

Agreement #: _____

Licensee: _____

WiMAX™ PKI License Agreement

This WiMAX™ PKI License Agreement (“**Agreement**”) is entered into as of the effective date listed on the signature page below (“**Effective Date**”) by and between WiMAX Forum, a California nonprofit mutual benefit corporation having a place of business at 15220 NW Greenbrier Pkwy Suite 340, Beaverton, OR 97006 and the company listed on the signature page of this Agreement (“**Licensee**”) having a place of business at the location listed on the signature page of this Agreement.

Background. The WiMAX Forum has established a Public Key Infrastructure (“**PKI**”), the WiMAX™ PKI, which is described in the Governing Documents and is operated under the supervision of the WiMAX Policy Authority. The WiMAX PKI provides a mechanism that permits Authorized Users to obtain PKCs through Certificate Authorities. In support of maintaining a high level of security and integrity for the WiMAX PKI and the networks established and operated using the PKCs, the WiMAX PA requires that each applicant wishing to receive PKCs execute this Agreement before the applicant is approved as an Authorized User. Licensee wishes to become an Authorized User and the WiMAX Forum, as administrator, is willing to approve Licensee as an Authorized User subject Licensee’s faithful performance of all of its obligations hereunder.

1. **Definitions.** For purposes of this Agreement:

(a) “*Authorized User*” means a Device Manufacturer or a Network Operator that the WiMAX Forum, as authorization administrator under authority of the WiMAX PA, has authorized to receive PKCs from a CA.

(b) “*CA*” or “*Certificate Authority*” means an entity that the WiMAX PA has authorized to issue PKCs to unrelated third-party customers.

(c) “*Co-Licensee*” means an entity other than Licensee with which the WiMAX Forum has executed a WiMAX™ PKI License Agreement.

(d) “*Compliance Rules*” mean the rules described in **Exhibit A** hereto, as such rules may be amended from time to time pursuant to Section 5(b).

(e) “*Compliant*” refers to a product that is in compliance with all applicable Robustness Rules and Compliance Rules.

(f) “*Device*” means a device containing WiMAX™ Technology that is authorized to access WiMAX Networks.

(g) “*Device Manufacturer*” means a manufacturer of devices that incorporate WiMAX™ Technology for use as part of a WiMAX™ Network. “*Device Manufacturer*” includes any producer of products that are eligible to receive device PKCs under the Governing Documents.

(h) “*Governing Documents*” means the following documents as in effect from time to time, together with related documents that the WiMAX PA may approve as necessary or

useful for the secure and proper operation of the WiMAX PKI: WiMAX Forum Device PKI Certificate Policy, WiMAX Forum Device Certificate Profile, WiMAX Forum Server PKI Certificate Policy, WiMAX Forum Server Certificate Profile, WiMAX Forum CRL Profile, and WiMAX Forum OCSP Profile Version 1.0.

(i) “*Intellectual Property Rights*” means all intellectual property rights arising under statutory law, common law or by contract, and whether or not perfected, including, without limitation, all (a) patents, patent applications and patent rights, (b) rights associated with works of authorship including copyrights, copyright applications, copyright registrations, mask work rights, mask work applications, mask work registrations, and derivative works of the foregoing, (c) rights relating to the protection of trade secrets and confidential information, (d) trademarks, trade dress, trade name, design patent and service mark rights, whether or not registered and (e) divisions, continuations, continuations in part, renewals, reissues and extensions of the foregoing (as and to the extent applicable) now existing, hereafter filed, issued or acquired.

(j) “*Licensed Components*” means component devices that use WiMAX Technology and are designed for incorporation into a Device.

(k) “*Licensed Intellectual Property Rights*” means the Intellectual Property Rights embodied in each PKC issued under the WiMAX PKI and all associated nonpublic information that Licensee acquires from the WiMAX Forum or the CA relating to the WiMAX PKI and the PKCs generated thereunder, including, without limitation, shared secret keys, digital certificates, software development tools, methodologies, processes, technologies or algorithms, test data sets and test cases and other implementations of technology. “Licensed Intellectual Property Rights shall also include the tangible embodiment of such rights, as required by context.

(l) “*Network Operator*” means the operator of a wireless network using WiMAX™ Technology. “Network Operator” includes both operators of public networks, which are intended to provide networking services to customers, and operators of private networks.

(m) “*PKC*” means a public key certificate that is issued under the WiMAX PKI in accordance with the requirements of the Governing Documents, including with the approval of the WiMAX PA.

(n) “*Prototype*” means a pre-production model of a Device that is not sold commercially.

(o) “*Robustness Rules*” mean the rules described in **Exhibit B** hereto, as such rules may be amended from time to time in accordance with Section 5(b).

(p) “*Server*” means a network server on which a server PKC is installed for use as part of a WiMAX™ Network.

(q) “*Test Tools*” means devices that (a) utilize the WiMAX Technology and have as their purpose the testing or verification of the performance of, or (b) are specifically designed for the purpose of testing or verification of the performance of Devices and Prototypes.

(r) “*WiMAX™ Network*” means a network through which the Network Operator delivers wireless broadband services using WiMAX™ Technology.

(s) “*WiMAX Policy Authority*” or “*WiMAX PA*” is “Policy Authority” as defined in the Governing Documents.

(t) “*WiMAX Technology*” means final approved WiMAX Forum Specifications.

2. Scope.

(a) **Devices and Servers.** A license is granted herein for Compliant Servers and for Compliant Devices, Licensed Components and Prototypes and Test Tools, as well as for the manufacture, sale and distribution of Compliant Devices.

(i) **Devices.** Devices shall, at the time of manufacture, be Compliant and shall conform to all applicable WiMAX Technology.

(ii) **Servers.** Servers shall, at the time of installation of the server PKC, be Compliant and shall conform to all applicable WiMAX Technology.

(b) **Prohibited Network Behavior.** No feature or functionality of a Device, as manufactured and distributed, or of a Server, at the time of PKC installation or thereafter, shall (a) technically disrupt, impede or impair the delivery of services to a wireless customer or end user of a WiMAX Network; (b) cause physical harm to the network, the WiMAX Network, Server or the Device or other networking devices with which the Device or Server, as applicable, is operating to provide network services, (c) facilitate theft of service or otherwise interfere with reasonable actions taken by Network Operators to prevent theft of service; (d) jeopardize the security of any services offered over the network; or (e) interfere with or disable the ability of a Network Operator to communicate with or disable a Device or to disable services being transmitted to a Device on that Network Operator’s network.

(c) **Applicability of WiMAX Technology.** For purposes of determining conformity to WiMAX Technology, the WiMAX Forum Specification in effect at the time of manufacture or server PKC installation will be treated as the currently applicable WiMAX Technology except to the extent that the WiMAX Forum Technical Steering Committee authorizes variance from the Specification and the WiMAX PA approves such variance as applicable to the WiMAX PKI.

3. License Grants and Restrictions.

(a) **Approval as an Authorized User.** Subject to the terms and conditions set forth herein, the WiMAX Forum approves Licensee as an Authorized User that is authorized to obtain PKCs from a CA under the WiMAX PKI effective with the WiMAX Forum’s execution of this Agreement. Licensee understands and acknowledges that approval as an Authorized User does not unconditionally entitle Licensee to receive PKCs. Licensee must also enter into the appropriate commercial agreement with a CA, comply with the terms of that agreement and must pay all fees that are due to the CA and to the WiMAX Forum.

(b) **Licensed Intellectual Property Rights.** Subject to the terms and conditions set forth herein, the WiMAX Forum hereby grants to Licensee, and Licensee hereby accepts from the WiMAX Forum, a non-exclusive, non-transferable (except as set forth in Sections 3(c), 3(d) and 14(f) hereof) worldwide license under the Licensed Intellectual Property Rights to do the following:

(i) **Device Manufacturer.** A Device Manufacturer may possess and use the Licensed Intellectual Property Rights to develop and test Prototypes, Test Tools, and Licensed Components; distribute the Test Tools and Licensed Components only to Co-Licensees; distribute Prototypes to Network Operators and other entities for the purpose of field trials and technology evaluation and not for retail; and make, have made, use, sell, offer to sell, import and otherwise distribute Devices.

(ii) **Network Operator.** A Network Operator may possess and use the Licensed Intellectual Property Rights to install, use and maintain one server PKC per Server in a WiMAX Network,

(c) **Limited Right for Test Tools.** In addition to the rights granted under Section 3(b), Licensee shall have the limited right to make, have made, use, sell, offer to sell and otherwise distribute Test Tools, subject to the following limitations: Licensee shall distribute the Test Tools containing the WiMAX Technology only to Co-Licensees. Licensee must separately maintain records of sales of Test Tools, and Licensee shall provide the names and contact information of each purchaser to the WiMAX Forum. Licensee shall limit the use of Test Tools for the purposes of ensuring proper operation, testing, debugging, integration and tuning. For the purposes of this Section 3(c): (i) “testing” means a process of evaluating a Prototype or Device to ensure proper operation; (ii) “debugging” means a process of finding the cause of an error in a Prototype or Device, including analysis for the purpose of exposing possible design flaws; (iii) “integration” shall mean a process of evaluating the performance of a Prototype or a Device in a network environment to ensure that proper network operation; and (iv) “tuning” means a process of evaluating and improving a Prototype or Device to work more efficiently in a network environment.

(d) **Limited Right for Licensed Components.** Licensee, if a Device Manufacturer that is obtaining Device PKCs, shall have the limited right to make, have made, use, sell, offer to sell, import and otherwise distribute Licensed Components provided, however, that Licensee shall distribute the Licensed Components only to Co-Licensees; and provided further that Licensee must separately maintain records of sales of Licensed Components, and Licensee shall certify, upon request of the WiMAX Forum, that Licensed Components have been distributed only to Co-Licensees.

(e) **No Other Licenses Granted.** Except as provided herein, no license is granted by the WiMAX Forum, either directly or by implication, estoppel, or otherwise, and any rights not expressly granted to Licensee hereunder are reserved by the WiMAX Forum. No license is granted for any products (other than Licensed Components, Test Tools and Prototypes) that are not Compliant products. All Intellectual Property Rights in the Licensed Intellectual Property Rights shall be and remain the sole property of the WiMAX Forum or the CA, and Licensee shall have no right or interest in such Licensed Intellectual Property other than the rights granted to

Licensee under this Agreement. The WiMAX Forum retains all right, title and interest in and to the Licensed Intellectual Property that are trade secrets or proprietary information of the WiMAX Forum or its licensors, members or affiliates or are otherwise owned or licensed by the WiMAX Forum.

(f) **Availability of Essential Patent Claims on Fair, Reasonable, and Non-Discriminatory Terms.** If Licensee is not a member of the WiMAX Forum, Licensee agrees, as a condition to the rights granted under this Agreement, that it will comply with the requirements of Article 4 of the WiMAX Forum Intellectual Property Rights Policy (“**IPR Policy**”) by licensing all “Necessary Claims” (as defined in Section 3.1(a)(1)-(2) of the IPR Policy) in accordance with the terms of Article 4. Licensee shall only be bound by this Section 3(f) to the extent such third parties submit to an equivalent undertaking with respect to any Essential Patent Claims owned or controlled by such third party.

(g) **Joint Defense of Intellectual Property Claims.** If the WiMAX Forum on the one hand and/or Licensee on the other hand (each, a “Defendant”), should be sued on a single claim or related claims that a right licensed under this Agreement necessarily infringes the patent or other rights of another party (a “Suit”), then the Defendants shall, subject to reasonable nondisclosure conditions, provide to each other reasonable non-privileged information and cooperation relating to their Suits, and the WiMAX Forum shall (subject to advice of litigation counsel) permit participation in the Suit by a Co-Licensee that is not a Defendant at its own expense. Further, unless Licensee elects to independently defend the Suit, the WiMAX Forum and Licensee shall endeavor to negotiate in good faith a joint defense agreement whereby common claims against all Defendants may be defended in a coordinated and efficient manner. Provided that Licensee is a Defendant and is not exercising its right to pursue an independent defense of a Suit, the WiMAX Forum and Licensee shall establish a joint steering committee to negotiate in good faith allocations of joint defense costs where possible. Licensee shall have the right, in its sole discretion and at its sole expense, to pursue an independent defense of any Suit.

(h) **Technology Substitution in the Event of a Claim of Infringement.** If the WiMAX Forum on the one hand or Licensee on the other hand receives notice that a right licensed hereunder allegedly infringes a patent of a third party, then the WiMAX Forum may, at its sole option and expense, obtain for Licensee the right to use technology that is substantially equivalent to the right that is subject to the allegation of infringement and does not infringe such patent.

(i) **Most Favored Status.** The WiMAX Forum shall make available to Licensee any applicable license terms made available to any or all Authorized Users pursuant to the WiMAX PKI License Agreement. The WiMAX Forum also commits that the benefit of any modifications, clarifications or interpretations of language, made by the WiMAX Forum or mandated by applicable governmental or judicial authority, in a WiMAX PKI License Agreement shall be extended to Licensee in accordance with this Section 3(i). Where the WiMAX Forum agrees to make a change to a particular licensee’s WiMAX PKI License Agreement, Licensee may incorporate such change, or upgrade to such revised agreement in total, at any time. Where the WiMAX Forum has agreed to include language in a particular WiMAX PKI License Agreement that is more favorable than that in Licensee’s WiMAX PKI License Agreement, the WiMAX Forum shall not enforce the language in this Agreement with

respect to Licensee to the extent that such language is less favorable than that language found in such other licensee's WiMAX PKI License Agreement. The WiMAX Forum shall upon the request of Licensee take reasonable steps to keep Licensee informed of any changes to the WiMAX PKI License Agreement, and to provide Licensee with the most recent version. This Section 3(i) is intended to provide Device Manufacturers with the benefits of improved terms for Devices and Network Operators with the benefits of improved terms for Servers and shall not be construed as providing either group of Authorized Users with the license benefits that are specific to the other group.

(j) **Trademark License.** In connection with Licensee's exercise of the rights granted under this Agreement, the WiMAX Forum hereby grants Licensee, and Licensee accepts a limited, non-exclusive, worldwide, non-transferable royalty-free license to use "WiMAX" as permitted in the "WiMAX Forum Trademark Policy and Trademark Usage Guidelines," Part 1 (the "**Manual**"), as in effect from time to time. Licensee agrees that it will comply with the guidelines contained in the Manual, and if the WiMAX Forum requests, will execute a licensee statement acknowledging that it is a licensee of the "WiMAX" mark under this Agreement.

4. **Fees and Applicable Taxes.**

(a) **Fees.** The licenses granted hereunder are granted on a royalty-free basis. The effectiveness of the licenses granted hereunder is, however, subject to Licensee's payment of any PKI fee that the WiMAX Forum charges in connection with the issuance of PKCs to Licensee and Licensee agrees to pay the WiMAX Forum all such fees in accordance with the payment terms stated on the payment invoice.

(b) **Applicable Taxes.** Any fees paid to the WiMAX Forum pursuant to Section 4(a) above are exclusive of, and Licensee shall pay, all sales, use, value added, excise, income tax, and other taxes (other than income taxes) that may be levied upon either party by taxing authorities in connection with such payments and shall pay all income taxes that may be levied upon Licensee.

5. **Changes to Agreement.**

(a) **Generally.** Licensee understands and acknowledges that this Agreement is intended as an interim agreement to permit Licensee to obtain PKCs pending the development of a final agreement governing the subject matter of this Agreement. Notwithstanding Section 5(b), if the WiMAX PA determines that this Agreement, including the Compliance Rules and the Robustness Rules, should be substituted with a new agreement with different terms ("**Revised Agreement**"), it shall notify the WiMAX Forum, which shall notify Licensee and provide Licensee with a copy of the Revised Agreement. Licensee will, within thirty (30) days after receipt review the Revised Agreement and if it finds the terms to be acceptable, will sign and return to the WiMAX Forum the signed copy within forty (40) days after receipt. If Licensee objects to the terms and is unwilling to sign the Revised Agreement, or if Licensee fails to return the signed agreement within such forty (40) day period, the WiMAX Forum will revoke Licensee's status as an Authorized User and deliver to Licensee notice of such revocation. While the revocation remains in effect, Licensee will not be allowed to order new PKCs or obtain delivery of any previously ordered PKCs. If Licensee does not deliver a signed Revised

Agreement within thirty (30) days after the date that the WiMAX Forum revokes Licensee's Authorized User status, this Agreement will terminate automatically and without further action or notice on the part of either party.

(b) **Changes to the Compliance Rules and Robustness Rules.** Subject to Section 5(a) and except for a minor change that does not alter existing requirements or add new requirements, and except for permissive changes that are not binding on Licensee, the WiMAX Forum may change the Compliance Rules and the Robustness Rules only in accordance with this Section 5(b).

(i) **Notification Process.** The WiMAX Forum shall concurrently notify Licensee and all Co-Licensees of any changes to the Compliance Rules and the Robustness Rules ("**Changes**") using a method authorized under Section 14(g) below. The notice communicating the Changes is referred to herein as the "**Change Notice**" and the date that Licensee is deemed, pursuant to Section 14(g), to have received the Change Notice is referred to herein as the "**Change Notice Date.**"

(ii) **Changes Issued by the Technical Steering Committee.** Changes that result from the WiMAX Forum working group process, are approved using the procedures for approval of WiMAX Forum Final Specifications under the Technical Activity Procedures, and are approved by the WiMAX PA shall automatically become effective at the time specified in the notice or, if no effective date for compliance is specified, twelve (12) months after the Change Notice Date. Changes that are approved under the procedures of this Section 5(b)(ii) are not subject to Challenge by Licensee or its Co-Licensees.

(iii) **Changes Issued Through Other Methods.** A change that the WiMAX Forum issues through a method other than the working group process described in Section 5(b)(ii) shall become effective, and Licensee shall be required to comply with such Changes within twelve (12) months following the Change Notice Date, or within such longer period as the WiMAX Forum may, at its election, specify in a Change Notice. Notwithstanding the foregoing, Licensee, together with either (A) four unaffiliated Co-Licensees, or (B) such number of other Co-Licensees that, together with Licensee, constitute a majority of all licensees under all WiMAX PKI License Agreements), may challenge the Changes by notifying the WiMAX Forum within sixty (60) days following the Change Notice Date that it has a bona fide objection to the change on the grounds that it would materially limit the permitted functionality or capabilities of a Device, or would materially increase its cost or complexity, then the following procedures shall govern whether or not Licensee shall be required to comply with such Changes: If the required number of licensees specified above notify the WiMAX Forum that they object to the change proposed in the Change Notice, the WiMAX Forum, Licensee and Co-Licensees shall attempt in good faith to resolve any objections that the Licensee and its Co-Licensees may have with respect to the proposed change during the sixty (60) day period following the Change Notice Date. If Licensee, together with the number of Co-Licensees described in clauses (A) and (B) above, remain dissatisfied at the end of such sixty (60) day period, Licensee and its Co-Licensees may demand arbitration in accordance with Section 13(c). In any such proceeding, the provisions of Section 12 shall be modified as follows:

(A) The arbitration will be held before a panel of three arbitrators, who shall have industry expertise in the subject matter of the arbitration. The WiMAX Forum and Licensee, with its Co-Licensees, shall each be entitled to select one (1) arbitrator and the two selected arbitrators will choose the third arbitrator on the panel.

(B) Licensee, together with its Co-Licensees that are participating in the arbitration, shall jointly bear all costs of the arbitration, including the actual fees of attorneys and other professional advisors of the WiMAX Forum that the WiMAX Forum incurs in participating in the arbitration any subsequent proceeding relating thereto.

6. Confidentiality.

(a) **Confidentiality of Licensed Intellectual Property Rights.** As between the WiMAX Forum and Licensee, all of the Licensed Intellectual Property Rights are confidential and proprietary to the WiMAX Forum or the companies that have licensed them to the WiMAX Forum. Licensee shall not use or disclose the Licensed Intellectual Property Rights in any manner whatsoever other than in connection with the rights granted in Section 3 hereof or as otherwise permitted by this Section 6. Licensee shall implement and maintain security measures in order to keep the Licensed Intellectual Property Rights confidential. For confidential information that is not “Highly Confidential Information” as defined below, Licensee’s measures will equal or exceed those measures that Licensee uses to protect its own comparable confidential information and will, at minimum, be sufficient to maintain the trade secret status of such information, including, without limitation, restricted access and written nondisclosure agreements governing access to such information and data. In addition, Licensee shall implement and maintain security measures for reference source code implementations, shared secret keys, encryption and decryption keys, private keys (collectively, “**Highly Confidential Information**”), which are in accordance with commercial practices for managing keys, such measures to include, at a minimum, the following: Licensee shall transmit Highly Confidential Information only to its affiliates, subcontractors, consultants, agents, employees, customers and representatives who need to know the information, who are informed of the confidential nature of the information, and, in the case of affiliates, representatives, customers, subcontractors and consultants who have agreed in writing to abide by the terms and conditions of this Section 6. Licensee shall identify (by title) individuals with access to such Highly Confidential Information to the WiMAX Forum upon request. Licensee shall maintain a secure location on its premises to be identified to the WiMAX Forum in which such Highly Confidential Information shall be stored. Such secure location shall be accessible only by authorized employees who shall be required to sign in and out each time such employees visit such secure location. When such Highly Confidential Information is not in use, such information shall be stored in a locked safe at such secure location. Licensee may store such Highly Confidential Information at more than one secure location with the prior approval of the WiMAX Forum, which approval shall not be unreasonably withheld. Licensee shall maintain a security log of periodic tests of security, shipments of such Highly Confidential Information from one secure location to another (if applicable), and breaches of security at all secure locations. Licensee shall reasonably cooperate with the WiMAX Forum and its employees and agents to maintain the security of such Highly Confidential Information, including by promptly reporting to the WiMAX Forum any thefts of such Highly Confidential Information missing from Licensee’s possession. The WiMAX Forum shall have the right to review, upon five (5) business days notice, or such earlier time as may be

reasonable and required due to special circumstances, the implementation of all security measures at the secure location(s) required hereunder for Highly Confidential Information on an ongoing basis, at reasonable times as agreed between Licensee and the WiMAX Forum, subject to a reasonable and mutually acceptable nondisclosure agreement if required to protect Licensee's confidential information during the WiMAX Forum review.

(b) **Notification of Unauthorized Use or Disclosure.** Licensee shall notify the WiMAX Forum immediately upon discovery of any unauthorized use or disclosure of any Licensed Intellectual Property Rights, and will cooperate with the WiMAX Forum to seek to regain possession of the disclosed Licensed Intellectual Property Rights and to prevent its further unauthorized use or disclosure.

(c) **Liability for Breach of Confidentiality.** With respect to information provided by the WiMAX Forum to Licensee, Licensee shall be responsible for any breach of Sections 6(a) and 6(b) by its affiliates, subcontractors, consultants, agents, employees, customers, representatives, former affiliates, former agents, former employees, former customers and former representatives, provided that no obligation of confidentiality is imposed on information which (i) is already in or subsequently enters the public domain through no breach of Licensee's obligations hereunder and which the WiMAX Forum failed to remove from public availability or to enjoin such public disclosure within ninety (90) days after the date such information is or becomes generally known as set forth above; (ii) is known to Licensee or is in its possession without conduct which would constitute a breach of Licensee's obligations hereunder prior to receipt from the WiMAX Forum; (iii) is developed independently by Licensee by persons who have not had, either directly or indirectly, access to or knowledge of Licensed Intellectual Property Rights; or (iv) is lawfully received by Licensee from another party without a duty of confidentiality to the WiMAX Forum. Notwithstanding anything in Sections 6(a) or 6(b) to the contrary, the Licensed Intellectual Property Rights may be disclosed by Licensee pursuant to the order or requirements of a court or governmental administrative agency or other governmental body of competent jurisdiction, provided that (x) the WiMAX Forum has been notified of such a disclosure request sufficiently in advance to afford the WiMAX Forum reasonable opportunity to obtain a protective order or otherwise prevent or limit the scope of such disclosure to the extent permitted by law and (y) Licensee cooperates in good faith with the WiMAX Forum's efforts hereunder. The obligations under Sections 6(a) and 6(b) shall continue indefinitely with respect to Highly Confidential Information notwithstanding the expiration or termination of this Agreement. For any other confidential information provided hereunder, the obligations under Sections 6(a) and 6(b) shall terminate three years after the last commercial use of the WiMAX Technology by Licensee or any Co-Licensee; provided that Sections 7.1(b) through 7.1(d) shall cease to apply when Licensee has returned all tangible embodiments of the Licensed Intellectual Property Rights in its possession to the WiMAX Forum.

7. Term and Termination.

(a) **Term.** This Agreement shall commence on the Effective Date and shall continue until terminated by a party as provided herein.

(b) **Termination of Licenses for Cause.** The WiMAX Forum may terminate the licenses granted hereunder for a specific Server or for any specific Device model that, at the time

of manufacture, is in material breach of the Robustness Rules, Compliance Rules, or Section 2(a). However, the WiMAX Forum may only terminate the licenses pursuant to this Section 7(b) after the potential for a cure at low cost at the Network Operator headend for the relevant service has been evaluated as a reasonable alternative (provided in the case of Device Manufacturers that the Device Manufacturer used reasonable commercial efforts to avoid the breach and to avoid having the breach resolved by action of the Network Operator) and the WiMAX Forum has (a) conducted a reasonable evaluation of the potential breach, (b) consulted with Licensee regarding the problem, (c) given written notice to Licensee of the WiMAX Forum' intent to terminate the license with respect to the affected product, and (d) provided Licensee with a reasonable opportunity to cure the breach (where such breach is capable of being cured) and such breach remains uncured for sixty (60) days following the date of such notice, or, if such breach cannot by its nature be cured within such period, if Licensee has not commenced, and thereafter at all times diligently pursues, commercially reasonable efforts to cure as soon as possible thereafter. Termination of the licenses granted for any Server or specific Device model shall not affect the licenses granted for any other model.

(c) **Termination of Agreement for Cause.** The WiMAX Forum may terminate this Agreement in the event that the WiMAX Forum provides notice of Licensee's breach of a material provision hereof and (where such breach is capable of being cured) such breach remains uncured sixty (60) days following the date of such notice.

(d) **Termination by Licensee.** Licensee may terminate this Agreement at any time upon sixty (60) days written notice to the WiMAX Forum.

(e) **Termination by the WiMAX Forum.** The WiMAX Forum may terminate this Agreement as provided in Section 5(a).

(f) **Effect of Termination.** Upon the termination of the licenses granted hereunder for any specific Server or Device model pursuant to Section 7(b):

(i) If termination is for a license to a Server, Licensee shall remove the PKC and not use the Server to provide WiMAX Network services; and

(ii) If termination is for a license to a Device model, Licensee may no longer use make, have made, use, sell, import or distribute such Device model, nor use the Licensed Intellectual Property Rights therewith except that, if the termination did not result from Licensee's failure to satisfy the requirements of the Robustness Rules, or the Compliance Rules, Licensee may sell or distribute any remaining Devices in existence at the time of termination. Licenses properly granted to Licensee in conjunction with the sale or distribution of Devices by Licensee pursuant to Section 3 prior to the date of termination shall remain in full force and effect. Unless otherwise stated herein, no termination of this Agreement, whether by the WiMAX Forum or by Licensee, or termination of any license granted hereunder shall relieve either party of any obligation or liability accrued hereunder prior to such termination, or rescind or give rise to any right to rescind anything done by either party prior to the time such termination becomes effective nor shall the survival provisions of Section 7(g) be affected by such termination.

(g) **Survival.** The following sections of the Agreement shall survive any termination of the Agreement: Sections 2(b), 2(c), 3(e), 4(b), 6, 7(g), 9, 11, 12, and 14.

8. **Representation and Warranties.** Each party represents, warrants, covenants and agrees that:

(a) It has authorized the person who has signed this Agreement to execute and deliver this Agreement on its behalf to the other party; and

(b) This Agreement constitutes its valid and binding obligation, enforceable according to its terms.

9. **Warranty Disclaimers.**

(a) **Licensed Intellectual Property Rights.** Licensee understands and acknowledges that, notwithstanding of the WiMAX Forum ownership rights in the Licensed Intellectual Property Rights, matters relating to key generation and delivery are the responsibility of the CA under Licensee's agreement with the CA and Licensee's sole recourse in connection with any PKC or other key is with the CA. THE WIMAX FORUM IS PROVIDING THE LICENSED INTELLECTUAL PROPERTY RIGHTS ON AN "AS-IS" BASIS, WITHOUT WARRANTY. BY ELECTING TO USE THE LICENSED INTELLECTUAL PROPERTY RIGHTS IN SERVERS OR DEVICES, AS APPLICABLE, LICENSEE ASSUME ALL RISKS ASSOCIATED WITH SUCH USE.

(b) **General Warranty Disclaimers.** EXCEPT AS EXPRESSLY PROVIDED IN SECTION 8, EACH PARTY DISCLAIMS TO THE MAXIMUM EXTENT PERMITTED BY LAW ALL WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY IN NATURE, INCLUDING, WITHOUT LIMITATION, (A) THE IMPLIED WARRANTIES OF TITLE AND NONINFRINGEMENT, (B) ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR THAT THE RIGHTS AND LICENSES GRANTED TO LICENSEE HEREUNDER COMPRISE ALL THE RIGHTS AND LICENSES NECESSARY OR DESIRABLE TO PRACTICE, DEVELOP, MAKE OR SELL DEVICES OR OPERATE SERVERS.

10. **Limitation of Liability.**

(a) **Limitation of Liability.**

(i) Except as otherwise specifically limited by this Agreement, the parties shall have all rights available at law or in equity for any breach of this Agreement.

(ii) NOTWITHSTANDING SECTION 10(a)(i) AND EXCEPT FOR LICENSEE'S BREACH OF ITS CONFIDENTIALITY OBLIGATION UNDER SECTION 6 AND LICENSEE'S INDEMNITY UNDER SECTION 12, IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER OR TO ANY THIRD-PARTY BENEFICIARY (AS DEFINED IN SECTION 11) FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL, INDIRECT, PUNITIVE OR EXEMPLARY DAMAGES OF ANY KIND, INCLUDING WITHOUT LIMITATION LOSS OF PROFIT, SAVINGS OR REVENUE, OR THE CLAIMS OF THIRD

PARTIES, WHETHER OR NOT ADVISED OF THE POSSIBILITY OF SUCH LOSS, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, ARISING OUT OF THIS AGREEMENT OR BASED ON THE MAKING, USING, SELLING OR IMPORTING ANY PRODUCT THAT IMPLEMENTS WiMAX TECHNOLOGY OR USES THE LICENSED INTELLECTUAL PROPERTY RIGHTS.

(iii) In no event shall either party be liable to the other or to any Third-Party Beneficiary under any circumstances under this Agreement for any claims that, individually or in the aggregate with all other claims exceed the sum of one hundred thousand U.S. dollars (\$100,000). Notwithstanding the foregoing, the limitation of liability amount set forth above shall not apply if the liability giving rise to the claim for damages arises out of Licensee's grossly negligent or willful and bad faith material breach of the Robustness Rules, Compliance Rules, Section 2 or any provision of Section 6 regarding the security or integrity of the Licensed Intellectual Property Rights. For purposes of this Agreement, a breach shall be "material" only if Licensee acted in a manner that is prohibited by this Agreement or failed to perform an obligation required under this Agreement, which act or failure has resulted in or may result in commercially significant harm to the WiMAX Forum or Network Operator, or constitutes a threat to the integrity or security of the WiMAX PKI. In addition, the following is a non-exclusive list of circumstances in which there is no material breach of the provisions of Section 6: (A) if no Licensed Intellectual Property Rights were released to a third party not permitted hereunder to have such information or could reasonably have been expected to have been released to such third party as a result of the breach; (B) if Licensee maintains an internal program to assure compliance herewith (including a program to assure maintenance of inventory, samples, and confidentiality of information for purposes in addition to compliance with this Agreement), the breach was inadvertent or otherwise unintentional, and the breach did not have a material adverse effect on the integrity or security of the WiMAX PKI; or (C) if Licensee brought the breach to the WiMAX Forum's attention in a timely manner as required by this Agreement and such breach did not have a material adverse effect on the integrity or security of the WiMAX PKI.

11. Third-Party Beneficiary Rights.

(a) Compliance of Licensee and other licensees with the terms hereof is essential to maintain the value, integrity, security and performance of the WiMAX Technology and networks of Network Operators. As part of the consideration granted herein, Licensee agrees that service providers that provide copyrighted works for transmission to Devices and the copyright owners of such works (collectively, "Content Providers") and Network Operators (collectively, "Third-Party Beneficiaries"), shall each be a third-party beneficiary of this Agreement, but only with respect to their right to bring a claim or action against Licensee to seek injunctive relief against the manufacture, distribution, commercial use and sale of Licensee's products that are in material breach of the Robustness Rules, Compliance Rules, or Section 2 of this Agreement, and for damages as provided in Section 11(b). For avoidance of doubt, a Third-Party Beneficiary may bring an action against either a Device Manufacturer for its Device or a Network Operator for its Server if it is being damaged by such Device or Server. In any such claim or action, reasonable attorneys' fees shall be awarded to the prevailing party.

(b) Such Third-Party Beneficiaries may seek such actual damages (up to the aggregate limits contained in Section 10(a)) only after (a) such Third-Party Beneficiary has given to the WiMAX Forum written notice of the potential breach; (b) the potential for a cure at low cost at the Network Operator headend for the relevant service has been evaluated as a reasonable alternative (provided in the case of Device Manufacturers that the Device Manufacturer used reasonable commercial efforts to avoid the breach and to avoid having the breach resolved by action of the Network Operator); (c) the WiMAX Forum conducted a reasonable evaluation of the potential breach; (d) the WiMAX Forum has consulted with Licensee regarding the problem; and (e) the WiMAX Forum has provided Licensee with a reasonable opportunity to cure the breach (where such breach is capable of being cured) and such breach remains uncured for sixty (60) days following the date of such notice, or, if such breach cannot by its nature be cured within such period, if Licensee has not commenced, and thereafter at all times diligently pursued, commercially reasonable efforts to cure as soon as possible thereafter. Third Party Beneficiaries may seek injunctive relief only after providing the WiMAX Forum and the Licensee with notice and consultation reasonable under the circumstances with respect to such third party claim. Claims and actions under this Section 11(b) shall be made only for material breaches (as defined in Section 10(a)).

12. Indemnity.

(a) Licensee agrees to defend and indemnify and hold harmless the WiMAX Forum and its officers, directors, members, and employees from and against all demands, claims, actions, causes of action, assessments, liabilities, losses, damages, costs and expenses including without limitation, interest, penalties and disbursements, attorneys fees and the fees of other professional advisors (collectively, "Damages"), insofar as such Damages arise from or in any way relate to Licensee's breach of a provision of this Agreement or Licensee's business activities and operations.

(b) The WiMAX Forum will promptly notify Licensee of a claim against it that may result in Damages, provided that its failure to do so shall not affect Licensee's indemnification obligation hereunder so long as Licensee is not materially prejudiced by such delay. The WiMAX Forum will reasonably cooperate and assist Licensee in defending the claim, provided that Licensee shall reimburse the WiMAX Forum's actual out-of-pocket expenses for providing such assistance. Licensee may engage counsel of its choosing to defend the claim, provided that such choice shall also be reasonably acceptable to the WiMAX Forum. The WiMAX Forum may separately participate in its defense of the claim using its own counsel and its sole cost and defense. Licensee will not enter into any settlement that imposes liability or any monetary obligation, or that restricts in any manner use of the Licensed Intellectual Property Rights or any WiMAX Technology, without the prior written consent of the WiMAX Forum, which consent shall not be unreasonably withheld, conditioned or delayed.

13. Dispute Resolution.

(a) **Generally.** The parties desire to resolve certain disputes, controversies and claims arising out of this Agreement without litigation. Accordingly, except in the case of (i) a dispute, controversy or claim relating to a breach or alleged breach on the part of either party of the provisions of Section 6, (ii) a suit, action or proceeding to compel Licensee to comply with

its obligations to indemnify the WiMAX Forum pursuant to Section 12 of this Agreement, or (iii) a suit, action or proceeding to compel either party to comply with the dispute resolution procedures set forth in this Section 13, the parties agree to use the following alternative procedure as their sole remedy with respect to any dispute, controversy or claim arising out of or relating to this Agreement or its breach. The term “Arbitrable Dispute” means any dispute, controversy or claim to be resolved in accordance with the dispute resolution procedure specified in this Section 13.

(b) **Informal Resolution.** At the written request of a party, each party shall appoint a knowledgeable, responsible representative to meet and negotiate in good faith to resolve any Arbitrable Dispute arising under this Agreement. The parties intend that these negotiations be conducted by nonlawyer, business representatives with support from appropriate technical personnel. The discussions shall be left to the discretion of the representatives. Upon agreement, the representatives may utilize other alternative dispute resolution procedures such as mediation to assist in the negotiations. Discussions and correspondence among the representatives for purposes of these negotiations shall be treated as confidential information developed for purposes of settlement, shall be exempt from discovery and production, and shall not be admissible in the arbitration described below or in any lawsuit without the concurrence of all parties. Documents identified in or provided with such communications, which are not prepared for purposes of the negotiations, are not so exempted and may, if otherwise admissible, be admitted in evidence in the arbitration or lawsuit.

(c) **Arbitration.** If the negotiations do not resolve the Arbitrable Dispute within sixty (60) days of the initial written request, the Arbitrable Dispute shall be submitted to binding arbitration under the Commercial Arbitration Rules of the American Arbitration Association presided over by a single arbitrator selected pursuant to those rules. A party may demand such arbitration, in accordance with the procedures set out in those rules, at the office of the American Arbitration Association in San Francisco, California. Discovery shall be controlled by the arbitrator and shall be permitted to the extent set out in this Section. Each party may submit in writing to a party, and that party shall so respond, to a maximum of any combination of thirty-five (35) (none of which may have subparts) of the following: interrogatories, demands to produce documents and requests for admission. Each party is also entitled to take the oral deposition of up to two (2) individuals of another party. Additional discovery may be permitted upon mutual agreement of the parties. The arbitration hearing shall be commenced within sixty (60) days of the demand for arbitration and the arbitration shall be held in San Francisco, CA. The arbitrator shall control the scheduling so as to process the matter expeditiously. The parties may submit written briefs. The arbitrator shall rule on the Arbitrable Dispute by issuing a written opinion within thirty (30) days after the close of hearings. The times specified in this Section may be extended upon mutual agreement of the parties or by the arbitrator upon a showing of good cause. Judgment upon the award rendered by the arbitrator may be entered in any court having jurisdiction.

(d) **Costs.**

(i) If the WiMAX Forum initiates the arbitration, the following provisions apply: Each party shall bear its own cost of these procedures. A party seeking discovery shall reimburse the responding party the cost of production of documents (to include search time and

reproduction time costs). The parties shall equally share the fees of the arbitration and the arbitrator. The arbitrator may award attorneys' fees to the prevailing party as set forth in Section 14(l).

(ii) If Licensee initiates the arbitration, the following provision shall apply: Licensee shall bear all costs of the arbitration, including the actual fees of attorneys and other professional advisors of the WiMAX Forum that the WiMAX Forum incurs in participating in the arbitration and any subsequent proceeding relating thereto.

14. Miscellaneous.

(a) **Independent Contractors.** The relationship established between the parties by this Agreement is that of independent contractors. Nothing in this Agreement shall be construed to constitute the parties as partners, joint venturers, co-owners, franchisers or otherwise as participants in a joint or common undertaking for any purpose whatsoever.

(b) **Publicity and Trademarks.** Except for the trademark license granted in Section 3(j), nothing contained in this Agreement shall be construed as conferring any right to use in advertising, publicity, or other promotional activities any name, trade name, trademark or other designation of either party hereto (including any contraction, abbreviation or simulation of any of the foregoing).

(c) **No Patent Solicitation Required.** Except as expressly provided herein, neither party shall be required hereunder to file any patent application, secure any patent or patent rights, provide copies of patent applications to the other party or disclose any inventions described or claimed in such patent applications.

(d) **Law and Jurisdiction.** THIS AGREEMENT SHALL BE CONSTRUED, AND THE LEGAL RELATIONS BETWEEN THE PARTIES HERETO SHALL BE DETERMINED, IN ACCORDANCE WITH THE LAW OF THE STATE OF CALIFORNIA, UNITED STATES OF AMERICA, AS APPLIED TO AGREEMENTS ENTERED INTO AND FULLY PERFORMED THEREIN BY RESIDENTS THEREOF. (i) IN CONNECTION WITH ANY LITIGATION BETWEEN THE PARTIES HERETO OR IN CONNECTION WITH ANY THIRD-PARTY-BENEFICIARY CLAIM BROUGHT HEREUNDER ARISING OUT OF OR RELATING TO THIS AGREEMENT, EACH PARTY IRREVOCABLY CONSENTS TO: (i) THE EXCLUSIVE JURISDICTION AND VENUE IN THE FEDERAL AND STATE COURTS LOCATED IN THE COUNTY OF SAN FRANCISCO, CALIFORNIA, AND (ii) THE SERVICE OF PROCESS OF SAID COURTS IN ANY MATTER RELATING TO THIS AGREEMENT BY PERSONAL DELIVERY OR BY MAILING OF PROCESS BY REGISTERED OR CERTIFIED MAIL, POSTAGE PREPAID, AT THE ADDRESSES SPECIFIED IN THIS AGREEMENT, OR TO THE AGENT TO BE APPOINTED PURSUANT TO THE SECTION, BELOW. IF LICENSEE DOES NOT HAVE A PRINCIPAL PLACE OF BUSINESS IN THE UNITED STATES, LICENSEE SHALL APPOINT AGENTS IN THE STATE OF CALIFORNIA FOR ACCEPTANCE OF SERVICE OF PROCESS PROVIDED FOR UNDER THIS AGREEMENT AND SHALL NOTIFY THE WIMAX FORUM OF THE IDENTITY AND ADDRESS OF SUCH AGENT WITHIN THIRTY (30) DAYS AFTER THE EFFECTIVE DATE. LICENSEE WAIVES ANY OBJECTION TO THE JURISDICTION,

PROCESS, AND VENUE OF ANY SUCH COURT, AND TO THE EFFECTIVENESS, EXECUTION, AND ENFORCEMENT OF ANY ORDER OR JUDGMENT (INCLUDING, BUT NOT LIMITED TO, A DEFAULT JUDGMENT) OF SUCH COURT PERTAINING TO THIS AGREEMENT, TO THE MAXIMUM EXTENT PERMITTED BY THE LAW OF THE PLACE WHERE ENFORCEMENT OR EXECUTION OF ANY SUCH ORDER OR JUDGMENT MAY BE SOUGHT AND BY THE LAW OF ANY PLACE WHOSE LAW MIGHT BE CLAIMED TO BE APPLICABLE REGARDING THE EFFECTIVENESS, ENFORCEMENT, OR EXECUTION OF SUCH ORDER OR JUDGMENT, INCLUDING PLACES OUTSIDE OF THE STATE OF CALIFORNIA AND OF THE UNITED STATES.

(e) **Compliance with Laws.** In connection with this Agreement, each party shall comply with all applicable regulations and laws, including export, re-export and foreign policy controls and restrictions that may be imposed by any government. Each party shall require its customers to assume an equivalent obligation with regard to import and export controls.

(f) **No Assignment.** Licensee shall not assign any of its rights or privileges under this Agreement without the prior written consent of the WiMAX Forum, such consent not to be unreasonably withheld or delayed. No consent shall be required for the assignment of this Agreement to any wholly-owned subsidiary of Licensee or for the assignment in connection with the merger or the sale of Licensee or Licensee's business unit provided that Licensee shall remain liable for its obligations hereunder. Any attempted assignment or grant in derogation of the foregoing shall be void.

(g) **Notice.** Any notices required or permitted to be made or given to either party pursuant to this Agreement shall be in writing and shall be delivered as follows with notice deemed given as indicated: (a) by personal delivery when delivered personally; (b) by overnight courier upon written notification of receipt; (c) by telecopy or facsimile transmission upon acknowledgment of receipt of electronic transmission; or (d) by certified or registered mail, return receipt requested, five days after deposit in the mail. All notices must be sent to the address set forth below, or to such other address as the receiving party may have designated by written notice given to the other party:

(i) If for the WiMAX Forum:

With a copy to:

WiMAX Forum
Director of Operations
15220 NW Greenbrier Pkwy
Suite 340
Beaverton, OR 97006
Fax: (503) 924-3063

WiMAX Forum
General Counsel
P.O. Box 2059
Dublin, CA 94568
Fax: (925) 394-4407

(ii) If for Licensee, at the address for notice given on the signature page of this Agreement.

(h) **Amendments.** Except as provided in Section 5, no amendment or modification hereof shall be valid or binding upon the parties unless made in writing and signed by both parties.

(i) **Waiver.** Any waiver by either party of any breach of this Agreement shall not constitute a waiver of any subsequent or other breach.

(j) **Severability.** If any provision or provisions of this Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not be in any way affected or impaired thereby.

(k) **Construction.** The headings of the several sections of this Agreement are for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement. All defined terms herein shall apply equally to their singular and plural forms, all pronouns shall apply without regard to gender, and all references to Sections and Exhibits shall be deemed to be references to Sections of, and Exhibit to, this Agreement unless the context requires otherwise. This Agreement shall not be construed as having been drafted by either party.

(l) **Attorneys' Fees.** Except as otherwise expressly provided herein, the prevailing party in any suit relating to this Agreement shall be entitled to recover its attorneys' fees and costs from the other party.

(Signature Page Follows)

IN WITNESS WHEREOF, the parties have entered into this Agreement as of the Effective Date.

Licensee:

(Company Name)

WiMAX Forum

(Signature)

Bruce D. Holloway
Secretary

(Print Name)

(Print Title)

(Date)

(Date)

Effective Date and Licensee Information:

Effective Date: _____

Licensee Information:

Licensee Legal Name:

Licensee Administrative Address:

Address for Notice (if different)

Contact Person:

Name:

Telephone:

e-mail:

Fax:

Exhibit A

Compliance Rules

To be provided in accordance with Section 5.

Exhibit B

WiMAX Device Robustness Rules

1. Definitions.

- 1.1. **“Child Keys”** means keys derived from EMSK for the purpose of network mobility and handovers between networks according to [4]*.
- 1.2. **“Confidentiality”** means protection of digital information within a device from disclosure to any human user of that device, to any other device, computer system or the Internet.
- 1.3. **“Device Certificate”** means an X.509 digital certificate that complies with [1] and [2] that has been obtained from an authorized WiMAX Certificate Authority and is associated with a single WiMAX device.
- 1.4. **“Device Private Key”** means an RSA private key that cryptographically corresponds to the Device Certificate. The Device Private Key together with the public key inside the Device Certificate are considered to be a Device Key Pair.
- 1.5. **“Integrity”** means protection of digital information within a device from unauthorized modification. Digital information that is under integrity protection may be modified only in a manner that was originally intended by the Device Manufacturer and in full compliance with the WiMAX Forum specifications.
- 1.6. **“EAP-TLS Session Keys”** means all symmetric encryption and authentication keys created during the establishment of a secure EAP-TLS session, where EAP-TLS is according to [3]. This includes a pre-master secret, master secret, MSK and EMSK.
- 1.7. **“EMSK”** means Extended Master Session Key. It is the additional keying material derived between the EAP peer and server that is exported by the EAP method.
- 1.8. **“Licensed Product”** means a device, including its hardware and software components, which contains a WiMAX Device Certificate, embodies and is compliant with the designs set out for WiMAX **client** devices.
- 1.9. **“MSK”** means Master Session Key. It is the keying material derived between the EAP peer and server and exported by the EAP method.
- 1.10. **“Software”** means boot code, operating system code and all application code that has physical access to the WiMAX Sensitive Information within the device that is listed in **Table 1**. By way of example, all native compiled applications have

* All bracketed numbers refer to the corresponding reference work listed in Section 2 of these Robustness Rules.

physical access to sensitive information stored in DRAM, unless there are hardware barriers to that information implemented in the device.

- 1.11. **“User Accessible Bus”** means (a) an internal connector that: (i) is designed and incorporated for the purpose of permitting end user upgrades or access or (ii) otherwise readily facilitates end user access or (b) a data bus that is designed for end user upgrades or access, such as an implementation of a smartcard, PCMCIA, Cardbus, or PCI that has standard sockets or otherwise readily facilitates end user access. A “user accessible bus” does not include memory buses, CPU buses, or similar portions of a device’s internal architecture that do not permit access to digital information in a form useable by end users.
- 1.12. **“Widely Available Tools”** means general-purpose tools that do not require special expertise and are not designed for analytical purposes, such as screwdrivers, jumpers, clippers, soldering irons, etc.
- 1.13. **“WiMAX Sensitive Information”** means the information summarized in Section 3.2 below that is to be kept confidential pursuant to these Robustness Rules. As used in these Robustness Rules, “sensitive information” and “sensitive data” refers to “WiMAX Sensitive Information.”

2. References.

- [1] WiMAX Forum Device PKI Certificate Policy Draft Specification, Version 1.0.3, WiMAX Forum, May 6, 2008.
- [2] WiMAX Forum X.509 Device Certificate Profile Draft Specification, Version 1.0.1, WiMAX Forum, April 18, 2008.
- [3] The EAP-TLS Authentication Protocol, IETF RFC 5216, D. Simon, B. Aboba, R. Hurst, March, 2008.
- [4] Specification for the Derivation of Root Keys from an Extended Master Session Key (EMSK), IETF RFC 5295, J. Salowey, L. Dondeti, V. Narayanan, M. Nakhjiri, August, 2008.

3. Robustness Rules.

- 3.1. **Generally.** Licensed Products as shipped shall meet the applicable Robustness Rules set forth in this section and shall be manufactured in a manner that is clearly designed to effectively frustrate attempts to modify such Licensed Products to defeat the WiMAX Robustness Rules.
- 3.2. **“WiMAX Sensitive Information” Defined.** The following table, **Table 1**, summarizes the sensitive information in a Licensed Product that requires either confidentiality protection, integrity protection or both (“WiMAX Sensitive Information”):

Data/Value	Confidentiality	Integrity	description
Device Private Key	Yes	Yes	Part of a permanent identity of a device, typically installed at manufacture time.
EAP-TLS Session Keys	Yes	Yes	May or may not be cached persistently in the device.
Child Keys	Yes	Yes	May or may not be cached persistently in the device
Key lifetimes for EAP-TLS Session Keys and Child Keys.	Recommended	Yes	
Root certificate/s	No	Yes	Root certificates approved by the WiMAX Forum that are utilized for authentication of AAA Servers.
Software	No	Yes	

Table 1: Summary of WiMAX Sensitive Information

3.3. Software Integrity.

3.3.1. Any Software that is obtained from a separate software provider not directly affiliated with the device manufacturer shall be signed by the software provider using an asymmetric signature algorithm that is equivalent in strength or better than 1024-bit RSA.

3.3.2. At a minimum, the code signature shall be verified whenever each Software code version is received by a manufacturer from a third party software provider and before that code is loaded into any Licensed Product.

3.4. Defeating Functions. Licensed Products shall not include any of the following by which the mandatory provisions of the Robustness Rules can be bypassed:

3.4.1. switches, buttons, jumpers or software equivalents thereof,

3.4.2. specific traces that can be cut, or

3.4.3. functions (including service menus and remote-control functions).

3.5. **Keep Secrets.**

3.5.1. Licensed Products shall be manufactured in a manner that is clearly designed to effectively frustrate attempts to discover or reveal Device Private Keys and all other WiMAX Sensitive Information.

3.5.2. Sensitive values that require confidentiality shall not be embedded within the software that will use them, unless the software is itself confidentiality protected. For instance, private keys shall not be embedded in the otherwise clear EAP-TLS software stored within the device.

3.5.3. Sensitive data requiring confidentiality protection shall be encrypted using at least 112-bit 3-DES or a stronger encryption algorithm and/or larger key size whenever that sensitive data:

3.5.3.1. Resides in non-secure persistent storage (without any hardware protection or software obfuscation), or

3.5.3.2. Is transferred over User Accessible Buses or to an interface that is external to the device.

For example, 128-bit AES is considered to be stronger than 112-bit 3-DES and would fulfill this requirement.

Any residues of clear confidential values that are included in **Table 1** shall be deleted from volatile memory (or temporary non-volatile memory, if applicable) after the use is completed.

3.6. **Maintain Integrity.** Licensed Products shall be manufactured in a manner that is clearly designed to effectively frustrate attempts to perform unauthorized modifications on Software running in the Licensed Product or on any other information that requires integrity protection according to **Table 1**.

3.7. **Level of Protection.** A device shall withstand physical attempts to get access to the sensitive data and to resist unauthorized modifications using Widely Available Tools while this data:

3.7.1. Resides in non-volatile storage,

3.7.2. Resides in volatile memory, or

3.7.3. Is transferred over User Accessible Buses or to an interface that is external to the device.

3.8. **Robustness Checklist.**

- 3.8.1. Before releasing any Licensed Product, the manufacturer must perform tests and analyses to assure compliance with these Robustness Rules. A Robustness Checklist will be provided in the future for the purpose of assisting a WiMAX device manufacturer in performing tests covering certain important aspects of these Robustness Rules.
- 3.8.2. Inasmuch as the Robustness Checklist does not address all elements required for the manufacture of a Compliant product, the device manufacturer is strongly advised to review carefully these Robustness Rules so as to evaluate thoroughly both its testing procedures and the compliance of its Licensed Products. The device manufacturer shall provide copies of these Robustness Rules and the Robustness Checklist to its supervisors responsible for design and manufacture of Licensed Products.