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**TECHNOLOGY**

Subject: [Question ITU-R 229-1/8](#)

## **WiMAX Forum**

### **UNWANTED EMISSION CHARACTERISTICS OF IMT-2000 OFDMA TDD WMAN BASE STATIONS**

#### **ADDITIONAL MATERIAL FOR ANNEX 6 OF RECOMMENDATION ITU-R M.1580**

#### **Introduction**

The WiMAX Forum acknowledges receipt of the liaison statement from the May 2007 meeting of ITU-R Working Party 8F held in Kyoto, Japan: “Liaison statement to IEEE and WiMAX Forum concerning the inclusion of new annexes in the draft revisions of Recommendation ITU-R M.1580-1 and ITU-R M.1581-1”.

The Liaison statement from WP 8F invites the WiMAX Forum and IEEE to contribute additional information on the characteristics of IMT-2000 OFDMA TDD WMAN stations to future meetings of WP 8F.

In the case of the IMT-2000 OFDMA TDD WMAN Base Stations we understand that this information is required to update Annex 6 to Recommendation ITU-R M.1580-2<sup>1</sup>.

For clarity, in this contribution the additional information provided by the WiMAX Forum is shown as revisions to the Annex 6 to Recommendation ITU-R M.1580-1 developed at the Kyoto meeting of WP 8F. The amendments proposed are shown in the Attachment 1 below.

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<sup>1</sup> Assuming that the draft revision of M.1580-1 as proposed by WP 8F is successfully adopted and approved ahead of the 23<sup>rd</sup> meeting of WP 8F.

## Attachment 1

### PROPOSED REVISION OF RECOMMENDATION ITU-R [M.1580-2]

#### Annex 6

#### IMT-2000 OFDMA TDD WMAN base stations

*This information is under further study.*

##### 1 Introduction

This document identifies unwanted emission limits for IMT-2000 OFDMA TDD WMAN base stations.

IMT-2000 OFDMA TDD WMAN base stations comply with local, regional, and international regulations for out-of-band and spurious emissions relevant to their operations, wherever applicable. The emissions defined in tables below may be mandatory in certain regions while in other regions these emissions may not be applicable.

##### 2 Spectrum emission mask

The spectrum emission mask of base stations applies to frequency offsets between 2.5 MHz and 12.5 MHz away from the base station center frequency for the 5 MHz carrier and between 5 MHz and 25 MHz away from the base station center frequency for the 10 MHz carrier.  $\Delta f$  is defined as the frequency offset in MHz from the channel center frequency.

TABLE 1

##### Spectrum emission mask for 5 MHz carrier

<u>Frequency Offset From Center</u>	<u>Allowed Emission Level</u>	<u>Measurement bandwidth</u>
<u><math>2.5 \leq \Delta f &lt; 3.5</math> MHz</u>	<u>-13 dBm</u>	<u>50 kHz</u>
<u><math>3.5 \leq \Delta f &lt; 12.5</math> MHz</u>	<u>-13 dBm</u>	<u>1 MHz</u>

TABLE 2

##### Spectrum emission mask for 10 MHz carrier

<u>Frequency Offset From Center</u>	<u>Allowed Emission Level</u>	<u>Measurement Bandwidth</u>
<u><math>5 \leq \Delta f &lt; 6</math> MHz</u>	<u>-13 dBm</u>	<u>100 kHz</u>
<u><math>6 \leq \Delta f &lt; 25</math> MHz</u>	<u>-13 dBm</u>	<u>1 MHz</u>

### 3 Transmitter spurious emissions (conducted)

IMT-2000 OFDMA TDD WMAN base stations comply with the limits recommended in Recommendation ITU-R SM.329-10. The limits shown in Tables 3 and 4 are only applicable for frequency offsets which are greater than 12.5 MHz away from the base station center frequency for the 5 MHz carrier and greater than 25 MHz for the 10 MHz carrier.  $f$  is the frequency of the spurious domain emissions.  $f_c$  is the base station center frequency.

The emission levels in Table 3 should be met in regions where Category A limits for spurious emissions, as defined in Recommendation ITU-R SM.329-10, are applicable. The emission levels in Table 4 should be met in regions where Category B limits for spurious emissions, as defined in Recommendation ITU-R SM.329-10, are applicable.

TABLE 3

#### Base station spurious emission limit, Category A

<u>Band</u>	<u>Allowed Emission Level</u>	<u>Measurement Bandwidth</u>	<u>Note</u>
<u>30 MHz-1 GHz</u>	<u>-13 dBm</u>	<u>100 kHz</u>	<u>Bandwidth as in Recommendation ITU-R SM.329-10, § 4.1</u>
<u>1 GHz-13.45 GHz</u>		<u>1 MHz</u>	<u>Upper frequency as in Recommendation ITU-R SM.329-10, § 2.5 Table 1</u>

TABLE 4

#### Base station spurious emissions limit, Category B

<u>Band</u>	<u>Measurement Bandwidth</u>	<u>Allowed Emission Level</u>
<u><math>30 \text{ MHz} \leq f &lt; 1 \text{ 000 MHz}</math></u>	<u>100 kHz</u>	<u>-36 dBm</u>
<u><math>1 \text{ GHz} \leq f &lt; 13.45 \text{ GHz}</math></u>	<u>30 kHz</u> <u>If <math>2.5 \times \text{BW} \leq  f_c - f  &lt; 10 \times \text{BW}</math></u>	<u>-30 dBm</u>
	<u>300 kHz</u> <u>If <math>10 \times \text{BW} \leq  f_c - f  &lt; 12 \times \text{BW}</math></u>	
	<u>1 MHz</u> <u>If <math>12 \times \text{BW} \leq  f_c - f </math></u>	