3GPP TSG-RAN WG3 Meeting #127 R3-250815

**Athens, Greece, 17-21 Feb, 2025**

Title: (TP to TS 38.300 BL CR) A-IoT Architecture aspects

Agenda Item: 16.2

Source: CMCC, Huawei

Document for: Other

# Introduction

This paper provides the TP to TS 38.300 BL CR on Ambient IoT architecture aspects, based on the latest progress.

* Take R3-250444 (E///), R3-250197(Huawei), R3-250685 (CMCC), R3-250108(CATT) into account

# TP for TS 38.413 BL CR

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3 Abbreviations and Definitions

3.1 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1], in TS 36.300 [2] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1] and TS 36.300 [2].

5GC 5G Core Network

5GS 5G System

5QI 5G QoS Identifier

A2X Aircraft-to-Everything

A-CSI Aperiodic CSI

AGC Automatic Gain Control

AI Artificial Intelligence

A-IoT Ambient IoT

AIOTF Ambient IoT Function

AKA Authentication and Key Agreement

AMBR Aggregate Maximum Bit Rate

AMC Adaptive Modulation and Coding

AMF Access and Mobility Management Function

AR Augmented Reality

ARP Allocation and Retention Priority

/\*\*\*\*\*\*\* Unchanged part skipped \*\*\*\*\*\*\*/

IAB Integrated Access and Backhaul

IFRI Intra Frequency Reselection Indication

IoT Internet of Things

I-RNTI Inactive RNTI

INT-RNTI Interruption RNTI

KPAS Korean Public Alarm System

L2 Layer-2

L3 Layer-3

LBT Listen Before Talk

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## 16.x Support of Ambient IoT

### 16.x.1 Introduction

### 16.x.2 Architecture

To enable Ambient IoT operations, the gNB serves one or more readers, connects by means of the NG-C interface (refer to 4.3.1.2) to the 5GC, more specifically:

- direct communication: gNB communicates with AIOTF directly, or;

- indirect communication: gNB communicates with AIOTF indirectly via AMF.

NOTE 1: It is not expected a deployment will use both direct communication and indirect communication.

In this version of the specification, A-IoT specific user data is transported between the gNB and core network takes place via the NG-C interface only.

In this version of the specification, no A-IoT specific communication takes place between gNBs.

In this version of the specification, split RAN architecture is not supported.

In case of direct communication, the gNB communicates with AIOTF by means of NGAP, the NG protocol stack is illustrated in Figure 16.x.2-1 as below:



**Figure 16.x.2-1 NG protocol stack in direct communication**

In case of indirect communication, the gNB communicates with the AIOTF indirectly via AMF, the gNB communicates with the AMF by means of NGAP, the AIOTF information is transparently to the AMF, the NG protocol stack is illustrated in Figure 16.x.2-2 as below:



**Figure 16.x-2 NG protocol stack in indirect communication**

NOTE 2: For the interface and protocol stack between the AMF and the AIOTF is defined in TS 23.xxx [xx].

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