specific protocols like RACH, while 'Compared' delves into network functionalities like federated learning and specific AI/ML use cases. The potential commercial impact of 'Subject' could be significant in enhancing UE's AI capabilities and network efficiency, whereas 'Compared' could impact network optimization and advanced AI/ML applications in 5G networks. Overall, there is a high possibility of overlap due to the shared focus on AI/ML in telecommunications.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The Compared invention operates through a series of systemic and operational principles aimed at network management. It includes foundational processes such as monitoring network performance, dynamically adjusting configurations based on real-time data, and implementing policies for resource allocation. Essential components include network management software, which may run on general-purpose or dedicated machines, and hardware such as routers and switches. Core interactions involve communication between network devices and management systems, with internal dynamics focusing on adaptive algorithms and protocols to manage network traffic and ensure efficient data transmission. The invention may utilize AI or machine learning to predict network behavior and optimize configurations, employing dedicated logic software and circuitry to execute these functions. Practical applications include managing large-scale networks in enterprise environments, ensuring high availability and performance in data centers, and optimizing internet service provider networks.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in the management of AI models within wireless communication networks, particularly in the NR environment. It differs from the Compared invention by focusing specifically on AI model distribution and training data exchange, which is not directly addressed in the network management context of H04L41/16. The Subject invention's use of RRC states for AI model communication and its integration of AI-controlled telecommunication protocols represent unique methodologies and designs. While both inventions deal with network management, the Subject invention's emphasis on AI model handling and its specific application in NR environments sets it apart. The practical applications of the Subject invention are targeted at enhancing AI capabilities in mobile devices and networks, potentially impacting areas like predictive network management and personalized user experiences. In contrast, the Compared invention aims at broader network management and optimization, serving different but potentially overlapping markets in network infrastructure and service provision.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from 'Subject' and 'Compared' both involve the use of AI/ML models in telecommunications, specifically within the context of 5G networks and user equipment (UE). In 'Subject', the focus is on methods for determining and using AI models by UE, including the transmission of AI indicators and receiving AI models or training datasets through various protocols like RRC and RACH procedures. 'Compared' describes apparatuses and methods for a gNB and UE to manage AI/ML models, including the transmission of AI/ML service information, model updates, and federated learning. Both sets of claims discuss the transmission and reception of AI models or related data, the use of RRC states, and the involvement of network elements like gNB and UE in AI/ML operations. However, 'Subject' emphasizes the UE's role in initiating and managing AI model usage, while 'Compared' focuses more on the network's role in distributing and updating AI/ML models, including federated learning aspects. The methodologies in 'Subject' involve specific protocols and states for AI model management, whereas 'Compared' includes broader network functionalities like beam management and positioning prediction using AI/ML.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between 'Subject' and 'Compared' is notable in the context of AI/ML model management within 5G networks. Both sets of claims address the transmission and reception of AI models or related data, the use of RRC states, and the interaction between UE and network elements. 'Subject' specifically mentions the use of RACH procedures and small data transfer protocols for AI model management, which aligns with the general concept of model distribution in 'Compared'. However, 'Compared' extends into federated learning and specific use cases like beam management and positioning, which are not directly mentioned in 'Subject'. The claim\_score of 6.9964 indicates a significant overlap in the core concept of AI/ML model management in telecommunications, though the detailed applications and methodologies differ.

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**Claims Breakdown and Comparison Summary:
Compared Patent (US12081412B2) Claim number: 4 and Subject Claim: 0**

Both claims focus on the use of AI/ML models in the context of user equipment (UE) and network interactions. The Subject claim describes a method where the UE determines the need for an AI model, communicates this need to the network, and receives the model or training data. The Compared claim, on the other hand, details an apparatus where the processing circuitry selects and trains an AI/ML model using historical data and past models from other UEs, considering performance criteria. The similarity lies in the use of AI/ML models and the interaction between UE and network, but the Compared claim emphasizes the selection and training process, which is not explicitly mentioned in the Subject claim. The scope of the Subject claim is broader, covering the initiation and response process, while the Compared claim is more specific to the training and selection of models.

------------------------------------------------------------------------------------------------------------------- **Compared Patent (US12081412B2) Claim number: 12 and Subject Claim: 0**

Both claims involve the use of AI/ML models in the context of UE and network interactions, specifically when the UE is in an RRC\_IDLE or RRC\_INACTIVE state. The Subject claim describes the process of determining the need for an AI model, sending an indicator to the network, and receiving the model or training data. The Compared claim focuses on training the AI/ML model in these states and reporting updated parameters when transitioning to an RRC\_CONNECTED state. The similarity is in the use of AI/ML models and the state of the UE, but the Compared claim adds the aspect of training and reporting, which is not detailed in the Subject claim. The scope of the Subject claim is broader, covering the initiation and response process, while the Compared claim is more specific to the training and reporting process.

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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US12096250B2**Method and apparatus for using artificial intelligence/machine learning model in wireless communication network
**Inventor: KIM SUNWOO
Assignee: IUCF HYU
Priority Date: 07-12-2022
Publication Date: 09-17-2024
CPC: H04W24/02
IPV™ Rating: 7.3158
Inferred Equivalence: Medium**

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The primary function of the Compared invention (H04W24/02) is to facilitate the use of AI/ML models within a wireless communication network by a user equipment (UE). This involves receiving activation or deactivation instructions for AI/ML models from a base station, activating or deactivating the models based on these instructions, and transmitting responses to these actions. The invention aims to enhance communication efficiency and performance by dynamically managing AI/ML models according to specific network conditions and requirements.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is an anticipated overlap between the patents due to their focus on AI/ML model usage in UE within a wireless communication network. However, the overlap is not extensive due to different emphases: 'Subject' focuses on the initiation and data transfer processes, while 'Compared' emphasizes model activation and lifecycle management. The methodologies, designs, and architectures differ, with 'Subject' detailing specific network protocols for model and data transfer, and 'Compared' describing a broader approach to model management and communication optimization. Both patents could have significant commercial impact in enhancing AI capabilities in mobile networks, but they target different aspects of AI model management and usage, suggesting a medium possibility of overlap.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the Compared invention involve life cycle management of AI/ML models, which includes monitoring the performance of the models based on inference data and monitoring data received from a data collection entity. The functional principles include the classification of AI/ML models based on functionality or model ID, enabling the UE to switch between different models based on performance metrics. Essential components include the UE's transmitter, receiver, and controller, which manage the AI/ML model operations. Core interactions involve the exchange of activation/deactivation instructions and responses between the UE and the base station. Internally, the UE's controller uses dedicated logic software to process these instructions and manage the AI/ML models, adhering to specific protocols for communication within the network. The practical applications of this technology are aimed at improving network performance and efficiency in various usage scenarios such as eMBB, mMTC, and URLLC.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in managing AI models and datasets in RRC idle or inactive states, which is not explicitly addressed in the Compared invention. The Subject's use of specific conditions to initiate PDU sessions and manage connections based on timers or signals adds a layer of control and efficiency not seen in the Compared invention. While both inventions deal with AI/ML models in wireless networks, the Subject focuses on the transition and management of connections in different RRC states, which is distinct from the Compared invention's emphasis on model activation and performance monitoring. The Subject's methodologies, such as using RACH procedures and specific signals for AI model updates, differ from the Compared invention's approach of model classification and switching. Both inventions target the wireless communication industry, but the Subject's innovation lies in its specific handling of AI models in different network states, potentially impacting network resource management and user experience in unique ways.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from 'Subject' and 'Compared' both involve methods and systems related to the use of artificial intelligence (AI) or machine learning (ML) models in user equipment (UE) within a wireless communication network. In 'Subject', the focus is on the UE determining the need for an AI model, signaling this need to the network, and receiving the model or training data, often through specific protocols like RRC states and RACH procedures. The 'Compared' claims detail a method where the UE receives instructions to activate a specific AI/ML model from a plurality of models, performs lifecycle management, and uses the model for communication operations. Both sets of claims address AI model management, but 'Subject' emphasizes the initiation and data transfer from the network to the UE, while 'Compared' focuses on model activation, lifecycle management, and the use of the model for communication. The methodologies in 'Subject' involve detailed steps for model and data transfer using specific network protocols, whereas 'Compared' describes a broader lifecycle management including model switching based on performance metrics. The practical applications in 'Subject' are centered around enhancing UE's AI capabilities through network interaction, while 'Compared' aims at optimizing communication operations through AI/ML model management.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the claims in 'Subject' and 'Compared' is primarily in the use of AI/ML models within UE in a wireless communication network. Both sets of claims discuss the interaction between UE and the network regarding AI models, but the specifics differ. 'Subject' focuses on the UE's request for AI models or training data and the network's response, using specific protocols like RRC and RACH. In contrast, 'Compared' emphasizes the network's role in activating and managing the lifecycle of AI/ML models within the UE, including performance monitoring and model switching. The overlap is moderate as both address AI model usage in UE, but the methodologies and focus areas differ significantly. The claim\_score of 7.3158 suggests a potential for overlap, but the differences in the detailed procedures and lifecycle management indicate that the overlap is not as significant as the score might suggest.

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**Claims Breakdown and Comparison Summary:
Compared Patent (US12096250B2) Claim number: 1 and Subject Claim: 0**

Both claims deal with the use of AI/ML models in user equipment within a wireless communication network. The Compared claim focuses on receiving activation instructions for an AI/ML model, activating it, and managing its lifecycle based on performance monitoring and switching between models. The Subject claim, on the other hand, involves determining the need for an AI model, sending an indicator to the network, and receiving the model or training data. The scope of the Compared claim is broader, encompassing lifecycle management and model switching, while the Subject claim is more focused on the initial setup and data exchange. The similarity lies in the use of AI/ML models in UE for communication purposes, but the methodologies differ significantly.

------------------------------------------------------------------------------------------------------------------- **Compared Patent (US12096250B2) Claim number: 4 and Subject Claim: 1**

Both claims involve the use of identifiers related to AI/ML models. The Compared claim specifies receiving activation or deactivation instructions based on a model ID, which is part of a broader lifecycle management system. The Subject claim mentions sending an AI indicator that includes identifiers for datasets or models. The scope of the Compared claim is narrower, focusing on the use of model IDs for activation/deactivation, while the Subject claim's scope includes the type and identifier of datasets and models. The similarity is in the use of identifiers for managing AI/ML models, but the purposes and contexts differ.

------------------------------------------------------------------------------------------------------------------- **Compared Patent (US12096250B2) Claim number: 10 and Subject Claim: 0**

Both claims describe the use of AI/ML models in UE within a wireless communication network. The Compared claim details a UE with components for managing AI/ML models, including activation, lifecycle management, and performance monitoring. The Subject claim focuses on the method of determining the need for an AI model, sending an indicator, and receiving the model or training data. The scope of the Compared claim is broader, encompassing hardware components and lifecycle management, while the Subject claim's scope is more focused on the initial setup and data exchange. The similarity lies in the use of AI/ML models in UE for communication purposes, but the methodologies and components differ significantly.

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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US10992331B2**Systems and methods for signaling for AI use by mobile stations in wireless networks
**Inventor: JASSAL AMAN
Assignee: JASSAL AMAN
Priority Date: 05-15-2019
Publication Date: 04-27-2021
CPC: H04B1/3816
IPV™ Rating: 7.2197
Inferred Equivalence: Medium**

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The Compared invention (H04B1/3816) focuses on enhancing the performance of user equipment (UE) in wireless communication systems by implementing an artificial intelligence (AI) module for tasks such as channel estimation, signal reception, and demodulation. The primary function is to configure and utilize the AI module to improve the efficiency and accuracy of these tasks, thereby enhancing overall communication performance.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

The overall anticipated overlap between the Subject and Compared patents is moderate. While both patents deal with the integration of AI in user equipment for wireless communications, they focus on different aspects: the Subject patent on network interactions and AI model management, and the Compared patent on internal UE configurations and specific communication tasks. There is a low possibility of significant overlap in their core methodologies and applications. The Subject patent's potential commercial impact lies in enhancing network efficiency and AI model distribution, whereas the Compared patent's impact could be in improving UE performance and capabilities in wireless communications. Both patents could contribute to the advancement of AI-driven telecommunications, but their distinct focuses suggest they serve different market needs.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the Compared invention involve the use of AI to perform tasks critical to wireless communication. The AI module is configured through parameters received from the network, which can include input/output types, layer configurations, and neuron coefficients. The AI module can be activated upon insertion of a SIM card, with configuration based on parameters stored in the SIM or received via network signaling. The functional processes include receiving a UE capability enquiry, responding with AI capabilities, and receiving configuration signals to perform specific tasks. The underlying functions are supported by systemic principles such as machine learning algorithms for channel estimation, which do not rely on channel sparsity assumptions, allowing for exploitation of channel structure. Essential components include the AI module itself, which can be implemented in software, hardware, or a combination, and the network signaling mechanisms that facilitate configuration. Core interactions involve the exchange of signals between the UE and the network for configuration and task performance, while internal dynamics include the processing logic and dedicated circuitry that enable the AI module to execute its functions efficiently.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in the management of AI model updates and data communication in an NR environment. Unlike the Compared invention, which focuses on configuring an AI module for specific tasks within the UE, the Subject invention emphasizes the dynamic exchange of AI models and datasets between the UE and the network. The Subject invention's use of specific protocols like SDT within RACH procedures for AI data transfer, and its focus on managing the UE's communication state for AI-related data, represent significant innovations. The Compared invention's AI module configuration and task performance are more static and focused on enhancing UE performance, whereas the Subject invention's approach to AI model updates and data communication is more adaptive and network-centric. The practical applications of the Subject invention are aimed at enhancing AI-driven communication in NR environments, potentially impacting industries like telecommunications and IoT, while the Compared invention targets improving UE performance in general wireless communication scenarios.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve methods and systems related to the use of artificial intelligence (AI) in user equipment (UE) for wireless communications. The Subject patent focuses on the interaction between the UE and the network for AI model management, including sending AI indicators and receiving AI models or training datasets. It details specific protocols and procedures like RRC states, RACH procedures, and PDU sessions for AI model updates and training. The Compared patent, on the other hand, describes the configuration and use of an AI module within the UE for various wireless communication tasks, such as channel estimation, signal processing, and mobility management. It also mentions the use of parameters from a SIM card to configure the AI module and the exchange of UE capability information with the network. Both patents deal with AI in telecommunications, but the Subject patent emphasizes network interaction and model management, while the Compared patent focuses on the internal configuration and tasks of the AI module within the UE. The methodologies involve different aspects of AI integration in telecommunications, with the Subject patent detailing network-side interactions and the Compared patent focusing on UE-side operations and configurations.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the use of AI for enhancing wireless communications in UEs. The Subject patent's focus on AI model management and network interactions, including sending AI indicators and receiving models or datasets, does not directly overlap with the Compared patent's emphasis on configuring and using an AI module for specific communication tasks within the UE. However, both patents share a common theme of using AI to improve wireless communication functionalities. The Subject patent's detailed procedures for AI model updates and training through specific network protocols (e.g., RACH, PDU sessions) are distinct from the Compared patent's focus on internal UE configurations and tasks like channel estimation and signal processing. The claim\_score of 7.2197 suggests a potential for overlap, but the specific methodologies and applications described in each patent indicate that the overlap is moderate, as they address different aspects of AI in telecommunications.

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**Claims Breakdown and Comparison Summary:
Compared Patent (US10992331B2) Claim number: 3 and Subject Claim: 1**

Both claims deal with the interaction between a UE and a network for AI-related tasks. The Compared claim focuses on the UE's capability to respond to network enquiries about its AI capabilities and subsequent configuration for a wireless communications task. The Subject claim, on the other hand, specifies the content of an AI indicator sent to the network, which could be related to the dataset or model type. The similarity lies in the communication of AI-related information from the UE to the network, but the Subject claim is more specific about the type of information being communicated, whereas the Compared claim is broader, encompassing the UE's capability and configuration process.

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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11522639B2**Mobile communication method using AI
**Inventor: KIM SUNAM
Assignee: LG ELECTRONICS INC
Priority Date: 03-19-2020
Publication Date: 12-06-2022
CPC: H04L1/00
IPV™ Rating: 7.2854
Inferred Equivalence: Low**

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The primary function of the invention described under CPC H04L1/00 is to enhance data transmission and reception by applying artificial intelligence (AI) parameters to encoding and decoding processes. This involves the user equipment (UE) transmitting capability information to the base station (BS), receiving AI parameters, and applying these parameters to improve the quality of data transmission or reception.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is a moderate possibility of overlap between the Subject and Compared patents due to their shared focus on AI in telecommunications. The Subject patent's emphasis on model acquisition and management through specific network protocols contrasts with the Compared patent's focus on data processing optimization using AI parameters. The methodologies, designs, and architectures differ, with the Subject patent involving detailed network procedures for model transfer and the Compared patent focusing on AI application for data quality. Both patents could have significant commercial impact in the field of AI-enhanced telecommunications, with the Subject patent potentially impacting AI model distribution and management, and the Compared patent affecting data transmission and reception efficiency.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concept of the invention under CPC H04L1/00 involves the use of AI to optimize data transmission and reception. The UE transmits capability information related to AI calculation to the BS, which then sends back AI parameters. These parameters include information on network structures used for encoding and decoding processes. The UE applies these parameters to perform encoding for data transmission or decoding for data reception. The system also includes mechanisms for measuring the quality of data with and without AI application, calculating differences, and potentially stopping the AI application if the performance does not meet a predetermined threshold. This process involves systemic principles such as data processing, AI-driven optimization, and feedback loops to adjust the application of AI based on performance metrics. The foundational processes include the transmission of capability information, reception of AI parameters, and the application of these parameters to data processing. Essential components include the UE's processor and memory, which execute the AI algorithms, and the communication channels between the UE and BS. Core interactions involve the exchange of data and AI parameters, while internal dynamics focus on the AI's decision-making process to optimize data quality.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The subject invention under CPC H04W76/27 introduces novel aspects in managing AI models in wireless networks, particularly in the context of UE state management. It differs from the compared invention under CPC H04L1/00, which focuses on AI application for data transmission and reception. The subject invention's novelty lies in its approach to AI model updates and management in different UE states, using specific protocols and signals like RACH and SIB, which are not addressed in the compared invention. The methodologies, designs, and architectures for AI model management in the subject invention are distinct from the AI parameter application for data processing in the compared invention. While both inventions utilize AI, the subject invention targets a different aspect of telecommunications, focusing on model management rather than data processing optimization. The practical applications of the subject invention are aimed at enhancing AI model deployment and management in mobile networks, potentially impacting network efficiency and AI model performance. In contrast, the compared invention targets improvements in data transmission and reception, serving the telecommunications industry with a focus on data quality and error management.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve user equipment (UE) interacting with a network using artificial intelligence (AI) models. In the Subject patent, the UE determines the need for an AI model and communicates this need to the network, receiving either the model or a training dataset. This process involves specific protocols like RRC states and RACH procedures. The Compared patent focuses on the UE transmitting capability information related to AI calculations to the base station (BS), receiving AI parameters, and applying these to data encoding or decoding processes. Both patents deal with AI in telecommunications, but the Subject patent emphasizes the acquisition of AI models or datasets, while the Compared patent focuses on the application of AI parameters for data processing. The methodologies in the Subject patent involve detailed steps for model or dataset transfer using specific network protocols, whereas the Compared patent describes a process for applying AI to improve data transmission or reception quality. Both patents mention AI in the context of network communication, but the Subject patent's approach is more about model management and the Compared patent's approach is about data processing optimization.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the use of AI within telecommunications. The Subject patent's claims involve the UE's interaction with the network to obtain AI models or datasets, which is somewhat related to the Compared patent's focus on applying AI parameters for data processing. However, the specific methodologies and applications differ significantly. The Subject patent deals with model acquisition and management, while the Compared patent focuses on data encoding and decoding using AI. The overlap is moderate as both patents address AI in telecommunications but in different contexts and applications.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US12088380B2**Artificial intelligence based channel state information framework
**Inventor: NIU HUANING
Assignee: APPLE INC
Priority Date: 11-19-2021
Publication Date: 09-10-2024
CPC: H04B7/06
IPV™ Rating: 7.1435
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/156-470-228-831-34X/frontpage?l=en](https://www.lens.org/lens/patent/156-470-228-831-34X/frontpage?l=en)

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The Compared invention (H04B7/06) primarily focuses on enhancing channel state information reporting in wireless communication systems through an artificial intelligence (AI) based framework. This framework allows for improved accuracy and efficiency in communication by utilizing AI models to predict and report channel conditions, which can be crucial for optimizing data transmission and reception.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is a medium possibility of overlap between the Subject and Compared patents due to their shared use of AI models in telecommunications, but the specific applications and methodologies differ. The Subject patent focuses on AI model management and transfer in various network states, while the Compared patent is centered on AI-driven CSI reporting. Both patents could have significant commercial impact in enhancing network efficiency and channel estimation accuracy, respectively, but their distinct focuses suggest they address different aspects of AI in telecommunications.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the Compared invention involve the use of AI models for channel state information reporting. The system operates by allowing a wireless device to determine and select an AI model for reporting, which can be either network-controlled, device-controlled, or a combination of both. The foundational processes include the wireless device receiving system information from a cellular base station indicating support for AI-based reporting, and the device providing its capability information to the network. Essential components include the AI models themselves, which can be trained and updated either by the network or the device. Core interactions involve the exchange of AI models and related data between the device and the network, using protocols like PDSCH and PUSCH for transmission. The internal dynamics of the system revolve around the continuous updating and modification of AI models based on performance feedback and environmental changes, ensuring optimal channel state information reporting.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel methods for managing AI model communication in NR environments, particularly in transitioning between different RRC states. It differs from the Compared invention by focusing on the management of AI model updates and communication rather than solely on channel state information reporting. The Subject invention's methodologies involve unique protocols like RACH procedures and PDU sessions for AI model transmission, which are not directly addressed in the Compared invention. While both inventions utilize AI in wireless communication, the Subject invention's focus on state transitions and specific protocols for AI model management provides a distinct approach. The practical applications of the Subject invention are aimed at enhancing AI model deployment and updates in mobile networks, potentially impacting industries requiring real-time AI model adjustments, such as autonomous vehicles and IoT devices. In contrast, the Compared invention targets improvements in channel state information reporting, which could benefit sectors like telecommunications and data transmission services.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve the use of artificial intelligence (AI) models in telecommunications, specifically within the context of user equipment (UE) and network interactions. The Subject patent focuses on methods for determining, sending, and receiving AI models or training datasets between UE and a network, particularly in RRC idle or inactive states. It details various protocols and procedures like RACH, SDT, and PDSCH for these interactions. The Compared patent, on the other hand, centers on AI-based channel state information (CSI) reporting, detailing the use of AI models for reporting and channel estimation, with specific focus on system information, capability information, and model requests/transmissions via PDSCH and PUSCH. Both patents mention the use of AI models, but the Subject patent is more focused on the management and transfer of these models, while the Compared patent is specifically about AI-driven CSI reporting. The methodologies, designs, or architectures in the Subject patent involve AI model management in different network states and protocols, whereas the Compared patent deals with AI model application in channel state reporting. There is no mention of dedicated logic software or specific circuitry in either patent, but both discuss standards and protocols relevant to their respective applications. The practical applications of the Subject patent could enhance network efficiency by optimizing AI model distribution, while the Compared patent could improve channel estimation and reporting accuracy using AI.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the use of AI models within telecommunications. The Subject patent's focus on AI model management and transfer in various network states and protocols has some conceptual overlap with the Compared patent's use of AI models for CSI reporting. However, the specific applications and detailed procedures differ significantly. The Subject patent's claims about AI model indicators, RACH procedures, and PDSCH usage for model transfer show a moderate overlap with the Compared patent's claims about AI model requests and transmissions via PDSCH and PUSCH for CSI reporting. The overlap is not strong due to the different focuses and detailed methodologies described in each patent. The claim\_score of 7.1435 suggests a potential for overlap, but the differences in application and detail indicate that the overlap is not significant.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11825553B2**UE capability for AI/ML
**Inventor: ZHU XIPENG
Assignee: QUALCOMM INC
Priority Date: 05-05-2021
Publication Date: 11-21-2023
CPC: H04W8/24
IPV™ Rating: 7.1278
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/068-566-679-601-857/frontpage?l=en](https://www.lens.org/lens/patent/068-566-679-601-857/frontpage?l=en)

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The primary function of the Compared invention (H04W8/24) is to facilitate the reporting of user equipment (UE) capabilities related to artificial intelligence (AI) and machine learning (ML) procedures to the network. This involves the UE receiving a request to report its capabilities and subsequently transmitting an indication of its AI, ML, radio, and core network capabilities to the network. This process enables the network to optimize communication and resource allocation based on the UE's capabilities.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is a low possibility of overlap between the 'Subject' and 'Compared' patents. The 'Subject' patent focuses on the operational management of AI models and datasets in telecommunications, including specific protocols and state management, while the 'Compared' patent deals with the reporting of UE capabilities for AI and ML procedures. The methodologies, designs, or architectures, as well as the practical applications, differ significantly between the two patents. The potential commercial impact of the 'Subject' patent lies in enhancing the efficiency of AI model deployment and updates in mobile networks, potentially improving user experience and network performance. The 'Compared' patent's impact would be in enabling better network optimization and resource allocation based on detailed UE capability reporting for AI and ML, which could lead to more tailored service offerings.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The Compared invention operates through a series of systemic and functional processes. Upon receiving a request from the network, the UE assesses its capabilities in AI and ML, which may include processing power, memory, hardware acceleration, and specific model formats or libraries. The UE then transmits these capabilities to the network, which can be done through different channels such as the access stratum (AS) or non-access stratum (NAS). This transmission can involve dedicated information elements (IEs) to ensure the network receives detailed and accurate capability data. The network uses this information to tailor its communication strategies, potentially adjusting parameters like data rates, latency requirements, or network slicing to better suit the UE's capabilities. The underlying functions include capability assessment, data encoding, and transmission protocols, with essential components being the UE's processing units, memory, and communication modules. Core interactions occur between the UE and the network, where the UE's capability data influences network behavior. Internally, the UE's software and hardware must dynamically manage and report these capabilities, ensuring real-time updates and efficient communication.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in managing AI models and datasets in wireless communication, particularly in the context of UE states like RRC idle or inactive. It differs from the Compared invention by focusing on the actual transfer and management of AI models rather than just reporting capabilities. The Subject invention's use of AI indicators within the RACH procedure and conditional updates based on UE state and network signaling represents a unique approach to ensuring AI functionality in low-power states. While both inventions deal with AI in telecommunications, the Subject invention's methodologies, designs, and protocols for AI model management and transfer are distinct from the Compared invention's focus on capability reporting. The practical applications of the Subject invention are geared towards enhancing AI task performance in mobile devices, particularly in scenarios where maintaining AI functionality in low-power states is crucial. In contrast, the Compared invention aims at optimizing network resource allocation based on UE capabilities, serving a different purpose within the telecommunications industry.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims in the 'Subject' patent focus on methods for managing AI models and training datasets in user equipment (UE) and network interactions, particularly in RRC idle or inactive states. The methods involve sending AI indicators, receiving AI models or datasets, and managing updates based on UE type or location. The 'Compared' patent, on the other hand, describes an apparatus and methods for reporting UE capabilities related to AI and ML procedures, including processing, memory, and hardware acceleration capabilities, as well as radio and core network capabilities. Both patents deal with AI in the context of telecommunications, but the 'Subject' patent focuses on the operational aspects of AI model management and data transfer, while the 'Compared' patent emphasizes the reporting of UE capabilities for AI and ML. There is a thematic overlap in the use of AI in telecommunications, but the specific methodologies, designs, and architectures differ significantly. The 'Subject' patent involves detailed procedures for AI model and dataset handling, including specific protocols like RACH and PDU sessions, whereas the 'Compared' patent focuses on capability reporting and does not delve into the operational management of AI models.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the 'Subject' and 'Compared' patents is primarily thematic, centered around the use of AI in telecommunications. However, the specific claims do not show significant literal or semantic similarities. The 'Subject' patent's claims are centered on the practical application of AI models and datasets in UE and network interactions, while the 'Compared' patent's claims focus on the reporting of UE capabilities for AI and ML procedures. The methodologies, designs, or architectures described in the 'Subject' patent, such as the use of RACH procedures and PDU sessions, are not directly addressed in the 'Compared' patent. Similarly, the detailed capability reporting mechanisms in the 'Compared' patent are not covered in the 'Subject' patent. The overlap is therefore considered low due to the distinct focus of each patent's claims.

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**Claims Breakdown and Comparison Summary:
Compared Patent (US11825553B2) Claim number: 50 and Subject Claim: 1**

Both claims deal with identifiers related to AI or ML capabilities. The Compared claim specifies an AI or ML capability identifier within a radio capability context, while the Subject claim mentions an AI indicator that includes identifiers for datasets or AI models. The scope of the Compared claim is focused on the identification of AI/ML capabilities within radio capabilities, whereas the Subject claim's scope is broader, encompassing the use of AI models or datasets. The similarity lies in the use of identifiers for AI-related elements, but the context and application differ.

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\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US10237841B1**Apparatus and method of using tracking area update (TAU) message to update UE radio capability
**Inventor: KRISHNAMURTHY SUBASHINI
Assignee: QUALCOMM INC
Priority Date: 04-12-2018
Publication Date: 03-19-2019
CPC: H04W60/04
IPV™ Rating: 6.9522
Inferred Equivalence: Low**

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The primary function of the Compared invention (H04W60/04) is to facilitate the registration of a user equipment (UE) to a network, specifically focusing on the process of updating UE radio capabilities. This involves generating a tracking area update (TAU) message with an indication of a UE radio capability update, transmitting this message, and managing the UE's connection to the network based on the network's response or lack thereof.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the Subject and Compared patents, there is a low possibility of overlap. The Subject patent focuses on AI model management and updates, involving specific protocols and procedures for AI tasks, while the Compared patent deals with UE radio capability updates through TAU messages and network interactions. There is no overlap in methodologies, designs, or architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, protocols, or practical applications. The potential commercial impact of the Subject patent lies in enhancing AI capabilities in UE, potentially improving performance and efficiency in AI-driven applications. The Compared patent's impact would be in improving network connectivity and performance through better management of UE radio capabilities.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The Compared invention operates on the principle of managing UE's network registration and capability updates. The core concept involves the UE generating and transmitting a TAU message to the network, which includes an indication of a UE radio capability update. This process is governed by the following mechanisms:

- **Systemic/Operating Principles**: The UE initiates a TAU message when it detects a need for a radio capability update. This message is crucial for maintaining accurate network information about the UE's capabilities.

- **Foundational/Functional Processes**: The UE generates the TAU message, updates the indication within it to request a capability update, and transmits it to the network. If the network does not respond with a UE capability inquiry or if there is a capability mismatch, the UE detaches and reattaches to the network.

- **Underlying Functions**: The underlying function is to ensure that the network has up-to-date information about the UE's radio capabilities, which is essential for efficient communication and resource allocation.

- **Essential Components**: The essential components include the UE's processing logic, hardware, and software that manage the generation and transmission of the TAU message, as well as the network's capability to process and respond to this message.

- **Core Interactions**: The core interaction is between the UE and the network, where the UE sends the TAU message and the network responds with a UE capability inquiry or triggers a re-registration process.

- **Internal Dynamics**: The internal dynamics involve the UE's decision-making process to generate and update the TAU message based on its current state and the network's response, which may involve timers and flags to manage the process.

- **Methodologies, Designs, or Architectures**: The methodology involves using the TAU message as a vehicle for capability updates, with specific designs for handling network responses and potential mismatches.

- **AI or Artificial Intelligence Controlled Telecommunication**: There is no direct mention of AI in the Compared invention, but the process could potentially be enhanced with AI to predict and manage capability updates more efficiently.

- **Dedicated Logic Software, Circuitry, Standards, Protocols**: The invention relies on standard LTE/NR protocols for TAU messaging and capability inquiries, with dedicated logic in the UE to manage these processes.

- **Practical Applications**: The practical application is in maintaining efficient network operations by ensuring that the network has accurate UE capability information, which is crucial for resource allocation and service quality.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in the management of AI model updates for UEs, particularly in the context of RRC idle or inactive states. It differs from the Compared invention in several key ways:

- **Methodologies, Designs, or Architectures**: The Subject invention uses specific signaling methods like RACH procedures, PDCCH, and SIB signals for AI model updates, which are not mentioned in the Compared invention. The Compared invention focuses on TAU messaging for capability updates.

- **AI or Artificial Intelligence Controlled Telecommunication**: The Subject invention directly involves AI models and their updates, which is a significant departure from the Compared invention's focus on radio capability updates without AI involvement.

- **Dedicated Logic Software, Circuitry, Standards, Protocols**: While both inventions use standard wireless communication protocols, the Subject invention includes dedicated logic for managing AI model updates, which is not present in the Compared invention.

- **Practical Applications**: The Subject invention targets enhancing AI capabilities in UEs, which is a different application from the Compared invention's focus on maintaining network efficiency through capability updates. The Subject invention could impact AI-driven applications in wireless communication, while the Compared invention aims at improving network resource management.

The overlap between the two inventions is minimal, as they address different aspects of wireless communication: one focuses on AI model management, and the other on network registration and capability updates.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve methods and apparatuses related to user equipment (UE) in communication with a network, focusing on different aspects of network interaction. The Subject patent primarily deals with the use of artificial intelligence (AI) models and their updates, including the transmission of AI indicators and the receipt of AI models or training datasets. It specifies various protocols and procedures like RRC states, RACH procedures, and PDU sessions for AI model management. In contrast, the Compared patent focuses on updating UE radio capabilities through tracking area update (TAU) messages, involving procedures like detaching and reattaching from the network based on capability inquiries and mismatches. While both patents deal with UE and network interactions, the Subject patent is centered around AI model management, whereas the Compared patent is focused on radio capability updates. There is no direct overlap in the methodologies, designs, or architectures related to AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, protocols, or practical applications between the two sets of claims.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claims from the Subject and Compared patents show little to no overlap in terms of context or literal words. The Subject patent's focus on AI model management and the Compared patent's emphasis on radio capability updates indicate distinct areas of technology. The methodologies, designs, or architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, protocols, and practical applications described in the Subject patent do not align with those in the Compared patent. The claim\_score of 6.9522 suggests a potential for overlap, but the content of the claims does not support this, indicating a low level of overlap.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11917580B2**Method for transmitting and receiving paging signal in wireless communication system and apparatus therefor
**Inventor: CHUN SUNGDUCK
Assignee: LG ELECTRONICS INC
Priority Date: 11-30-2018
Publication Date: 02-27-2024
CPC: H04W68/02
IPV™ Rating: 6.8979
Inferred Equivalence: Low**

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The primary function of the Compared invention (H04W68/02) is to enable a user equipment (UE) to efficiently receive paging signals from multiple networks in a wireless communication system, particularly when there is a conflict due to overlapping paging occasions. The UE registers with multiple networks, obtains multiple paging occasions, and when these occasions overlap, it requests a change in the paging occasion from one of the networks to resolve the conflict.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the 'Subject' and 'Compared' patents, there is a low possibility of overlap. The 'Subject' patent focuses on AI model management and data transfer protocols in UE and network interactions, while the 'Compared' patent deals with managing paging signals in a multi-USIM environment. There are no shared methodologies, designs, or architectures, nor any common AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols between the two patents. The potential commercial impact of the 'Subject' patent lies in enhancing AI capabilities in UE, potentially improving performance and efficiency in AI-driven applications. In contrast, the 'Compared' patent's impact would be in improving the management of paging signals in multi-USIM scenarios, enhancing user experience in multi-network environments.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The Compared invention operates on the principle of managing paging signals in a multi-network environment. The core concept involves the UE's ability to register with multiple networks and monitor multiple paging occasions. When these occasions overlap, the UE uses a tracking area update (TAU) request to request a change in the paging occasion from a network that supports such updates. This process involves transmitting a TAU request message with the original IMSI to the first network, receiving a TAU accept message with an alternative IMSI, and updating the paging occasion based on this new IMSI. The underlying functions include registration, monitoring, conflict detection, and paging occasion management. Essential components include the UE's RF module, processor, and memory, which store instructions for executing these functions. The core interactions involve communication between the UE and multiple networks, with the internal dynamics centered around the UE's decision-making process to resolve paging conflicts.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in the field of AI model management within wireless communication systems. Unlike the Compared invention, which focuses on managing paging signals, the Subject invention deals with the dynamic exchange of AI models and datasets. The Subject's use of AI indicators and specific protocols for communication represents a unique approach to integrating AI functionalities into wireless networks. The methodologies, designs, and protocols used in the Subject invention, such as the use of RACH procedures for AI model requests, are distinct from the paging management techniques described in the Compared invention. The Subject invention targets the integration of AI into network operations, which is not addressed by the Compared invention, indicating minimal overlap in their practical applications and market focus.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from 'Subject' and 'Compared' patents focus on different aspects of telecommunications and network management. The 'Subject' patent primarily deals with the use of AI models and training datasets in user equipment (UE) and network interactions, specifically in the context of RRC states and data transfer protocols like RACH and PDSCH. It involves methodologies for determining AI model usage, sending AI indicators, and receiving AI models or datasets based on UE state and network communication protocols. The 'Compared' patent, on the other hand, focuses on managing paging signals in a multi-USIM environment, involving the registration with multiple networks, handling overlapping paging occasions, and updating these occasions using IMSI changes. There is no direct overlap in the literal context or methodologies between the two sets of claims. The 'Subject' patent does not mention multi-USIM scenarios or paging signal management, while the 'Compared' patent does not discuss AI models or their management in network communications. However, both patents deal with network communication protocols and UE interactions, which could be considered a broad similarity in the field of telecommunications.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claims from the 'Subject' and 'Compared' patents show little to no overlap in terms of specific methodologies, designs, or architectures. The 'Subject' patent focuses on AI model management and data transfer protocols in the context of UE and network interactions, whereas the 'Compared' patent deals with managing paging signals in a multi-USIM environment. The methodologies, designs, or architectures described in the 'Subject' patent, such as the use of AI indicators, RACH procedures, and PDSCH for AI model and dataset transfer, are not present in the 'Compared' patent. Similarly, the 'Compared' patent's focus on handling overlapping paging occasions and updating them through IMSI changes is not addressed in the 'Subject' patent. There is no mention of AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols in the 'Compared' patent that align with the 'Subject' patent's claims. The practical applications of the 'Subject' patent involve enhancing AI capabilities in UE, while the 'Compared' patent aims to improve paging signal management in multi-USIM scenarios. Given the distinct focus areas, the overlap between the two patents is considered low.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11153776B2**User equipment assisted packet routing at a base station
**Inventor: ZHENG RUIMING
Assignee: ZHENG RUIMING
Priority Date: 05-04-2017
Publication Date: 10-19-2021
CPC: H04W28/02
IPV™ Rating: 6.7995
Inferred Equivalence: Low**

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The primary function of the Compared invention (H04W28/02) is to facilitate efficient data routing and caching in wireless communication systems. It involves receiving an uplink packet from a UE at a base station, identifying an acceleration indicator (AI) within the packet, and routing the packet to a first gateway based on the AI. This gateway, external to the core network, uses a local cache to store and deliver data, aiming to reduce latency and optimize network traffic.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the Subject and Compared patents, there is a low possibility of overlap. The Subject patent focuses on AI model management and updates, involving specific network protocols and states for AI task performance, while the Compared patent is centered on optimizing data traffic routing using local caches. The methodologies, designs, and architectures differ significantly, with the Subject patent involving AI-controlled telecommunication and the Compared patent focusing on network efficiency. The potential commercial impact of the Subject patent lies in enhancing AI capabilities on UEs, potentially leading to more intelligent and adaptive devices. The Compared patent's impact would be in improving network performance and reducing latency through optimized data routing, which could benefit service providers and users requiring high-speed data access.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The Compared invention operates on the principle of user equipment-assisted packet routing. The core concept involves the UE embedding an AI within the uplink packet, which can be in various headers or control elements such as PDCP, RLC, or MAC. This AI serves as a directive for the base station to route the packet to a specific gateway with a local cache, bypassing traditional routing based on IP addresses or traffic flow templates. The functional processes include identifying the AI, generating a GTP-U packet, and routing it to the local cache. Essential components include the base station, the UE, and the first gateway with its local cache. The core interactions involve the UE sending the uplink packet, the base station processing the AI, and the subsequent routing to the gateway. Internally, the system uses dedicated logic and software to handle the AI identification and routing decisions, ensuring efficient data delivery and reduced network load.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel methods for managing AI model updates in wireless networks, particularly in RRC idle or inactive states, which is not addressed by the Compared invention. The Subject's use of AI indicators and specific protocols for AI data transfer represents a unique approach to enhancing AI functionality in mobile devices. In contrast, the Compared invention focuses on data routing and caching, using an AI for traffic management but not for AI model updates. The overlap between the two is minimal, as the Subject deals with AI model management and the Compared with data routing optimization. The Subject's innovation lies in its ability to handle AI model updates efficiently, which could lead to improved AI performance in mobile devices, whereas the Compared invention aims at reducing network latency and optimizing traffic flow.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve methods and apparatuses related to wireless communication and the use of indicators for specific functionalities. In the Subject patent, the focus is on AI model management and updates, where the UE communicates with the network to request or update AI models or training datasets. This involves sending AI indicators and receiving models or datasets through various network protocols and states. The Compared patent, on the other hand, deals with routing uplink packets based on an acceleration indicator (AI) to optimize data traffic flow, specifically to local gateways with caching capabilities. Both patents use indicators (AI in both cases) to trigger specific network actions, but the purposes differ significantly: one for AI model management and the other for traffic routing optimization. The methodologies in the Subject patent involve detailed steps for AI model handling, including state transitions and specific protocol usage like RRC and RACH, while the Compared patent focuses on packet routing and the use of local caches. The designs and architectures in the Subject patent are centered around AI task performance and model updates, whereas the Compared patent's architecture is geared towards efficient data routing and caching. There is no direct mention of AI-controlled telecommunication in the Compared patent, but the Subject patent explicitly deals with AI tasks. Both patents mention dedicated logic software and circuitry implicitly through the use of specific protocols and network functions, but the Subject patent's focus on AI models suggests more advanced software logic. The standards and protocols mentioned in the Subject patent include RRC, RACH, and PDSCH, while the Compared patent references PDCP, RLC, MAC, and GTP-U. Practical applications of the Subject patent include enhancing AI capabilities on UEs, while the Compared patent aims at improving network efficiency through optimized data routing.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the use of indicators to trigger network actions. However, the context and purpose of these indicators differ significantly. The Subject patent uses AI indicators for AI model management, while the Compared patent uses an acceleration indicator for routing optimization. The methodologies, designs, and architectures are distinct, with the Subject patent focusing on AI model updates and the Compared patent on data routing. The claim\_score of 6.7995 suggests a potential for overlap, but the differences in application and focus indicate that the overlap is not significant. The overlap is considered Moderate due to the shared concept of using indicators but with different purposes and implementations.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11116031B2**Handling of inactive parameters upon release and re-suspend
**Inventor: MILDH GUNNAR
Assignee: ERICSSON TELEFON AB L M
Priority Date: 04-16-2018
Publication Date: 09-07-2021
CPC: H04W76/27
IPV™ Rating: 6.6993
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/015-066-115-951-372/frontpage?l=en](https://www.lens.org/lens/patent/015-066-115-951-372/frontpage?l=en)

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The Compared invention focuses on methods and systems for updating stored User Equipment (UE) context information upon re-suspension of the UE in response to a resume request. It aims to efficiently manage the transition of a UE from an inactive state to an active state by updating the Access Stratum (AS) context, thereby reducing signaling overhead and improving latency and battery efficiency.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the 'Subject' and 'Compared' patents, there is a low possibility of overlap. The 'Subject' patent focuses on AI model management and data transfer protocols in mobile networks, while the 'Compared' patent deals with updating the UE's AS context for network efficiency. There is no overlap in methodologies, designs, or architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols. The potential commercial impact of the 'Subject' patent lies in enhancing AI capabilities in mobile networks, potentially leading to more intelligent and efficient network operations. The 'Compared' patent's impact is on improving network efficiency and security through better context management, which could lead to faster and more secure network connections.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concept of the Compared invention involves the UE transmitting an RRC resume request message and receiving an RRC connection release message with an indication for suspend. Upon receiving this message, the UE updates its stored AS context with new information, such as security context, Inactive Radio Network Temporary Identifier (I-RNTI), cell identity, physical cell identity, and Cell Radio Network Temporary Identifier (C-RNTI). This process is facilitated by the UE's processing circuitry, which is configured to handle these updates. The functional principles include the use of specific RRC messages and identifiers to manage the UE's state transitions, ensuring that the UE can quickly resume operations with minimal signaling. The underlying functions involve the management of UE context data, which is crucial for maintaining connectivity and performance in wireless networks. Essential components include the UE's radio interface and processing circuitry, which interact with the network to execute these state transitions. The internal dynamics revolve around the UE's ability to store and update context information based on network instructions, which is critical for efficient operation in 5G New Radio (NR) environments.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects by integrating AI model management into the wireless communication framework, specifically within the NR environment. Unlike the Compared invention, which focuses on updating UE context for state transitions, the Subject invention deals with the management of AI models and datasets, which is a distinct application of wireless communication technology. The Subject invention's use of AI indicators and specific protocols for AI data transfer represents a significant departure from the Compared invention's focus on RRC context management. The overlap between the two inventions is minimal, as the Subject invention does not directly address the updating of UE context for state transitions but rather focuses on enabling AI functionality within the UE. The practical applications of the Subject invention are geared towards enhancing AI capabilities in mobile devices, potentially impacting areas like machine learning applications, while the Compared invention aims at improving network efficiency and UE performance in terms of latency and battery life. Both inventions serve different purposes within the wireless communication industry, with the Subject invention targeting AI-driven applications and the Compared invention focusing on network management and efficiency.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims in the 'Subject' patent focus on methods performed by user equipment (UE) and a network for managing AI models and training datasets in various network states, including RRC idle or inactive states. These methods involve sending AI indicators, receiving AI models or datasets, and updating AI models based on UE type or location. The 'Compared' patent, on the other hand, deals with methods and apparatuses for updating the Access Stratum (AS) context of a UE upon re-suspending the UE after an RRC resume request. This involves replacing various pieces of information in the stored AS context with new information received in an RRC connection release message. While both patents deal with UE and network interactions, the 'Subject' patent focuses on AI model management and the 'Compared' patent focuses on AS context management. There is no direct overlap in methodologies, designs, or architectures related to AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols. The practical applications of the 'Subject' patent are centered around enhancing AI capabilities in mobile networks, whereas the 'Compared' patent aims to improve the efficiency and security of UE context management in network operations.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claim\_score of 6.6993 suggests a potential for overlap, but upon detailed analysis, there is no significant overlap between the claims of the 'Subject' and 'Compared' patents. The 'Subject' patent's claims are centered around AI model management and data transfer protocols, while the 'Compared' patent's claims focus on updating UE's AS context. The methodologies, designs, or architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, and protocols described in the 'Subject' patent do not intersect with those in the 'Compared' patent. The practical applications of each patent are distinct, with the 'Subject' patent aiming to enhance AI functionalities in mobile networks and the 'Compared' patent focusing on improving network efficiency through context management.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11076330B2**Intelligent core network selection
**Inventor: VENKATARAMAN VIJAY
Assignee: APPLE INC
Priority Date: 05-02-2019
Publication Date: 07-27-2021
CPC: H04W36/00
IPV™ Rating: 6.6928
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/007-670-828-263-968/frontpage?l=en](https://www.lens.org/lens/patent/007-670-828-263-968/frontpage?l=en)

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The primary function of the invention described under CPC H04W76/27 is to facilitate the intelligent selection of a core network by a user equipment (UE) in a mixed core network deployment environment. This involves determining a preference for connecting to either a first core network (e.g., LTE's Evolved Packet Core, EPC) or a second core network (e.g., 5G's Core Network, 5GC) based on various factors such as device type, active data flows, and network slice availability. The UE communicates this preference to a base station, which then establishes the connection accordingly.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the Subject and Compared patents, there is a low possibility of overlap. The Subject patent focuses on AI model management within the UE and network, involving specific protocols and procedures for AI task performance. In contrast, the Compared patent deals with UE's ability to select and connect to different core networks based on various factors, including frequency management. The methodologies, designs, or architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, and protocols described in each patent are distinct and address different technical challenges. The potential commercial impact of the Subject patent lies in enhancing AI capabilities within telecommunications, potentially improving efficiency and performance of AI tasks. The Compared patent's impact would be in optimizing network connectivity and resource allocation, which could improve user experience and network efficiency. Overall, the patents address different aspects of telecommunications with minimal overlap.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the invention under CPC H04W76/27 involve the UE's ability to assess its operational context and make informed decisions about network connectivity. This includes:

- **Systemic/Operating Principles**: The UE uses algorithms to evaluate factors like device type, active data flows, and network slice availability to determine the most suitable core network.

- **Foundational/Functional Processes**: The process begins with the UE discovering a base station capable of connecting to multiple core networks. It then assesses its current state and requirements to determine a preference, which is communicated to the base station via a message.

- **Underlying Functions**: The UE's decision-making process involves analyzing network performance metrics, data flow requirements, and device capabilities to select the optimal core network.

- **Essential Components**: Key components include the UE's processor, which runs the decision-making algorithms, and the communication modules that interact with the base station.

- **Core Interactions**: The UE interacts with the base station to transmit its preference and receive a response establishing the connection.

- **Internal Dynamics**: The UE's internal logic dynamically adjusts its preference based on real-time data and network conditions.

The methodologies involve using dedicated logic software within the UE to process data and make decisions. The design architecture includes a modular approach where the decision-making module can be updated or modified independently. Practical applications include enhancing network efficiency and user experience in environments with mixed core network deployments.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The invention under CPC H04W36/00 introduces novel aspects in the field of AI model management within a telecommunications network. It differs from the invention under CPC H04W76/27 in several key ways:

- **AI Model Management**: The subject invention focuses on the dynamic management and updating of AI models within the UE, which is not addressed in the compared invention. This includes the ability to request and receive AI models or datasets based on specific conditions.

- **Communication Protocols**: The subject invention utilizes specific protocols like RACH and PDU sessions for AI-related data transfer, which are distinct from the network selection protocols used in the compared invention.

- **AI Integration**: The subject invention integrates AI processing and decision-making directly into the UE's operations, whereas the compared invention focuses on network selection without AI-specific functionalities.

The overlap between the two inventions is minimal, as they address different technical challenges. The subject invention targets the efficient management of AI models in a telecommunications context, while the compared invention focuses on optimizing network connectivity in mixed core network environments. The practical applications of the subject invention include enhancing AI-driven services in mobile networks, whereas the compared invention aims to improve network efficiency and user experience in mixed network deployments. Both innovations have the potential to significantly impact their respective fields, with the subject invention offering advancements in AI model deployment and the compared invention enhancing network management.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve user equipment (UE) interacting with a network, but they focus on different aspects of telecommunications. The Subject patent primarily deals with the use of artificial intelligence (AI) models and their management within the UE and network, including the transmission of AI indicators and the handling of AI model updates or training datasets. This involves specific protocols like RRC states, RACH procedures, and PDU sessions, which are tailored for AI task performance and model management.

In contrast, the Compared patent focuses on the UE's ability to connect to different core networks based on preferences determined by various factors such as device type, active networking flows, and network slice availability. It involves the discovery of base stations, connection establishment, and frequency redirection based on core network preferences. The methodologies include determining connection preferences, transmitting messages to base stations, and performing ordered redirection searches.

There is a slight overlap in the use of RRC states and PDU sessions, as both patents mention these in the context of UE-network interactions. However, the Subject patent's focus on AI model management and the Compared patent's focus on core network selection and frequency management indicate distinct areas of application. The Subject patent's use of AI indicators and model updates does not directly relate to the Compared patent's core network preference and frequency redirection strategies.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claim\_score of 6.6928 suggests a potential for overlap, but upon detailed analysis, the overlap between the Subject and Compared patents is found to be low. The Subject patent's emphasis on AI model management and the Compared patent's focus on core network selection and frequency management indicate that they address different technical problems and solutions within the telecommunications field. While both patents mention RRC states and PDU sessions, these are common elements in modern telecommunications and do not constitute significant overlap in the context of the specific claims. The methodologies, designs, and architectures described in the Subject patent, such as AI indicators and model updates, are not directly related to the core network preference and frequency redirection strategies described in the Compared patent. Therefore, the overlap is considered low due to the distinct focus and application of each patent.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US12075507B2**Method and apparatus for supporting early data transmission in inactive state in wireless communication system
**Inventor: KIM SEOKJUNG
Assignee: LG ELECTRONICS INC
Priority Date: 08-16-2018
Publication Date: 08-27-2024
CPC: H04W76/19
IPV™ Rating: 6.68
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/027-300-934-903-102/frontpage?l=en](https://www.lens.org/lens/patent/027-300-934-903-102/frontpage?l=en)

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The Compared invention (H04W76/19) primarily focuses on managing the transition of a User Equipment (UE) from an RRC inactive state to an RRC connected state, and the methods for transmitting uplink (UL) data without fetching the UE context. It aims to reduce latency and improve battery life by maintaining the connection between the radio access network (RAN) and the core network in the RRC inactive state.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is a medium possibility of overlap between the Subject and Compared patents due to the shared context of the UE operating in an RRC inactive state. However, the methodologies, designs, and applications are distinct. The Subject patent focuses on AI model management and data transfer for AI tasks, which could have significant commercial impact in enhancing AI capabilities in UEs, particularly in fields like autonomous vehicles or smart devices. The Compared patent, on the other hand, aims at improving data transmission efficiency in wireless communication systems, which could impact network performance and user experience in various applications. The potential commercial impact of each patent is thus in different domains, with the Subject patent leaning towards AI-driven applications and the Compared patent towards general wireless communication efficiency.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concept of the Compared invention involves the transmission of UL data from a current gNB to a last serving gNB without transitioning the UE to an RRC connected state. This is achieved through the following mechanisms:

- **Systemic/Operating Principles**: The invention operates on the principle of maintaining the RRC inactive state while allowing small UL data transmission, which reduces signaling overhead and conserves UE battery life.

- **Foundational/Functional Processes**: The process includes receiving a resume request message with UL data, transmitting a logical channel identifier (LCID) to the last serving gNB, and forwarding the UL data to the core network based on the UL forwarding user plane (UP) transport network layer (TNL) information.

- **Underlying Functions**: The underlying function is to enable quick delivery of small UL data to the core network without state transition, which is facilitated by the mapping between LCID and data radio bearer (DRB) ID or protocol data unit (PDU) session ID in the UE context stored in the last serving gNB.

- **Essential Components**: Key components include the current gNB, last serving gNB, and the core network, with the UE remaining in the RRC inactive state.

- **Core Interactions**: The interaction involves the current gNB receiving UL data and LCID, communicating with the last serving gNB to obtain UL forwarding UP TNL information, and forwarding the data to the core network.

- **Internal Dynamics**: The dynamics include the decision-making process to transmit UL data without fetching the UE context, based on the size of the data and the state of the UE.

- **Methodologies/Designs/Architectures**: The architecture involves a split between the gNB central unit (gNB-CU) and gNB distributed unit (gNB-DU), with specific protocols for UL data transmission in the RRC inactive state.

- **AI or Artificial Intelligence Controlled Telecommunication**: The Compared invention does not explicitly mention AI control, but it could potentially integrate AI for optimizing data transmission decisions.

- **Dedicated Logic Software/Circuitry**: The invention may use dedicated logic or software to manage the transmission of UL data and the mapping of LCID to DRB ID or PDU session ID.

- **Standards/Protocols**: The invention adheres to 5G NR standards and protocols for RRC state management and data transmission.

- **Practical Applications**: The practical application is in 5G NR systems where efficient UL data transmission from the RRC inactive state is crucial for enhancing user experience and network efficiency.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novelty by integrating AI models into the RRC state management, specifically for enhancing the performance of AI tasks in RRC idle or inactive states. This differs from the Compared invention, which focuses on UL data transmission without AI integration. The Subject invention's use of AI indicators and specific signaling methods for AI model updates represents a unique approach not seen in the Compared invention. The overlap between the two inventions is minimal, as the Subject invention deals with AI model management, while the Compared invention focuses on data transmission efficiency. The Subject invention's practical applications are in AI-driven wireless communication systems, aiming to improve AI task performance in mobile devices, whereas the Compared invention targets general UL data transmission efficiency in 5G NR systems. The potential impact of the Subject invention includes enhanced AI capabilities in mobile devices, while the Compared invention aims to improve overall network efficiency and user experience.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve user equipment (UE) operating in a radio resource control (RRC) inactive state, which is a common context. The Subject patent focuses on the use of an artificial intelligence (AI) model by the UE, including the transmission of an AI indicator to the network and receiving an AI model or training dataset. This involves specific protocols like small data transfer (SDT) within a random access channel (RACH) procedure, and different methods of sending and receiving data based on size thresholds and performance conditions. In contrast, the Compared patent details a method for transmitting uplink (UL) data while remaining in the RRC inactive state, involving RRC resume request messages, UL transport network layer (TNL) information, and specific logical channel identifiers (LCID). The methodologies differ significantly; the Subject patent deals with AI model management and data transfer for AI tasks, while the Compared patent focuses on data transmission protocols and network interactions for UL data. The Subject patent also mentions AI or artificial intelligence controlled telecommunication, which is not present in the Compared patent. The practical applications of the Subject patent are centered around enhancing AI capabilities in UEs, whereas the Compared patent aims at improving data transmission efficiency in wireless communication systems.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the context of the UE operating in an RRC inactive state. However, the specific methodologies, designs, and applications differ significantly. The Subject patent's focus on AI model management and data transfer for AI tasks does not directly align with the Compared patent's emphasis on UL data transmission protocols. The claim\_score of 6.68 suggests a potential for overlap, but the differences in the detailed methodologies and applications indicate that the overlap is not significant. The Subject patent's use of AI indicators and specific protocols for AI model transfer does not find a direct counterpart in the Compared patent, which deals with different aspects of data transmission and network interactions.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US12177925B2**Systems and methods for providing system information via UE-to-network relay
**Inventor: WU ZHIBIN
Assignee: APPLE INC
Priority Date: 07-23-2020
Publication Date: 12-24-2024
CPC: H04W76/20
IPV™ Rating: 6.6635
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/110-893-274-641-673/frontpage?l=en](https://www.lens.org/lens/patent/110-893-274-641-673/frontpage?l=en)

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The Compared invention (H04W76/20) primarily focuses on methods and systems for managing the setup and release of connections in a wireless communication network. It involves the relay user equipment (UE) facilitating the transfer of system information (SI) to remote UEs, which can be in various states such as RRC idle, RRC inactive, or out-of-coverage. The relay UE acts as an intermediary to provide requested SI, including minimum system information (MSI), other system information, and on-demand system information, to remote UEs through sidelink communication channels and broadcast messages.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

The overall anticipated overlap between the Subject and Compared patents is moderate, primarily due to the shared use of RACH procedures and handling of UEs in RRC idle or inactive states. However, the Subject patent's focus on AI model management and updates, including AI indicators and training datasets, contrasts with the Compared patent's emphasis on system information relay and distribution among UEs. The methodologies, designs, and architectures in the Subject patent are tailored for AI-driven applications, potentially impacting AI-controlled telecommunication and dedicated logic software for AI tasks. In contrast, the Compared patent's architecture enhances network coverage and information dissemination, focusing on relay operations and SI management. The potential commercial impact of the Subject patent lies in enhancing AI applications in telecommunications, while the Compared patent could improve network efficiency and coverage, particularly in scenarios involving remote UEs. There is a low possibility of significant overlap in their core functionalities and commercial applications.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the Compared invention revolve around the use of Layer 2 (L2) relaying optimizations to enhance the efficiency of SI transfer. The relay UE establishes a sidelink communication channel with remote UEs and decodes SI requests from these UEs. The relay UE then obtains the requested SI either from its memory or directly from the base station using procedures like RACH-based on-demand SI or dedicated SIB requests, depending on its RRC state. The relay UE encodes and sends the SI response back to the requesting UE and monitors for SI updates from the base station, forwarding these updates to the remote UEs. The system also includes mechanisms for broadcasting SI to multiple UEs not directly connected to the relay UE. The underlying functions involve managing the relay UE's state, handling SI requests and responses, and optimizing the transmission of SI through sidelink channels. Essential components include the relay UE's hardware and software for processing SI, the memory device for storing SI, and the communication protocols for sidelink and broadcast channels. Core interactions occur between the relay UE, remote UEs, and the base station, with internal dynamics focused on efficient SI management and distribution.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in the management of AI-related data in wireless communication, specifically tailored for NR environments. It differs from the Compared invention by focusing on AI model updates and training datasets rather than general system information. The Subject invention's use of AI indicators and specific protocols like SIB and DCI for AI data transfer represents a unique approach not seen in the Compared invention, which is centered on SI relaying. The methodologies and designs in the Subject invention are geared towards enhancing AI task performance on UEs, whereas the Compared invention aims at optimizing SI distribution. The Subject invention's practical applications are in AI-driven wireless communication systems, potentially impacting areas like machine learning on mobile devices, while the Compared invention targets general network efficiency and connectivity. The overlap between the two inventions is minimal, as they serve different purposes within the broader domain of wireless communication.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve user equipment (UE) in communication with a network, specifically addressing scenarios where the UE is in an RRC idle or RRC inactive state. The Subject patent focuses on the use of an AI model by the UE, including sending an AI indicator to the network and receiving the AI model or training dataset. This involves specific protocols like the RACH procedure and small data transfer (SDT) for communication. The Compared patent, on the other hand, deals with a relay UE providing system information (SI) to remote UEs, using sidelink communication channels and RACH-based procedures for obtaining SI from the base station. Both patents utilize RACH procedures and address communication in RRC idle or inactive states, but the Subject patent is centered around AI model management, while the Compared patent focuses on system information relay. The methodologies in the Subject patent include AI model updates and training dataset management, whereas the Compared patent involves SI request and response mechanisms, including broadcast and dedicated signaling. The designs and architectures in the Subject patent are tailored for AI task performance and model updates, while the Compared patent's architecture is designed for efficient SI distribution among UEs. Both patents mention practical applications in telecommunications, with the Subject patent potentially impacting AI-driven applications and the Compared patent enhancing network coverage and information dissemination.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the use of RACH procedures and the handling of UEs in RRC idle or inactive states. However, the Subject patent's focus on AI model management and the Compared patent's emphasis on system information relay indicate a moderate overlap in context but not in the specific functionalities or applications. The Subject patent's claim\_score of 6.6635 suggests a significant focus on AI-related functionalities, which are not directly addressed in the Compared patent. The Compared patent's claims are more about network information dissemination and do not directly involve AI models or training datasets. Therefore, while there is some overlap in the use of certain protocols and UE states, the core functionalities and applications differ significantly.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11937327B2**Method and apparatus for RRC state transition
**Inventor: SHIH MEI-JU
Assignee: FG INNOVATION CO LTD
Priority Date: 08-10-2018
Publication Date: 03-19-2024
CPC: H04W76/27
IPV™ Rating: 6.6625
Inferred Equivalence: Low**

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The Compared invention primarily focuses on managing the transition of a user equipment (UE) from an RRC\_INACTIVE state to an RRC\_IDLE state in next-generation wireless communication networks. It aims to improve power saving and manage the UE's state transitions efficiently by discarding specific configurations when transitioning states.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the Subject and Compared patents, there is a low possibility of overlap. The Subject patent focuses on AI model management within UE, involving AI-controlled telecommunication and dedicated logic software, while the Compared patent deals with RRC state management and cell reselection, focusing on network protocols and standards. The methodologies, designs, and architectures are distinct, with no shared elements in AI or artificial intelligence controlled telecommunication, dedicated logic software, or circuitry. The potential commercial impact of the Subject patent lies in enhancing UE's AI capabilities, potentially leading to more intelligent and adaptive devices. In contrast, the Compared patent's impact would be in improving network connectivity and state management, enhancing the efficiency and reliability of UE's network interactions. Overall, the patents address different aspects of UE functionality with minimal overlap.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The Compared invention operates on the principle of state management within the RRC protocol. It involves the UE transitioning to a first sub-state of RRC\_INACTIVE when it fails to find a suitable cell, attempting to find a suitable cell, and then transitioning to RRC\_IDLE if it camps on an acceptable cell. This process includes discarding RRC\_INACTIVE related information such as I-RNTI and UE Inactive context. The mechanisms involve systemic principles of state transition logic, foundational processes of cell reselection and evaluation, and the underlying function of maintaining network efficiency and power saving. Essential components include the UE's processor and memory, which execute instructions for state transitions. Core interactions occur between the UE and the network, particularly in the context of cell reselection and paging. Internal dynamics involve the UE's decision-making process based on cell suitability and the management of network configurations.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in the management of AI models within the context of wireless communication, particularly in the RRC idle or inactive states. It differs from the Compared invention, which focuses on state transitions and does not involve AI model management. The Subject's methodologies, designs, and architectures are centered around AI task performance and model updates, whereas the Compared invention's focus is on state management and power saving. There is minimal overlap in terms of methodologies, designs, or architectures, as the Subject deals with AI model handling and the Compared with RRC state transitions. The practical applications of the Subject invention are in enhancing AI task performance in mobile devices, while the Compared invention aims at improving network efficiency and power management in next-generation wireless networks. The Subject and Compared inventions serve different purposes and markets, with the Subject targeting AI applications in telecommunications and the Compared focusing on network management and power efficiency.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents focus on different aspects of user equipment (UE) operations within a network, particularly in the context of radio resource control (RRC) states. The Subject patent primarily deals with the use of artificial intelligence (AI) models and their management in UE, including the transmission of AI indicators and the receipt of AI models or training datasets. It involves methodologies for determining AI model usage, sending AI indicators, and receiving AI models or datasets through various protocols like RRC connection setup, PDSCH, and PDU sessions. The Compared patent, on the other hand, focuses on the UE's behavior in RRC\_INACTIVE state, detailing transitions between sub-states, cell reselection, and the handling of RRC\_INACTIVE related information. It includes methodologies for transitioning between RRC states, handling cell reselection, and managing RNA configurations. There is no direct overlap in the literal context of AI model management and RRC state transitions. However, both patents deal with UE's interaction with the network, albeit in different operational contexts. The Subject patent's use of RRC states (idle or inactive) for AI model management could be seen as tangentially related to the Compared patent's focus on RRC\_INACTIVE state management, but the methodologies, designs, and practical applications are distinct. The Subject patent involves AI and dedicated logic software for AI model management, while the Compared patent focuses on network protocols and standards for RRC state management without any mention of AI.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claim\_score of 6.6625 suggests a potential for overlap, but upon detailed analysis, the overlap between the Subject and Compared patents is low. The Subject patent's focus on AI model management and the Compared patent's focus on RRC state transitions and cell reselection do not share significant methodologies, designs, or architectures. The Subject patent's use of AI and dedicated logic software for managing AI models is not present in the Compared patent, which instead deals with network protocols and standards for managing RRC states. The practical applications of the Subject patent involve enhancing UE's AI capabilities, while the Compared patent aims to improve UE's network connectivity and state management. Therefore, despite the claim\_score, the overlap is assessed as low due to the distinct focus and lack of shared elements in methodologies, designs, or practical applications.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US9832686B2**Procedures for 3GPP circuit switched fallback
**Inventor: BELGHOUL FAROUK
Assignee: APPLE INC
Priority Date: 07-07-2014
Publication Date: 11-28-2017
CPC: H04L12/28
IPV™ Rating: 6.6524
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/140-807-182-185-038/frontpage?l=en](https://www.lens.org/lens/patent/140-807-182-185-038/frontpage?l=en)

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The primary function of the invention described under CPC H04W76/27 is to facilitate a seamless transition for a user equipment (UE) from one radio access technology (RAT) to another. This transition is particularly focused on scenarios where a UE needs to switch from a network operating on a first RAT to a second RAT, such as during a voice call release in a circuit-switched fallback (CSFB) scenario. The invention aims to improve the user experience by reducing the time taken to reconnect to a preferred network after a call release.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the Subject and Compared patents, there is a low possibility of overlap. The Subject patent focuses on AI model management within UE and network interactions, while the Compared patent deals with UE transitions between different RATs. The methodologies, designs, architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, protocols, and practical applications of each patent are distinct. The potential commercial impact of the Subject patent lies in enhancing UE performance through AI, potentially leading to more efficient and intelligent network operations. The Compared patent's impact would be in improving UE connectivity across different network technologies, which could enhance user experience in multi-RAT environments.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concept of the invention under CPC H04W76/27 involves the UE receiving an indication within an RRC connection release message about whether to perform an autonomous network search for a network operating according to the second RAT. This indication can instruct the UE to either perform the search or remain idle. The functional principles include the UE's ability to interpret this indication and act accordingly, potentially using a priority list of radio frequency channels provided alongside the indication to optimize the search process. The underlying functions involve the UE's processing logic and software to manage the transition, including the decision-making process based on the received indication. Essential components include the UE's hardware and circuitry for communication, while core interactions involve the UE's communication with the network to receive and process the RRC connection release message. The internal dynamics of the UE's operation include the decision to either initiate an autonomous search or remain idle, which is influenced by the network's instructions and the UE's current state.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The subject invention under CPC H04L12/28 introduces novel approaches to network infrastructure management, focusing on the physical and logical arrangement of communication lines. This differs significantly from the compared invention under CPC H04W76/27, which is centered on the operational transition between different RATs at the UE level. The subject invention does not directly address the transition mechanisms or the user equipment's behavior during network changes, which is the core focus of the compared invention. Instead, it aims at enhancing the underlying network infrastructure to support various services more effectively. There is minimal overlap in methodologies, designs, or architectures between the two inventions, as the subject invention deals with network setup and optimization, while the compared invention focuses on UE behavior and network transition protocols. The practical applications of the subject invention are geared towards improving network performance and reliability across a wide range of services, whereas the compared invention targets improving the user experience during specific network transitions, such as during voice calls. The potential impacts of the subject invention include enhanced service delivery and network efficiency, while the compared invention aims to reduce call setup delays and improve user experience in specific scenarios.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve user equipment (UE) and network interactions, specifically in the context of radio resource control (RRC) states. The Subject patent focuses on the use of artificial intelligence (AI) models and their management within the UE and network, including the transmission of AI indicators and models or datasets. The Compared patent, however, deals with the transition of UE between different radio access technologies (RATs) and the management of network searches post-call release. Both patents mention RRC connection release messages, but the Subject patent uses this in the context of AI model management, while the Compared patent uses it for network transition instructions. The methodologies in the Subject patent involve AI task determination, AI model updates, and data transfer protocols like SDT within RACH procedures, which are not present in the Compared patent. The Compared patent's methodologies revolve around autonomous network searches and cell searches for different RATs, which are not discussed in the Subject patent. The designs and architectures in the Subject patent are centered around AI integration into UE and network operations, whereas the Compared patent focuses on UE hardware and software for managing RAT transitions. There is no mention of AI or artificial intelligence controlled telecommunication in the Compared patent, unlike the Subject patent. The Subject patent also discusses dedicated logic software and circuitry implicitly through the use of AI models, while the Compared patent mentions hardware components like radios and processors for RAT transitions. Standards and protocols in the Subject patent include RACH procedures and PDU sessions, while the Compared patent mentions RRC connection release messages and priority lists for RAT searches. Practical applications of the Subject patent include enhancing UE performance through AI, while the Compared patent aims at improving UE connectivity across different network technologies.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the use of RRC states and connection release messages. However, the context and purpose of these elements differ significantly. The Subject patent uses RRC states for AI model management, whereas the Compared patent uses them for network transition management. The claim\_score of 6.6524 suggests a potential for overlap, but the thematic differences in AI model management versus RAT transition indicate that the overlap is not significant. The methodologies, designs, architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, protocols, and practical applications of each patent are distinct, leading to a conclusion of low overlap.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11729855B2**Handling of inactive parameters upon release and re-suspend
**Inventor: MILDH GUNNAR
Assignee: ERICSSON TELEFON AB L M
Priority Date: 04-16-2018
Publication Date: 08-15-2023
CPC: H04W76/27
IPV™ Rating: 6.6446
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/118-229-214-450-90X/frontpage?l=en](https://www.lens.org/lens/patent/118-229-214-450-90X/frontpage?l=en)

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The Compared invention focuses on methods and systems for updating stored User Equipment (UE) context information upon re-suspension of the UE in response to a resume request. It aims to efficiently manage the transition of a UE from an RRC connected state to an RRC inactive state by updating specific parameters in the UE's Access Stratum (AS) context, such as the Inactive Radio Network Temporary Identifier (I-RNTI), security context, and cell identifiers, to facilitate quicker and less resource-intensive reconnections.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the Subject and Compared patents, there is a low possibility of overlap. The Subject patent focuses on AI model management and data transfer protocols within telecommunications, while the Compared patent deals with the management of AS context information in UE. The methodologies, designs, and architectures described in each patent are distinct and serve different purposes within the telecommunications field. There is no overlap in the use of AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols. The potential commercial impact of the Subject patent lies in enhancing AI-driven telecommunications, potentially improving efficiency and performance in network operations. The Compared patent's impact would be in improving the management of UE's network connection states, which could enhance the reliability and security of UE operations.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the Compared invention revolve around the management of UE's AS context during state transitions in wireless communication networks. The functional principles include:

- **Systemic/Operating Principles**: Upon receiving an RRC connection release message with a suspend indication, the UE updates its stored AS context. This involves replacing specific identifiers like I-RNTI, security context information, and cell identities with new values received in the message.

- **Foundational/Functional Processes**: The process starts with the UE transmitting an RRC resume request message. In response, it receives an RRC connection release message with a suspend indication, triggering the update of the AS context. This update is crucial for subsequent resume requests, allowing the UE to use updated context information to calculate security tokens.

- **Underlying Functions**: The primary underlying function is to maintain an up-to-date AS context to reduce signaling overhead and latency during UE state transitions.

- **Essential Components**: Key components include the UE's radio interface and processing circuitry, which handle the transmission and reception of RRC messages and the updating of the AS context.

- **Core Interactions**: The UE interacts with the network node (base station) to receive and process RRC messages, ensuring that the AS context is updated correctly.

- **Internal Dynamics**: The UE's internal logic processes the RRC messages, updates the AS context, and prepares for future resume requests by storing the updated information.

The methodologies involve using specific RRC messages and protocols to manage state transitions. The design focuses on the UE's ability to store and update context information efficiently. The architecture includes the UE's radio interface and processing circuitry, which are essential for handling these operations. No specific AI or artificial intelligence-controlled telecommunication is mentioned, but the system relies on dedicated logic software and circuitry to manage the RRC state transitions. The practical applications include improving the efficiency of UE state management in cellular networks, particularly in 5G NR environments.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects by integrating AI model management into the UE's communication with the network, particularly in RRC idle or inactive states. This differs from the Compared invention, which focuses on updating UE context information for state transitions without involving AI functionalities. The Subject invention's use of AI indicators, specific signals for AI model updates, and the integration of AI tasks into the UE's operation represent significant novelties. The overlap between the two inventions is minimal, as the Subject invention deals with AI model management, while the Compared invention focuses on UE context management for state transitions. The Subject invention's methodologies, designs, and architectures are tailored to support AI-related communications, which are not addressed in the Compared invention. The practical applications of the Subject invention are aimed at enhancing AI capabilities in mobile devices, potentially impacting industries like mobile AI applications, whereas the Compared invention targets improving the efficiency of UE state management in cellular networks.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents focus on different aspects of telecommunications and user equipment (UE) operations. The Subject patent primarily deals with the use of artificial intelligence (AI) models in UE, including the transmission of AI indicators and the reception of AI models or training datasets. It involves methodologies for determining AI model usage, sending AI indicators through specific protocols like Small Data Transfer (SDT) within Random Access Channel (RACH) procedures, and receiving AI models or datasets through various network messages. The patent also covers scenarios where the UE transitions between different RRC states and the use of AI in different layers of the protocol stack.

In contrast, the Compared patent focuses on the management of the Access Stratum (AS) context in UE, specifically the replacement of stored information in the AS context upon receiving an RRC connection release message with an indication to suspend. This includes replacing security context information, I-RNTI, cell identities, physical cell identities, and C-RNTI. The methodologies involve the transmission and reception of RRC messages and the subsequent updating of UE's AS context to facilitate future RRC resume requests.

There is no direct overlap in the literal wording or specific methodologies between the two sets of claims. The Subject patent's focus on AI model management and the Compared patent's focus on AS context management are distinct areas within telecommunications. However, both patents deal with UE operations and network interactions, which could be considered a broad contextual similarity. The Subject patent's use of RRC states and RACH procedures for AI model management could be seen as tangentially related to the Compared patent's use of RRC messages for AS context management, but the specific applications and purposes are different.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claim\_score of 6.6446 suggests a potential for overlap, but upon detailed analysis, the overlap between the Subject and Compared patents is low. The Subject patent's claims are centered around AI model management and data transfer protocols, while the Compared patent's claims focus on the management of AS context information. The methodologies, designs, and architectures described in the Subject patent, such as the use of AI indicators and specific RACH procedures, do not directly relate to the methodologies in the Compared patent, which involve the replacement of AS context information upon receiving specific RRC messages. The practical applications of the Subject patent are in the realm of AI-driven telecommunications, whereas the Compared patent's applications are in the management of UE's network connection states. There is no significant overlap in the use of AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols between the two patents.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US8149773B2**Resource allocation for enhanced uplink using an acquisition indicator channel
**Inventor: SAMBHWANI SHARAD DEEPAK
Assignee: SAMBHWANI SHARAD DEEPAK
Priority Date: 01-04-2008
Publication Date: 04-03-2012
CPC: H04W4/00
IPV™ Rating: 6.6345
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/102-663-972-689-996/frontpage?l=en](https://www.lens.org/lens/patent/102-663-972-689-996/frontpage?l=en)

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The Compared invention (H04W4/00) focuses on enhancing the efficiency of user equipment (UE) operation in an inactive state by allocating resources for a high-speed channel. This allows the UE to send data more efficiently without transitioning to an active state, thereby reducing signaling overhead and delay. The primary function involves selecting a signature for random access, receiving acquisition indicators, and determining resource configurations based on these indicators.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the Subject and Compared patents, there is a low possibility of overlap. The Subject patent focuses on AI model usage and updates in UE communication, involving specific AI-related protocols and data handling, whereas the Compared patent deals with resource allocation and data transmission in wireless communication, using signature-based methods. The methodologies, designs, or architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, protocols, and practical applications of each patent are distinct. The potential commercial impact of the Subject patent could be significant in fields requiring AI-driven communication enhancements, while the Compared patent's impact would be more relevant to improving efficiency in wireless data transmission.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the Compared invention revolve around the use of signatures and acquisition indicators for resource allocation in an inactive state. The UE selects a first signature from a set available for random access and generates an access preamble. Upon sending this preamble, the UE receives an acquisition indicator (AI) from a Node B, which determines the resource configuration. If the AI has a first predetermined value, default resources are used; if it has a second value, an extended acquisition indicator (EAI) and a second signature are used to determine the resources. This system operates on principles of orthogonal frequency division multiple access (OFDMA) and code division multiple access (CDMA), utilizing channelization codes for efficient data transmission. The underlying functions include signature selection, preamble generation, and resource allocation based on AI and EAI values. Essential components include the UE, Node B, and the acquisition indicator channel (AICH). Core interactions involve the exchange of signatures and indicators between the UE and Node B, while internal dynamics focus on the UE's ability to remain in an inactive state while efficiently sending data.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects by focusing on AI model management and communication in a wireless network, which is not directly addressed by the Compared invention. The Subject's use of AI indicators and specific signaling methods for AI model updates and training datasets represents a significant departure from the Compared invention's focus on resource allocation for data transmission in an inactive state. While both inventions deal with UE operations in inactive states, the Subject's integration of AI technology and its specific protocols for AI-related data communication provide a unique approach not found in the Compared invention. The practical applications of the Subject invention are geared towards enhancing AI capabilities in mobile devices, potentially impacting areas like machine learning applications in mobile networks, whereas the Compared invention aims at improving general data transmission efficiency in wireless networks.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve methods and apparatuses for wireless communication, particularly focusing on user equipment (UE) in various states such as idle or inactive. The Subject patent describes a method where a UE uses an AI model for tasks, involving communication with a network to send AI indicators and receive AI models or training datasets. This is done through specific protocols like RRC states and RACH procedures. In contrast, the Compared patent focuses on a method for random access in wireless communication, where a UE selects signatures and sends preambles to access the network, receiving acquisition indicators (AI) and extended acquisition indicators (EAI) to determine resource allocation. Both patents deal with UE communication in idle or inactive states, but the Subject patent emphasizes AI model usage and updates, while the Compared patent focuses on resource allocation for data transmission. The methodologies differ significantly; the Subject patent involves AI-specific protocols and data handling, whereas the Compared patent deals with signature-based resource allocation. There is no direct mention of AI or AI models in the Compared patent, indicating a different focus on the practical application of wireless communication.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the context of UE operating in idle or inactive states and the use of specific communication protocols. However, the Subject patent's focus on AI models and their updates through network communication does not directly align with the Compared patent's emphasis on signature selection and resource allocation for data transmission. The methodologies, designs, and architectures described in the Subject patent, such as AI indicators, training datasets, and specific RACH procedures, are not present in the Compared patent. The Compared patent's focus on acquisition indicators and resource allocation based on signatures does not overlap with the AI-specific functionalities of the Subject patent. Therefore, the overlap is considered Low due to the distinct focus and application of each patent.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: EP3578001B1**RADIO RESOURCE CONTROL RESUME WITHOUT CONTEXT FETCH
**Inventor: RUGELAND PATRIK
Assignee: ERICSSON TELEFON AB L M
Priority Date: 02-03-2017
Publication Date: 05-10-2023
CPC: H04W76/19
IPV™ Rating: 6.6287
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/136-841-567-886-294/frontpage?l=en](https://www.lens.org/lens/patent/136-841-567-886-294/frontpage?l=en)

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The primary function of the Compared invention (H04W76/19) is to manage the transition of a user equipment (UE) from an RRC\_INACTIVE state to an RRC\_CONNECTED state in a wireless communication network, ensuring efficient handling of UE context and connection states.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is a low possibility of overlap between the Subject and Compared patents. The Subject patent's focus on AI models and datasets for UE and network communication in RRC idle or inactive states does not significantly intersect with the Compared patent's emphasis on RRC connection resumption and security between network nodes and UE. The methodologies, designs, and architectures of the Subject patent are centered around AI integration, which is absent in the Compared patent. The Compared patent's focus on network node interactions and security protocols does not align with the AI-centric approach of the Subject patent. The potential commercial impact of the Subject patent could be significant in enhancing AI-driven functionalities in mobile devices, while the Compared patent could improve network efficiency and security in handovers and connection resumptions. However, due to the distinct focuses, there is minimal overlap in their potential commercial applications.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The Compared invention operates on the principle of maintaining UE context in the RRC\_INACTIVE state, allowing for quick resumption of connections when needed. It involves the following systemic and operational principles:

- **Foundational Processes**: The UE sends an RRCConnectionResumeRequest to the network, which responds with either an RRCConnectionResume or RRCConnectionSetup message based on the availability of the UE context. If the context is discarded, the UE is informed and proceeds with a new connection setup.

- **Underlying Functions**: The invention uses dedicated logic and software to manage the UE's state transitions, ensuring that the network can efficiently handle incoming data packets by either paging the UE or directly sending data over the NG-U interface.

- **Essential Components**: The system includes processing circuitry and interfaces within the UE, as well as network nodes like eNodeB and gNB, which manage the UE's state and context.

- **Core Interactions**: The UE interacts with the network through RRC signaling, which is crucial for state management and context handling.

- **Internal Dynamics**: The invention employs protocols and standards like LTE and NR to facilitate these transitions, ensuring compatibility with existing telecommunication networks.

- **Practical Applications**: This technology is aimed at improving the efficiency of mobile networks by reducing latency in connection resumption and optimizing resource usage.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects by integrating AI model management into the communication framework of a wireless network. Unlike the Compared invention, which focuses on general connection state management, the Subject invention specifically addresses the transfer of AI-related data, which is a unique application of network resources. The Subject invention's use of AI indicators and specific protocols for AI data transfer differentiates it from the Compared invention, which does not mention AI-specific functionalities. The overlap between the two inventions is minimal, as the Subject invention's focus on AI data transfer is not covered by the Compared invention's broader state management approach. The practical applications of the Subject invention are geared towards enhancing AI capabilities in mobile devices, while the Compared invention aims at general network efficiency. The potential impact of the Subject invention includes improved AI performance in mobile environments, whereas the Compared invention's impact is on overall network performance and latency reduction.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve user equipment (UE) and network interactions, particularly in the context of Radio Resource Control (RRC) states. The Subject patent focuses on the use of AI models and training datasets in communication between UE and the network, specifically in RRC idle or inactive states. It details methods for sending AI indicators and receiving AI models or datasets through various protocols like Small Data Transfer (SDT) within Random Access Channel (RACH) procedures. The Compared patent, on the other hand, deals with the resumption of RRC connections between UE and network nodes, involving security keys and resume identifications, but does not mention AI models or datasets explicitly. Both patents mention RRC states and procedures, but the Subject patent's focus on AI and the Compared patent's focus on connection resumption and security show a divergence in their primary objectives. The Subject patent's methodologies involve AI task determination, AI indicator transmission, and model or dataset reception, while the Compared patent's methodologies revolve around RRC connection resume requests and responses, security verification, and node-to-node communication. The designs and architectures in the Subject patent are centered around AI integration into telecommunication, whereas the Compared patent focuses on network node interactions and security protocols. There is no mention of dedicated logic software or specific circuitry in either patent, but both reference standards and protocols relevant to their respective fields, such as RACH and RRC in the Subject patent, and RRC and security protocols in the Compared patent. The practical applications of the Subject patent could enhance AI-driven functionalities in mobile devices, while the Compared patent aims to improve the efficiency and security of network handovers and connection resumptions.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the use of RRC states and procedures. However, the Subject patent's focus on AI models and datasets, and the Compared patent's emphasis on connection resumption and security, indicate that the overlap is not significant in terms of the core functionalities and objectives of the patents. The methodologies, designs, and architectures described in the Subject patent are distinctly related to AI integration, which is not present in the Compared patent. The Compared patent's focus on network node interactions and security protocols does not align directly with the AI-centric approach of the Subject patent. Therefore, the overlap is considered Low due to the different primary focuses and applications of the patents.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11671823B2**Temporary handling of wireless communication device capabilities
**Inventor: KIM YUCHUL
Assignee: APPLE INC
Priority Date: 11-17-2017
Publication Date: 06-06-2023
CPC: H04W8/22
IPV™ Rating: 6.6253
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/184-904-974-027-506/frontpage?l=en](https://www.lens.org/lens/patent/184-904-974-027-506/frontpage?l=en)

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The primary function of the invention described under CPC code ```H04W76/27``` involves methods for managing the transition of a user equipment (UE) from an inactive state to an active state in a wireless communication network. This includes adjusting operating parameters based on assistance information provided by the UE to optimize communication efficiency and address operating issues.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is a low possibility of overlap between the 'Subject' and 'Compared' patents. The 'Subject' patent focuses on AI model management and specific communication protocols for AI data transfer, while the 'Compared' patent deals with adjusting timing parameters for efficient wireless communication. No methodologies, designs, architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols are shared between the two. The potential commercial impact of the 'Subject' patent lies in enhancing AI capabilities in mobile networks, potentially leading to improved AI-driven services and applications. In contrast, the 'Compared' patent's impact would be in optimizing communication efficiency, which could benefit network performance and user experience in general wireless communications.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the invention under CPC code ```H04W76/27``` revolve around the dynamic adjustment of operating parameters such as K0 and K2, which are timing parameters related to the transmission of PDCCH, PDSCH, and PUSCH in a New Radio (NR) environment. The UE sends assistance information to the network, which includes preferred values for these parameters. The network then adjusts these parameters to either alleviate operating issues or maintain current settings if no adjustments are necessary. This process involves the use of first-RAT radio resource control messages to communicate the assistance information, and the adjustments are made based on the UE's operating capabilities and conditions. The system employs dedicated logic and possibly software to process and implement these adjustments, ensuring efficient communication and resource management.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The novelty of the invention under CPC code ```H04W8/22``` lies in its approach to managing AI model updates in a wireless communication context, particularly when the UE is in an inactive state. This contrasts with the invention under CPC code ```H04W76/27```, which focuses on adjusting communication parameters to address operating issues. The subject invention introduces unique methodologies for AI model management, including the use of AI indicators and specific protocols for data transfer, which are not addressed in the compared invention. The overlap between the two inventions is minimal, as they target different aspects of wireless communication: one focuses on AI model updates, while the other deals with parameter adjustments for communication efficiency. The practical applications of the subject invention are geared towards enhancing AI capabilities in mobile devices, whereas the compared invention aims at improving overall communication performance in a multi-RAT environment.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from 'Subject' and 'Compared' patents focus on different aspects of wireless communication and AI model management. The 'Subject' patent primarily deals with methods for managing AI models and training datasets in user equipment (UE) and networks, involving AI indicators, RRC states, and specific protocols like RACH and PDU sessions. In contrast, the 'Compared' patent focuses on an apparatus and methods for adjusting operating parameters (K0 and K2) related to timing differences in wireless communications between a base station and UE, using assistance information. There is no direct mention of AI models or similar AI-related functionalities in the 'Compared' patent. The methodologies, designs, or architectures in 'Subject' involve AI task determination, AI model updates, and specific communication protocols for AI data transfer, while 'Compared' focuses on timing adjustments for efficient communication without AI-specific elements. No overlap in AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols is observed between the two sets of claims. The practical applications of 'Subject' are centered around enhancing AI capabilities in mobile networks, whereas 'Compared' aims at optimizing communication efficiency.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The analysis of the claims from 'Subject' and 'Compared' reveals no significant overlap in terms of literal or semantic similarities. The 'Subject' patent's focus on AI model management and specific communication protocols for AI data does not align with the 'Compared' patent's emphasis on adjusting timing parameters for wireless communication. There is no mention of AI models, AI tasks, or related protocols in the 'Compared' patent, indicating a lack of overlap in methodologies, designs, architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols. The practical applications of the two patents are distinct, with 'Subject' aimed at AI enhancement in networks and 'Compared' at communication efficiency.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US12114389B2**RRC-based user data transmission in an inactive state
**Inventor: XU FANGLI
Assignee: APPLE INC
Priority Date: 10-22-2020
Publication Date: 10-08-2024
CPC: H04W76/27
IPV™ Rating: 6.6238
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/123-994-922-333-72X/frontpage?l=en](https://www.lens.org/lens/patent/123-994-922-333-72X/frontpage?l=en)

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The primary function of the Compared invention is to enable a user equipment (UE) device to transmit and receive user data while remaining in an inactive state, specifically an RRC INACTIVE state, without transitioning to a connected state. This is achieved by encoding a transmission to the network that includes an RRC resume request message and user data, receiving an acknowledgment, and potentially exchanging subsequent user data while still in the inactive state.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is a low possibility of overlap between the Subject and Compared patents. The Subject patent's focus on AI model management, including specific AI indicators and data transfers, does not align with the Compared patent's emphasis on general state management and data exchange in inactive states. The methodologies, designs, or architectures related to AI-controlled telecommunication, dedicated logic software, and specific protocols in the Subject patent are distinct from the state transition and data exchange methods in the Compared patent. The potential commercial impact of the Subject patent lies in enhancing AI capabilities in mobile networks, while the Compared patent's impact is more on improving network efficiency through state management. Overall, the patents address different aspects of network operations with minimal overlap.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the Compared invention involve the UE entering an inactive state and then encoding a transmission to the network, which includes an RRC resume request message and first user data. This transmission is acknowledged by the network, allowing for subsequent user data exchange without a state transition to a connected state. The functional principles include the use of RRC messages for signaling intent to transmit or receive data, and the use of response messages from the network to induce state transitions or maintain the inactive state. Essential components include the UE's processing logic, hardware, and circuitry for encoding and decoding messages, as well as the network's ability to process these messages and manage state transitions. The internal dynamics involve the UE's ability to sense data in its buffer and initiate the transmission process, and the network's response mechanisms to handle these transmissions and manage the UE's state accordingly. The practical applications of this technology are aimed at improving efficiency in data transmission for devices in low-power states, particularly useful in IoT and mobile devices where battery life is critical.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject patent introduces novel aspects in the management of AI models within the context of mobile networks, specifically focusing on the use of AI indicators and the exchange of AI models or training datasets in RRC idle or inactive states. This differs significantly from the Compared patent, which focuses on data transmission and state management without any mention of AI or model updates. The Subject patent's methodologies, designs, and protocols are centered around AI model management, which is not addressed in the Compared patent. The practical applications of the Subject patent are geared towards enhancing AI functionality in mobile devices, whereas the Compared patent aims at improving data transmission efficiency in low-power states. The potential impacts of the Subject patent include improved AI performance in real-time scenarios, while the Compared patent's impact is on battery life and data transmission efficiency.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve methods performed by user equipment (UE) and network interactions, particularly in managing states and data transmission. The Subject patent focuses on AI model management, including determining the use of an AI model, sending AI indicators, and receiving AI models or training datasets. It details specific protocols like RRC idle or inactive states, and uses of RACH procedures for AI-related data transfer. In contrast, the Compared patent describes methods for operating UE and base stations, focusing on state transitions and data exchange in inactive states, without specific mention of AI models or related data. The Compared patent uses RRC resume requests and release messages with suspend indications, which are different from the AI-specific indicators and data transfers in the Subject patent. Both patents mention RRC states and data transmission, but the Subject patent's focus on AI and specific protocols like SDT within RACH procedures does not directly overlap with the Compared patent's broader state management and data exchange methods.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claim\_score of 6.6238 suggests a potential for overlap, but upon detailed analysis, the overlap is found to be low. The Subject patent's claims are centered around AI model management and specific AI-related data transfers, while the Compared patent's claims focus on general state management and data exchange without AI-specific elements. The methodologies, designs, or architectures in the Subject patent involve AI model indicators, training datasets, and specific protocols like SDT within RACH procedures, which are not present in the Compared patent. The Compared patent's focus on RRC resume requests and state transitions does not align directly with the AI-centric approach of the Subject patent. Therefore, despite the claim\_score, the actual overlap in context or literal words is minimal.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US12171038B2**Implicit radio resource control state transitions
**Inventor: GURUMOORTHY SETHURAMAN
Assignee: APPLE INC
Priority Date: 02-13-2018
Publication Date: 12-17-2024
CPC: H04W76/27
IPV™ Rating: 6.6213
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/148-950-061-272-496/frontpage?l=en](https://www.lens.org/lens/patent/148-950-061-272-496/frontpage?l=en)

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The Compared invention focuses on managing the transition of a user equipment (UE) from a connected state to an inactive state in a wireless communication system. It involves the UE providing an indication of a preferred discontinuous reception (DRX) cycle length to the network, which then configures the UE's DRX cycle length in the RRC inactive state. This process aims to optimize power consumption and network resource usage by allowing the UE to enter a low-power state while still being reachable by the network.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is a low possibility of overlap between the Subject and Compared patents. The Subject patent focuses on AI model management and specific AI-related protocols, while the Compared patent deals with DRX cycle configuration for power management. The methodologies, designs, or architectures, as well as the practical applications, are distinct. The Subject patent could have a significant impact on AI-driven telecommunications, potentially enhancing network efficiency and user experience through AI optimization. The Compared patent, on the other hand, would primarily affect the battery life and power efficiency of UEs, with potential commercial implications in extending device usability and reducing energy consumption.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concept of the Compared invention revolves around the management of RRC state transitions and power efficiency. The UE establishes an RRC connection with a cellular base station and communicates its preferred DRX cycle length, which is used in the RRC inactive state. This is achieved through the following mechanisms:

- **Systemic/Operating Principles**: The UE uses a radio and processing element to communicate with the base station. The DRX cycle length is negotiated during the RRC connection setup, allowing the UE to enter a power-saving mode while maintaining network connectivity.

- **Foundational/Functional Processes**: The UE sends an indication of its preferred DRX cycle length within an attach request or a RAN notification area (RNA) update request. The network then configures the UE's DRX cycle length based on this indication, which is crucial for power management.

- **Underlying Functions**: The primary function is to manage the UE's power consumption by adjusting the DRX cycle length in the RRC inactive state. This involves receiving and processing signals from the network to determine the appropriate DRX cycle length.

- **Essential Components**: The UE includes at least one antenna, a radio, and a processing element. These components work together to establish and manage the RRC connection and DRX cycle length.

- **Core Interactions**: The UE interacts with the cellular base station to negotiate and configure the DRX cycle length. This interaction is critical for ensuring that the UE can transition to a low-power state while remaining reachable.

- **Internal Dynamics**: The UE's processing element executes program instructions to manage the RRC state transitions and DRX cycle length configuration. This involves monitoring the network's responses and adjusting the UE's operation accordingly.

- **Methodologies, Designs, or Architectures**: The invention uses a specific methodology for negotiating the DRX cycle length, which involves sending an indication during the RRC connection setup. This design focuses on optimizing power consumption without compromising network connectivity.

- **AI or Artificial Intelligence Controlled Telecommunication**: The Compared invention does not explicitly involve AI or artificial intelligence in its telecommunication processes.

- **Dedicated Logic Software, Circuitry, Standards, Protocols**: The invention relies on standard RRC protocols and the 5G NR radio access technology (RAT). The processing element uses dedicated logic to manage the RRC state transitions and DRX cycle length configuration.

- **Practical Applications**: The invention is applicable in 5G NR networks where power efficiency and network resource management are critical. It allows UEs to conserve power while maintaining connectivity, which is essential for battery-powered devices.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces a novel approach to integrating AI capabilities into UE operations by facilitating the exchange of AI models and training datasets across different RRC states. This differs from the Compared invention, which focuses on managing RRC state transitions and power efficiency through DRX cycle length configuration. The Subject invention's novelty lies in its focus on AI task support and the use of AI indicators to request specific AI data from the network.

- **Novel Aspects**: The Subject invention's novel aspects include the use of AI indicators to request AI models or datasets, the ability to receive AI data in RRC idle or inactive states, and the integration of AI tasks into UE operations.

- **Differences**: The Compared invention does not involve AI or the exchange of AI-related data. It focuses on power management and network resource optimization through DRX cycle length configuration, which is a different area of focus from the Subject invention.

- **Overlap**: There is minimal overlap between the two inventions. Both deal with UE communication in cellular networks, but the Subject invention focuses on AI data exchange, while the Compared invention focuses on power efficiency and RRC state transitions. The methodologies, designs, and protocols used in the Subject invention are distinct from those in the Compared invention.

- **Practical Applications**: The Subject invention is applicable in scenarios where AI tasks need to be performed by UEs, such as in smart devices or IoT applications. The Compared invention is applicable in scenarios where power efficiency and network resource management are critical, such as in battery-powered devices. The two inventions serve different purposes and target different aspects of UE operation in cellular networks.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve user equipment (UE) interacting with a network, specifically in the context of radio resource control (RRC) states. The Subject patent focuses on the use of an artificial intelligence (AI) model by the UE, including the transmission of an AI indicator and the receipt of AI models or training datasets. This involves specific protocols like small data transfer (SDT) within random access channel (RACH) procedures and different RACH message formats. The Compared patent, on the other hand, deals with the configuration of a discontinuous reception (DRX) cycle length for the UE in an RRC inactive state, which involves communication with a cellular base station and the use of specific messages like RRCConnectionRelease. While both patents deal with UE and network interactions in RRC states, the Subject patent is centered around AI model management, whereas the Compared patent focuses on power management through DRX cycle configuration. There is no direct mention of AI or dedicated logic software in the Compared patent, and the methodologies, designs, or architectures differ significantly, with the Subject patent involving AI-specific protocols and the Compared patent focusing on DRX cycle management.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the context of UE and network interactions in RRC states. However, the specific focus and methodologies differ significantly. The Subject patent's emphasis on AI model management and the use of specific AI-related protocols does not directly align with the Compared patent's focus on DRX cycle configuration for power management. The literal and semantic similarities are low, as the Subject patent deals with AI tasks and the Compared patent with power efficiency. The practical applications also diverge, with the Subject patent potentially impacting AI-driven telecommunications and the Compared patent affecting battery life and network efficiency.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US12089182B2**Relay UE-assisted RAN notification area update procedure
**Inventor: WU ZHIBIN
Assignee: APPLE INC
Priority Date: 10-22-2020
Publication Date: 09-10-2024
CPC: H04W68/06
IPV™ Rating: 6.6196
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/083-760-212-037-685/frontpage?l=en](https://www.lens.org/lens/patent/083-760-212-037-685/frontpage?l=en)

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The Compared invention (H04W68/06) primarily focuses on the method and apparatus for paging user equipment (UE) in a wireless communication system. This involves the network sending a paging message to the UE to initiate communication or to notify the UE of incoming data or a change in network conditions. The primary purpose is to efficiently manage the connection between the network and the UE, ensuring that the UE can be reached when needed without maintaining a constant active connection.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

There is a moderate level of anticipated overlap between the Subject and Compared patents, primarily due to their shared use of network communication protocols like RRC states and RACH procedures. However, the Subject patent's focus on AI models and datasets for enhancing network operations does not directly overlap with the Compared patent's focus on relay connections and RNA updates for managing multiple devices. The methodologies, designs, and architectures differ significantly, with the Subject patent involving AI-controlled telecommunication and the Compared patent focusing on relay architectures. The potential commercial impact of the Subject patent could be significant in AI-driven network optimization, while the Compared patent's impact would be in improving network connectivity for multiple devices through a single UE. Overall, there is a low possibility of significant overlap due to the distinct focus areas of each patent.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the Compared invention involve the use of paging signals to alert the UE of network requests. The functional principles include the network's ability to determine the UE's location within a tracking area and to send a paging message accordingly. The underlying functions include the management of UE states (e.g., idle, inactive, connected), the transmission of paging signals through specific channels like the PDCCH, and the use of dedicated logic software to handle paging protocols. Essential components include the network's paging controller, the UE's receiver, and the communication protocols used for paging. Core interactions involve the network sending a paging message, the UE receiving and processing this message, and the subsequent actions taken by the UE based on the paging content. Internal dynamics include the UE's state transitions in response to paging and the network's management of paging resources.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in managing UE state transitions, particularly through the use of timers and specific RRC messages, which are not directly addressed in the Compared invention. The Compared invention focuses on paging mechanisms, which are a different aspect of UE-network interaction. The Subject invention's use of timers for state management and the RNA update procedure for multiple UEs through a relay UE represents a unique approach not found in the Compared invention. There is minimal overlap in methodologies, designs, or architectures between the two inventions, as the Subject focuses on state transition management while the Compared focuses on paging. The practical applications of the Subject invention are aimed at improving network efficiency and reducing latency in state transitions, whereas the Compared invention aims at efficient UE reachability. Both innovations serve the telecommunications industry but target different operational aspects.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents focus on different aspects of telecommunications and network management. The Subject patent primarily deals with the use of AI models and training datasets in user equipment (UE) and network interactions, specifically in the context of AI task performance and model updates. It involves methodologies for determining AI model usage, sending AI indicators, and receiving AI models or datasets through various protocols like RRC states, RACH procedures, and PDU sessions. The Compared patent, on the other hand, focuses on relay connections and RNA update procedures for multiple remote devices through a UE, involving timers and connection management. There is no direct mention of AI or AI models in the Compared patent, but both patents deal with network communication protocols and UE interactions with the network. The methodologies in the Subject patent involve AI-specific protocols and data handling, while the Compared patent focuses on relay and timer-based network management. The architectures in the Subject patent include AI-controlled telecommunication, whereas the Compared patent deals with relay architectures. The practical applications of the Subject patent could be in enhancing AI-driven network operations, while the Compared patent's applications lie in improving network connectivity and management for multiple devices through a single UE.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The overlap between the Subject and Compared patents is primarily in the area of network communication protocols and UE interactions with the network. Both patents mention RRC states and RACH procedures, indicating a common ground in network management. However, the Subject patent's focus on AI models and datasets does not directly align with the Compared patent's focus on relay connections and RNA updates. The claim\_score of 6.6196 suggests a moderate level of overlap due to the shared use of network protocols, but the specific contexts and applications differ significantly. The overlap is moderate as both patents deal with UE and network interactions but in different domains - AI task management versus relay and timer-based network management.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11395228B2**Methods for reducing user equipment power consumption in presence of wake-up signal
**Inventor: THANGARASA SANTHAN
Assignee: ERICSSON TELEFON AB L M
Priority Date: 04-06-2018
Publication Date: 07-19-2022
CPC: H04W52/02
IPV™ Rating: 6.6167
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/024-224-071-490-136/frontpage?l=en](https://www.lens.org/lens/patent/024-224-071-490-136/frontpage?l=en)

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The Compared invention (H04W52/02) primarily focuses on enhancing the coverage in uplink and downlink communications in wireless networks by employing advanced techniques such as transmit power boosting, signal repetition, and additional redundancy. These techniques are aimed at improving the performance and reliability of communication, particularly in scenarios where signal strength is a limiting factor.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the Subject and Compared patents, there is a low possibility of overlap. The Subject patent's focus on AI model management and specific data transfer protocols for AI tasks does not align with the Compared patent's focus on UE measurement modes and power management strategies. The methodologies, designs, or architectures, AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, protocols are distinct between the two patents. The potential commercial impact of the Subject patent lies in enhancing AI functionalities within UE, potentially leading to more intelligent and adaptive devices. In contrast, the Compared patent's impact would be in improving UE's operational efficiency and battery life, which is a different market segment with no direct competition to the AI-focused patent.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the Compared invention involve systemic principles of power management and signal enhancement. The foundational processes include the use of transmit power boosting to increase signal strength, repetition of transmitted signals to improve reception, and the application of additional redundancy to ensure data integrity. Essential components include advanced receivers capable of processing enhanced signals. The internal dynamics involve the UE and network node working in concert to adjust power levels and signal processing techniques dynamically based on current network conditions. This invention leverages methodologies and designs focused on optimizing power usage and signal quality, utilizing dedicated logic software and circuitry to manage these operations effectively. The practical applications are centered around improving the performance of mobile broadband and IoT devices in challenging coverage environments.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The Subject invention introduces novel aspects in the field of AI model management and communication in wireless networks. Unlike the Compared invention, which focuses on power management and signal enhancement, the Subject invention is centered around the efficient handling and updating of AI models in a network environment. The Subject invention's use of AI indicators and specific protocols for AI data transfer represents a significant departure from the power management focus of the Compared invention. There is minimal overlap in methodologies, designs, or architectures, as the Subject invention does not address power management or signal enhancement directly. The practical applications of the Subject invention are aimed at enhancing AI capabilities in UEs, particularly in the context of new radio environments, while the Compared invention targets improving overall network coverage and performance. The potential impacts of the Subject invention include more efficient AI task performance in UEs, whereas the Compared invention aims to enhance the reliability and reach of wireless communications.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents both involve user equipment (UE) and network interactions, but they focus on different aspects of UE operation. The Subject patent primarily deals with the use of artificial intelligence (AI) models and their management within the UE, including the transmission of AI indicators and the receipt of AI models or training datasets. This involves specific protocols like the Radio Resource Control (RRC) states, Small Data Transfer (SDT) within Random Access Channel (RACH) procedures, and the use of dedicated messages within these procedures for AI-related data exchange. The methodologies include determining the need for an AI model, sending indicators to the network, and receiving updates or datasets, which are tailored to the UE's state and application needs. The design involves integrating AI functionalities into the UE's communication protocols, potentially using dedicated logic software to manage AI tasks and data transfers.

In contrast, the Compared patent focuses on the UE's measurement modes in response to paging messages or changes in RRC states. It describes a method where the UE switches between normal and relaxed measurement modes based on certain criteria, which is unrelated to AI model management. The methodologies here involve monitoring and adjusting measurement modes, which are part of the UE's operational efficiency and power management strategies. The design is centered around optimizing UE performance in terms of measurement and power consumption, without any mention of AI or specific data transfer protocols for AI models.

There is no direct overlap in terms of literal words or specific AI-related functionalities between the two sets of claims. However, both patents deal with UE's interaction with the network, albeit for different purposes: one for AI model management and the other for measurement mode management.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claim\_score of 6.6167 suggests a potential for overlap, but upon detailed analysis, the overlap between the Subject and Compared patents is low. The Subject patent focuses on AI model management and data transfer protocols, while the Compared patent deals with UE measurement modes and power management. There is no significant overlap in the methodologies, designs, or architectures described in the claims. The Subject patent's focus on AI and specific communication protocols for AI data does not intersect with the Compared patent's focus on measurement modes and RRC state changes. The practical applications of the Subject patent are in enhancing AI capabilities within UE, whereas the Compared patent aims at improving UE's operational efficiency.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***Compared file: US11968588B2**Techniques for conditional handover and bi-casting
**Inventor: PARICHEHREHTEROUJENI ALI
Assignee: ERICSSON TELEFON AB L M
Priority Date: 12-14-2018
Publication Date: 04-23-2024
CPC: H04W36/32
IPV™ Rating: 6.616
Inferred Equivalence: Low**

[Lens: https://www.lens.org/lens/patent/090-410-376-708-08X/frontpage?l=en](https://www.lens.org/lens/patent/090-410-376-708-08X/frontpage?l=en)

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The primary function of the invention described under CPC H04W36/32 is to facilitate the mobility of a user equipment (UE) within a radio access network (RAN) by preparing and executing a mobility procedure. This involves receiving a request from a source node to prepare a mobility procedure for the UE, determining if the UE can be admitted based on various characteristics of its data connection, and activating bicasting to ensure seamless data transmission during the mobility operation.

-------------------------------------------------------------------------------------------------------------------**Summary of Analysis:**

After comparing all claims between the Subject and Compared patents, there is a low possibility of overlap. The Subject patent focuses on AI model management and data transfer protocols in UE, while the Compared patent deals with network node operations for UE mobility and bicasting. There are no shared methodologies, designs, or architectures, and no common AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols. The potential commercial impact of the Subject patent lies in enhancing AI capabilities in mobile devices, potentially leading to improved user experiences and new AI-driven applications. The Compared patent's impact is in improving network performance during UE mobility, which could enhance service continuity and user satisfaction in mobile networks.

-------------------------------------------------------------------------------------------------------------------**Description Overview:**

The core concepts of the invention under CPC H04W36/32 involve systemic principles of mobility management in telecommunications. The functional processes include receiving a request from a source node, analyzing UE data connection characteristics such as buffer status, required data rate, connection active time, QoS class indicator, and TCP socket information. The foundational processes involve determining UE admission based on these characteristics and deciding to activate bicasting based on thresholds related to connection time, data rate, and delay budget. Essential components include the network node, source node, and UE, with core interactions centered around the exchange of requests and responses for mobility preparation. The internal dynamics involve the decision-making process for UE admission and bicasting activation, which is governed by dedicated logic software and circuitry within the network node. The practical applications of this technology are aimed at enhancing the user experience during mobility operations in cellular networks, ensuring minimal disruption in data services.

-------------------------------------------------------------------------------------------------------------------**Asserted Novelty and Innovation:**

The invention under CPC H04W76/27 introduces novel aspects in the field of AI model management within telecommunications, particularly in the context of NR environments. It differs significantly from the invention under CPC H04W36/32, which focuses on mobility management. The novel aspects of the subject invention include the integration of AI model updates into the communication process, the use of specific protocols for AI-related data transfer, and the management of UE states for efficient AI model handling. There is minimal overlap in methodologies, designs, or architectures between the two inventions, as the subject invention deals with AI model communication, while the compared invention focuses on data bicasting during mobility operations. The practical applications of the subject invention are aimed at enhancing AI capabilities within telecommunications, whereas the compared invention targets improving mobility and data continuity in cellular networks. Both innovations serve different purposes and markets, with the subject invention potentially impacting AI-driven services and the compared invention enhancing user mobility experiences.

-------------------------------------------------------------------------------------------------------------------**Similarities Analysis:**

The claims from the Subject and Compared patents focus on different aspects of telecommunications and network operations. The Subject patent primarily deals with the use of AI models and training datasets in user equipment (UE) and network interactions, specifically in the context of RRC states and data transfer protocols like SDT within RACH procedures. It involves AI indicators, model updates, and training dataset management, which are crucial for enhancing AI task performance in mobile devices. The Compared patent, on the other hand, focuses on network node operations during UE mobility, specifically on preparing mobility procedures and bicasting configurations based on UE data connection characteristics. It involves detailed decision-making processes for UE admission and bicasting activation, which are essential for seamless mobility and data continuity in a radio access network (RAN). There is no direct overlap in methodologies, designs, or architectures between the two sets of claims. The Subject patent's focus on AI model management and the Compared patent's emphasis on mobility and bicasting are distinct, with no shared AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols. The practical applications of the Subject patent are in enhancing AI capabilities in mobile devices, while the Compared patent's applications are in improving network performance during UE mobility.

-------------------------------------------------------------------------------------------------------------------**Overlap Analysis:**

The claims from the Subject and Compared patents show little to no overlap in terms of literal or semantic similarities. The Subject patent's claims revolve around AI model management and data transfer protocols in UE, whereas the Compared patent's claims focus on network node operations for UE mobility and bicasting. There are no shared methodologies, designs, or architectures, and no common AI or artificial intelligence controlled telecommunication, dedicated logic software, circuitry, standards, or protocols. The practical applications of each patent are distinct, with the Subject patent aimed at enhancing AI capabilities in mobile devices and the Compared patent focused on improving network performance during UE mobility. Given the distinct focus areas, the overlap between the two sets of claims is considered low.

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**Claims Breakdown and Comparison Summary:**

Didn't find any similar subject claim for the threshold used

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