



**Date** 1/08/03  
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## NORTEL NETWORKS EXTERNAL DOCUMENT

**Subject** Change description for Class II Permissive change for Indoor2 iBTS  
**Reference** PA/03015

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## 1. INTRODUCTION

This document describes the **new RF modules, a new DC/DC converter sytem and a software update for up to three RF carriers emission** to be introduced in Indoor2 iBTS. Due to the modification of EMC and Radio aspects of the BTS compared to the previous qualified product, a new application filing for equipment must be submitted to FCC. Nortel Networks proposes the introduction of this modules to be done through an FCC Class II Permissive Change.

The following changes will be introduced:

- A new Multicarrier Power Amplifier (MCPA). Reference: NTUM30PA release D2. Its FCC Part 24 Grant Code being **FCC ID No.: E675JS0067**
- A new Dual Duplexer Module (DDM). Reference: NTUM42AA release D1
- An optional +24V/-55V DC converter power system
- A software feature to allow the iBTS modules to work simultaneously with up to three 5 MHz RF carriers if required.

## 2. VARIATIONS WITH THE ALREADY QUALIFIED MCPA

In this section, a comparison between the new MCPA (reference: NTUM30PA release D2) and the old MCPA (reference: NTUM30PA release D1) is presented.

A new architecture has been designed although RF performances have remained unchanged:

- the switch has been replaced by a coupling system. **No impact on the RF performances** since only one of the 2 input is active at a time.
- efficiency has been increased from release D1 to D2.

## 3. VARIATIONS WITH THE ALREADY QUALIFIED DDM

In this section, a comparison between the new DDM (reference: NTUM42AA release D1) and the DDM (reference: NTUM42AA release P1) used for the previous Indoor2 iBTS qualification is presented.

From the P1 version, we can state that two main points have been changed:

1. TX insertion losses had to be improved in order to meet RF specs. In this way, only filter size has been modified to increase cavity size of Tx Filter part and to decrease cavity size of Rx Filter
2. Rejection of TX band has also been diminished to 80 dB decreasing the number of poles from 12 poles to 10 poles.

No modification was introduced regarding electronic parts.

## **4. VARIATIONS WITH THE INTRODUCTION OF THE OPTIONAL +24V/-55V DC/DC CONVERTER POWER SYSTEM**

The main impact for the Indoor2 iBTS is the possibility to be fed via a 24V DC Power source. This introduction doesn't suppose any hardware or software change on the RF part of the BTS.

## **5. VARIATIONS WITH THE ALREADY QUALIFIED MONOCARRIER CONFIGURATION**

No hardware modification has been introduced since the multicarrier activation is done via software. The overall RF output power remains unchanged and is split between the activated carriers.

## **6. ABBREVIATIONS AND DEFINITIONS**

### **6.1. Abbreviations**

DDM	Dual Duplexer Module
FRM	Flexible Radio Module
MCPA	Multi Carrier Power Amplifier

### **6.2. Definitions**