Attention: Application Examiner

Date: Nov. 13, 2007

Re: **Response to FCC ID: I88MAX100 Comments**

Dear Sir,

Thanks for your comments on Nov. 8 for FCC ID: I88MAX100, please see the answer as below.

1) With initial e-filing upload, please identify, justify, and describe:
   a) specific RF Profiles, certification profiles, test cases, test scripts that are appropriate for and were used to test this device, among those in the applicable conformance documents and standards
   b) relevant subclause cross-references to RF conformance test documents and standards, also info about availability of applicable sta ndards
   c) specific modulations, subchannelizations, permutations used for each test
   d) specific communications test eqpt and setup info and installed options/add-ons

Answer:
   a)&b) The RF profile of EUT is followed WiMax forum Document " WiMAX Forum™ Mobile System Profile Release 1.0 Approved Specification" Please see clause 4.1.1.2 table 6 of attachment 1.
   c) Please see Page 5 of the Test Report as attachment 2 and WiMAX forum document as attachment 1, clause 7, and Table 131.
   d) The Equipment photo and set-up information had been put on the FCC test report page 94 & 95 of attachement 3.

2) With initial e-filing upload, please describe how FDD and/or TDD modes are allowed under FCC allocated frequency range, i.e., device channel bandwidths allowed relative to available blocks and block sizes, and how device operates within system using specific paired (uplink/downlink) or unpaired bands

Answer: The EUT is WiMAX device which used TDD mode not FDD mode. From the page 15, clause 4.1.1.2 table 6 of attachment 1, the EUT is compliant to not only frequency band (2496~2690MHz) of WiMAX Forum specification, but also lowest bandedge and highest bandedge of FCC Part 27 requirement.

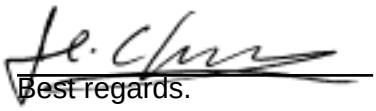
3) With initial e-filing upload, please describe smart-antenna and/or beamforming modes if applicable

Answer: The EUT does not use any beam-forming or smart antenna.

4) SAR report has:
"The conducted output power was measured before and after the test using a wideband peak power meter."
With initial e-filing upload, please provide info to show resolution bandwidth of peak-power meter is greater than signal bandwidth (10 MHz), and/or other info to support all related test results.

Answer: please see the power meter spec. as attachment 4, you can find the bandwidth of instrument is over EUT's bandwidth.

Should you have any question, please don't hesitate to let me know.



Best regards.

JT Chen

Consultant

Intertek ETL SEMKO

Attachment 1

WiMAX Forum™ Mobile System Profile

Release 1.0 Approved Specification

(Revision 1.4.0: 2007-05-02)

WiMAX FORUM PROPRIETARY – SUBJECT TO CHANGE WITHOUT NOTICE

4. PHY Profile

4.1 *Profiles of BS and MS*

4.1.1 System Parameters

4.1.1.1 *PHY Mode*

Table 5. PHY Mode

Item	Description	Reference	Status	BS Required	MS Required	Comment
1	OFDMA	8.4	m	Y	Y	OFDMA is the sole PHY mode within the scope of this document.

4.1.1.2 Band Class Index

System profile requirements of this document are applied to the following band class indices. Each index shall specify one frequency range and one or more combinations of channel bandwidth, FFT size, channel raster and duplexing mode.

BS support for a particular band class requires support of a frequency range that is a subset of the complete frequency range defined by the band-class. The BS vendor shall provide a declaration of the supported frequency range. The supported frequency range shall be a minimum of three (3) times the largest supported channel bandwidth. MS must support the entire range of frequency defined by a band class (or sub-bands) while the BS is required to support only sub-range of the band class declared by vendor.

Table 6. Band Class Index

Band Class Index	Frequency Range (GHz)	Channel Frequency Step (kHz)	Channel Bandwidth(s) (MHz)	FFT Size	Duplexing Mode	Comments
1	2.3-2.4	250	5	512	TDD	Both bandwidths must be supported by the MS
			10	1024	TDD	
			8.75	1024	TDD	
2	2.305-2.320, 2.345-2.360	250	3.5	512	TDD	
			5	512	TDD	
			10	1024	TDD	
3	2.496-2.69	250 (200 KHz step size is also	5	512	TDD	Both bandwidths must be supported
			10	1024	TDD	

		recommended for band class 3 in Europe)				to by the MS
4	3.3-3.4	250	5	512	TDD	
			7	1024	TDD	
			10	1024	TDD	
5	3.4-3.8	250	5	512	TDD	
			7	1024	TDD	
			10	1024	TDD	
	3.4-3.6	250	5	512	TDD	
			7	1024	TDD	
			10	1024	TDD	
	3.6-3.8	250	5	512	TDD	
			7	1024	TDD	
			10	1024	TDD	

4.1.1.3 *Sampling Factor*

Table 7. Sampling Factor

Item	Description	Reference	Status	BS Required	MS Required	Comment
1	If channel bandwidth is a multiple of 1.75MHz then n=8/7 else if channel bandwidth is a multiple of any of 1.25, 1.5, 2 or 2.75 MHz then n=28/25 else if not otherwise specified then n=8/7.	8.4.2.3	m	Y	Y	

4.1.1.4 *Cyclic Prefix*

Table 8. Cyclic Prefix

Item	Description	Reference	Status	BS Required	MS Required	Comment
1	1/4	8.4.2.3	oi	N	N	
2	1/8	8.4.2.3	oi	Y	Y	
3	1/16	8.4.2.3	oi	N	N	
4	1/32	8.4.2.3	oi	N	N	

4.1.1.5 *Frame Length*

Table 9. Frame Length

Item	Description	Reference	Status	BS Required	MS Required	Comment
1	20 ms	8.4.5.2	oi	N	N	
2	12.5	8.4.5.2	oi	N	N	
3	10	8.4.5.2	oi	N	N	

Intertek ETL SEMKO

Attachment 2

EUT RF Profile of WiMax forum:

1. RF Profile:

Frequency Range (GHz)	Channel Frequency Step (kHz)	Channel Bandwidth(s)(MHz)	FFT size	Duplexing Mode
2.496 – 2.69	250	5	512	TDD
		10	1024	TDD

2. PHY Parameter:

Parameter	Uplink	Uplink
System Bandwidth	5MHz	10MHz
FFT Size	512	1024
Null Sub-Carriers	104	184
Pilot Sub-Carriers	136	280
Data Sub-Carriers	272	560
Sub-Channels	17	35
Symbol Period, Ts	102.9 microseconds	
Frame Duration	5 millisecond	
OFDM Symbols/Frame	48	
Data OFDM Symbols	44	
Modulations	QPSK 1/2 CTC , QPSK 3/4 CTC 16QAM 1/2 CTC , 16QAM 3/4 CTC	

7. Power Class Profile

The Power Classes listed in following table is developed to cover the complete target range of power levels while different interpretation of applicable modulation levels is addressed through a dual range requirement for QPSK and 16-QAM per Power Class.

Table 131. Power Classes

Class Identifier	Transmit Power (dBm) for 16-QAM	Transmit Power (dBm) for QPSK	MS Required
Power Class 1	18 <= PTx,max < 21	20 <= PTx,max < 23	oi
Power Class 2	21 <= PTx,max < 25	23 <= PTx,max < 27	oi
Power Class 3	25 <= PTx,max < 30	27 <= PTx,max < 30	oi
Power Class 4	30 <= PTx,max	30 <= PTx,max	oi

Intertek ETL SEMKO

Attachment 3

Appendix G: Test Equipment List

Intertek ID No.	Equipment	Brand	Model No.	Calculation Due
EC303	EMI Test Receiver	Rohde & Schwarz	ESCS 30	04/27/2008
EC353	Spectrum Analyzer	Rohde & Schwarz	FSP 30	08/06/2007
EC365	Spectrum Analyzer	Rohde & Schwarz	FSEK 30	11/12/2007
EC354	Signal Generator	Rohde & Schwarz	SMR27	11/14/2007
EC371	Horn Antenna	SCHWARZBECK	BBHA 9120 D	12/22/2007
EC351	Horn Antenna	SCHWARZBECK	BBHA 9170	03/04/2008
EC347	Bilog Antenna	SCHWARZBECK	VULB 9168	12/23/2007
EC373	Pre-Amplifier	MITEQ	919981	03/07/2009
EC374	Pre-Amplifier	MITEQ	828825	01/15/2008
EP346	Controller	HDGmbH	CM 100	N/A
EP347	Antenna Tower	HDGmbH	MA 2400	N/A
EC344	LISN	Rohde & Schwarz	ESH3-Z5	03/30/2008
EC396	Wideband Peak Power Meter/ Sensor	Anritsu	ML2497A/ MA2491A	11/12/2007
EC363	Temperature Humidity Test Chamber	Juror	TR-4010	09/18/2007
EC404-1	PSA Series Spectrum Analyzer	Agilent	E4440A	04/26/2008
EP391	WiMAX Tested	Agilent	N8990A P30	-
EC404-4	P Series Power Meter	Agilent	N1911A	02/08/2008
EC404-5	Wide band Power Sensor	Agilent	N1921A	01/20/2008
EC404-3	ESG VECTOR SIGNAL GENERATIOR	Agilent	E4438C	04/28/2008
N/A	INDUSRIAL COMPUTER	ADVANGTECH	610H	N/A

Note: 1. The above equipments are within the valid calibration period.

2. The test antennas (receiving antenna) are calibration per 3 years.

Measurement Uncertainty:

Measurement uncertainty was calculated in accordance with NAMAS NIS 81.

Parameter	Uncertainty
Radiated Emission	±4.98 dB
Conducted Emission	±2.6 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Intertek ETL SEMKO

Attachment 4

Anritsu Discover What's Possible™

Wideband Peak Power Meter - 20 MHz Measurement Bandwidth
Model: ML2487A/88A

Downloads (recently added):

- Software - PowerSuite Remote User Interface for ML248/9XA
- Software - ML248XA Firmware v1.22
- Operation Manual - ML248/9XA Power Meters

The ML2487A and ML2488A Wideband Peak Power Meters provide accurate peak power measurement for communications, wireless, and aerospace applications. For the design and implementation of wireless networks, they address the important issues of power control, peak power, and timing. The performance of the signal channel and the range of product features make accurate and precise testing of the power envelope of communication and radar systems easy and straightforward. The ML2487A supports one sensor, and the ML2488A supports two sensors.

With their high sampling rate of 64 Ms/s, these meters offer accurate peak power detection for wide bandwidth systems such as those compatible with 802.11a/b/g, eliminating the need for manual correction factors found on the current generation of power meters. The ML2488A dual channel sensor input and display allow simultaneous monitoring of WLAN and Bluetooth® wireless technology enabled devices, providing crucial testing for the co-existence of the multi-standards.

Compatible wideband power sensors include the MA249xA Series. The 18 GHz MA2491A is a CDMA sensor incorporating a unique filter switchable between 5 MHz and 20 MHz, and a chopper enabling the sensor to be used down to -60 dBm. The MA2411A/B 40 GHz radar and pulse sensor can be used for pulse measurements, providing a dynamic range of +20 dBm to -25 dBm.

Other available power sensors include the MA244xD Series, the MA247xD Series, and the MA248xD Series.

For portable USB power measurements see MA24106A.

Features & Benefits

- Frequency Range 50 MHz to 18 GHz
- Dynamic Range -60 dBm to +20 dBm
- Rise Time <18 ns
- Selectable 5/20 MHz Filter
- Accurate power measurements related to all *Bluetooth* and IEEE 802.11 WLAN standards
- 20 MHz Measurement Bandwidth
- Larger Color Display with Graphical MMI
- Multiple Measurement Gates for Pulsed Systems
- High Speed GPIB remote control
- Peak, Average, and Crest Measurements
- Built in Statistics, CCDF, CDF and PDF
- Radio System Presets
- Masks and Limit lines
- Multiple Markers and Marker Functions

Wideband Power Sensors 50 MHz to 18 GHz
Model: MA249xA

Downloads (recently added):

- Datasheet - ML2400A Power Meters and MA2400A/D Power Sensors
- Catalog - Electronic Measuring Instruments 2007
- **Brochure - ML2400A Power Meters & MA2400A/D Sensors**

The MA2490A and MA2491A have been designed as dual purpose Wideband and CW sensors. An FET switch is used to chop the signal from the sensor, to improve stability at low power levels, in CW mode. These sensors have 20 MHz video bandwidth and 18 ns rise time in the pulse modulated mode, and can be used to make average, peak and crest measurements on signals with rapid amplitude change such as W-CDMA, WLAN, WiMAX and radar.

The MA249XA Wideband Power Sensors are used with the ML2487A/88A and ML2495A/96A Series Power Meters.

Features & Benefits

- N type RF Connectors
- MA249XA Series Wideband Power Sensors have a video bandwidth of 20 MHz for accurate Peak Measurement on Radar and WLAN. These are also is ideal for Multi Pulse Radar or GPRS measurements.

Wideband Sensors		
Model	**MA2490A**	**MA2491A**
Frequency Range	50 MHz - 8 GHz	50 MHz - 18 GHz
Dynamic Range (dBm)	-60 to +20 CW Mode	
SWR	<1.17; 50-150 MHz <1.12; 0.15-2.5 GHz <1.22; 2.5-12.4 GHz <1.25; 12.4-18 GHz	
Rise Time[1] (ms)	<18 ns	
Sensor Linearity	<7% 50 to 300 MHz <3.5% 0.3 to 8 GHz	<7% 50 to 300 MHz <3.5% 0.3 to 18 GHz
RF Connector[2]	N(m)	

1. 0.0 dBm, room temperature.
2. Each MA24XX Series sensor incorporates precision RF Connectors with hexagon coupling nut for attachment by industry standard torque wrench.