

電信終端設備及低功率射頻電機審驗一致性

第31次會議會議紀錄

壹、時間： 98年7月17日(星期五)下午2時

貳、地點：本會濟南路辦公室（台北市濟南路2段16號）2樓會議室

參、主席：黃科長銘真

紀錄：陳慶琮

肆、出席人員：如簽到單

伍、結論：

- 一、本次會議提出「審驗一致性意見提案處理單」共計6案，各提案經充分討論後之結論，詳如附件（編號：9807103-9807108）。
- 二、為防杜不肖業者利用業餘無線電對講機機體變頻成低功率無線電對講機（FRS），造成低功率無線電對講機市場混亂，請各驗證機構審查FRS器材時加強把關，如有改造業餘對講機機體嫌疑時，請造冊列管，並於年底時送NCC備查，列入隔年驗證機構市場稽查首要器材。
- 三、有關程智科技股份有限公司提報荷蘭商聯想股份有限公司台灣分公司審驗案件（產品名稱：筆記型電腦，廠牌：Lenovo，型號：4329），經充分討論後測試報告有下列闕漏：
 - （一）筆記型電腦主管機關非為本會，申請之器材名稱請修正，本案設備名稱、廠牌、型號及製造商並請更正。
 - （二）IMEI Code為17碼，而不是一般所使用之15碼，報告內容所述之IMEI Code與產品照片上所列之號碼於中間6碼之流水號有差異。

- (三) 測試實驗室資料之認可編號還是為 CNLA，且認可頻率範圍：9kHz - 40GHz 針對的是 LP0002。
- (四) 量測不確定度沒有含蓋到所有測試項目。
- (五) 測試配置圖並沒有振動輔助周邊的訊息。
- (六) 測試設備儀器列表只有下次校正日期，並無校正日期與校正周期等訊息。
- (七) 測試設備儀器列表中並無 Fading Simulator 設備訊息。
- (八) 測試訊息顯示正常電壓/低電壓，而不是實際數值。
- (九) 針對規範之 5.3.1.2 (d)的要求並無相關交代。
- (十) 於發射機頻率誤差測量沒附圖，
- (十一) 缺乏極限條件於“在多重路徑及干擾狀況下的頻率誤差”測項之測試結果。
- (十二) 未包含 Fading Simulator 測試時之場地設定照。
- (十三) 產品照片應以申請器材為基調，而非以其使用之平台為主體。
- (十四) 模組照片上面標示描述為 3G module，而無 2G 訊息。

四、目前世界各國相關法規及技術資料，尚無電信設備防制竊聽之規定，為與世界接軌，請驗證機構協助本會密切注意、收集世界各國相關法規及技術資料，研議修正相關技術規範之可能性。

陸、散會：同日下午5時20分

電信終端設備與低功率射頻電機審驗一致性

會議簽到表

開會時間：98年7月17日（星期五）下午2時

開會地點：台北市濟南路2段16號2樓會議室（NCC濟南路辦公室）

主持人：黃科長銘真

記錄：陳慶琮

列席長官：

出席者：

財團法人台灣電子檢驗中心 邱雅雯 訂 賴鈺

中華電信研究所 孫淑貞 孫淑貞

香港商立德桃園分公司 鄧吉安

程智科技股份有限公司 莊承諭 江世本

吳銘蓉
余良修

全國公證檢驗股份有限公司 劉中流

耕興股份有限公司 林正光 林正光

快特電波股份有限公司 陳志龍

挪威商聯廣驗證股份有限公司台灣分公司

財團法人電信技術中心 謝志昌

NCC技術管理處 謝志昌 周錦明

S.G.S. 蘇文雄

審驗一致性意見提案處理單

提案日期: 98年06月1日

提案編號: 9807103

提案單位: 立德國際桃園分公司新竹實驗室

聯絡人: 鍾昆宏

聯絡電話(03)5935343 #1746

低功率射頻電機

電信終端設備

提案主旨	提案說明 (依據及理由)	相關文件 (需註明文件或檔案 之名稱)	提案建議(解決方法)
<p>WIMAX CPE若執行MPE計算時,若其產品為專業安裝時,是否可更動20cm的計算因子,並依特別的距離來當計算因子且符合MPE的要求?</p>	<p>依據 FCC 2.1091(d)(3) 的敘述, 需告知使用者須保持的距離來符合 RF exposure 的要求, 法規裏並沒有制定 "mimimum separation", 由於 Mobile device 是以 20cm 以上來定義, 故大部分的廠商以 20cm 的距離放置於使用手冊. 若以專業安裝於戶外, 以 大於20cm 的距離來符合MPE, 是符合要求的且可被 TCB or FCC接受的。</p>	<p>FCC Part 2.1091 (見附錄一) 其它相關參考資料: 1. OET BULLETIN 65 (見附錄二) 2. 美國(FCC)證書 (見附錄三) 3. 加拿大(IC)證書 (見附錄四) 4. 歐洲 MPE Far field 的計算評估 (見附錄五) 5. 歐洲證書 (見附錄六)</p>	<p>1. 建議若為專業戶外安裝的產品, 依特定的距離符合 MPE 要求時, 廠商需於使用手冊內特別註明離人體最小距離。</p>

審驗一致性會議結論:

開會日期: 98年7月17日

技術規範已有規定者, 即依技術規範規定辦理, 若技術規範未有明確規定, 才須提案在審驗一致性會議中共同討論。另若外國相關技術規範已部分修訂, 請將相關資料告知本會, 本會將檢討現行技術規範, 技術規範未修訂前, 仍依原規定辦理。

備註: 1. 對不同的提案主旨, 請個別填具提案處理單。

2. 提案編號由國家通訊傳播委員會填寫。

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Electronic Code of Federal Regulations
e-CFR
TM

e-CFR Data is current as of May 27, 2009

Title 47: Telecommunication

[PART 2—FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS: GENERAL RULES AND REGULATIONS](#)

[Subpart J—Equipment Authorization Procedures](#)
[Radiofrequency Radiation Exposure](#)

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§ 2.1091 Radiofrequency radiation exposure evaluation: mobile devices.

(a) Requirements of this section are a consequence of Commission responsibilities under the National Environmental Policy Act to evaluate the environmental significance of its actions. See subpart I of part 1 of this chapter, in particular §1.1307(b).

(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

(c) Mobile devices that operate in the Cellular Radiotelephone Service, the Personal Communications Services, the Satellite Communications Services, the General Wireless Communications Service, the Wireless Communications Service, the Maritime Services and the Specialized Mobile Radio Service authorized under subpart H of part 22 of this chapter, parts 24, 25, 26 and 27 of this chapter, part 80 of this chapter (ship earth stations devices only) and part 90 of this chapter are subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if they operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts or more. Unlicensed personal communications service devices, unlicensed millimeter wave devices and unlicensed NII devices authorized under §§15.253, 15.255, and 15.257, and subparts D and E of part 15 of this chapter are also subject to routine environmental evaluation for RF exposure prior to equipment authorization or use if their ERP is 3 watts or more or if they meet the definition of a portable device as specified in §2.1093 (b) requiring evaluation under the provisions of that section. All other mobile and unlicensed transmitting devices are categorically excluded from routine environmental evaluation for RF exposure prior to equipment authorization or use, except as specified in §§1.1307(c) and 1.1307(d) of this chapter. Applications for equipment authorization of mobile and unlicensed transmitting devices subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in paragraph (d) of this section as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(d) The limits to be used for evaluation are specified in §1.1310 of this chapter. All unlicensed personal communications service (PCS) devices and unlicensed NII devices shall be subject to the limits for general population/uncontrolled exposure.

(1) For purposes of analyzing mobile transmitting devices under the occupational/controlled criteria specified in §1.1310 of this chapter, time-averaging provisions of the guidelines may be used in conjunction with typical maximum duty factors to determine maximum likely exposure levels.

(2) Time-averaging provisions may not be used in determining typical exposure levels for devices

intended for use by consumers in general population/uncontrolled environments as defined in §1.1310 of this chapter. However, "source-based" time-averaging based on an inherent property or duty-cycle of a device is allowed. An example of this is the determination of exposure from a device that uses digital technology such as a time-division multiple-access (TDMA) scheme for transmission of a signal. In general, maximum average power levels must be used to determine compliance.

(3) If appropriate, compliance with exposure guidelines for devices in this section can be accomplished by the use of warning labels and by providing users with information concerning minimum separation distances from transmitting structures and proper installation of antennas.

(4) In some cases, e.g., modular or desktop transmitters, the potential conditions of use of a device may not allow easy classification of that device as either mobile or portable (also see §2.1093). In such cases, applicants are responsible for determining minimum distances for compliance for the intended use and installation of the device based on evaluation of either specific absorption rate (SAR), field strength or power density, whichever is most appropriate.

[61 FR 41017, Aug. 7, 1996, as amended at 62 FR 4655, Jan. 31, 1997; 62 FR 9658, Mar. 3, 1997; 62 FR 47966, Sept. 12, 1997; 68 FR 38638, June 30, 2003; 69 FR 3264, Jan. 23, 2004; 70 FR 24725, May 11, 2005]

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MOBILE DEVICES

The FCC rules for evaluating mobile devices for RF compliance are found in 47 CFR §2.1091. For purposes of RF exposure evaluation, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to be generally used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structures and the body of the user or nearby persons. In this context, the term "fixed location" means that the device, including its antenna, is physically secured at a permanent location and is not able to be easily moved to another location. Examples of mobile devices, as defined above, would include cellular and PCS mobile telephones, other radio devices that use vehicle-mounted antennas and certain other transportable transmitting devices. Transmitters designed to be used by consumers or workers that can be easily re-located, such as a wireless modem operating in a laptop computer, are considered mobile devices if they meet the 20 centimeter separation requirement. These devices are normally evaluated for exposure potential with the MPE limits given in Appendix A. Mobile devices may also be evaluated with respect to the SAR limits given in Appendix A for RF exposure compliance, but in such cases it is usually simpler and more cost-effective to evaluate compliance with respect to MPE limits based on field strength or power density.

MPE EVALUATION OF MOBILE DEVICES

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.⁹ The 1992 ANSI/IEEE standard (See Reference [1]) specifies a minimum separation distance of 20 cm for performing reliable field measurements to determine adherence to MPE limits.¹⁰ If the minimum separation distance between a transmitter and nearby persons is more than 20 cm under normal operating conditions, compliance with MPE limits may be determined at such distance from the transmitter. When applicable, operation instructions and prominent warning labels may be used to alert the exposed persons to maintain a specified distance from the transmitter or to limit their exposure durations and usage conditions to ensure compliance. If the use of warning labels on a transmitter is not effective or desirable, the alternative of performing SAR evaluation with the device at its closest range to persons under normal operating conditions may be used.

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AUTHORIZATION**
Certification
Issued Under the Authority of the
Federal Communications Commission
By:

TCB

Curtis-Straus LLC
527 Great Road
Littleton, MA 01460

Date of Grant: 04/15/2009
Application Dated: 04/14/2009

GIL Technology. CO., Ltd
6F., No 8, Lane 345, Yangguang St., Neihu District
Taipei City, 114
Taiwan

Attention: Vincent Chen , VP

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE,
and is VALID ONLY for the equipment identified hereon for use under the
Commission's Rules and Regulations listed below.

FCC IDENTIFIER: WRZGILBS
Name of Grantee: GIL Technology. CO., Ltd
Equipment Class: Digital Transmission System
Notes: WiMax Outdoor CPE (N-TYPE)

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
20	15C	5729.0 - 5846.0	0.319		

Output Power listed is conducted. This device must be professionally installed for P2P application only. Marketing to the General Public is prohibited. Only those antenna(s) tested with the device or similar antenna(s) with equal or lesser gain may be used with this transmitter. The use of other antenna requires a Class II Permissive Change filing. The antennas used for this transmitter must be installed to provide a separation distance of at least 50 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End -users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

20: All electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marketed.

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**Certification
Issued Under the Authority of the
Federal Communications Commission
By:**

**Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538**

**Date of Grant: 09/25/2008
Application Dated: 09/25/2008**

**Alvarion Ltd.
21a HaBarzel St.
Tel Aviv 69710,
Israel**

Attention: Avner Ruta , Standards Compliance Engineer

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE,
and is VALID ONLY for the equipment identified hereon for use under the
Commission's Rules and Regulations listed below.

FCC IDENTIFIER: LKT-BMAX-BA4M-A25

Name of Grantee: Alvarion Ltd.

Equipment Class: Licensed Non-Broadcast Station Transmitter

Notes: WiMAX Base Station

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
	27	2498.5 - 2599.5	6.76	0.0018 %	4M77W7D
	27	2501.0 - 2597.0	6.76	0.00038 %	9M60W7D

Power listed is conducted. The antenna(s) used for this transmitter are to be mounted to provide a separation distance of at least 2 m from all persons during normal operation. The maximum radiated output power at each antenna must satisfy the MPE Categorical Exclusion Requirements of §2.1091. RF exposure compliance may need to be addressed at the time of licensing, as required by the responsible FCC Bureau(s), including antenna co-location requirements of §1.1307(b)(

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**Certification
Issued Under the Authority of the
Federal Communications Commission
By:**

**Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538**

**Date of Grant: 10/27/2008
Application Dated: 10/27/2008**

**R-TRON, Inc.
Jisan IT Venture Bldg., 2/3F, 1004-9/10,
Doksan-Dong, Gumcheon-Gu, Seoul, Korea
Seoul,
South Korea**

Attention: Jong Hwa Park , R&D Center Director

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE,
and is VALID ONLY for the equipment identified hereon for use under the
Commission's Rules and Regulations listed below.

FCC IDENTIFIER: STESN-4GIR-33S

Name of Grantee: R-TRON, Inc.

Equipment Class: Licensed Non-Broadcast Station Transmitter

Notes: Wireless Booster (WiMAX)

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
	27	2502.0 - 2690.0	1.963	Amp	9M20W7D
	27	2502.0 - 2690.0	1.702	Amp	9M20W7D

Booster. Output power listed is conducted. Uplink: 1.963 W; Downlink: 1.702 W. The antenna installation and operating configurations of this transmitter, including antenna gain and cable loss must satisfy MPE categorical Exclusion Requirements of §2.1091. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 40 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

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Federal Communications Commission
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**Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538**

**Date of Grant: 09/26/2008
Application Dated: 09/25/2008**

**Alvarion Ltd.
21a HaBarzel St.
Tel Aviv 69710,
Israel**

Attention: Avner Ruta , Standards Compliance Engineer

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE,
and is VALID ONLY for the equipment identified hereon for use under the
Commission's Rules and Regulations listed below.

FCC IDENTIFIER: LKT-BMAX-BA4M-B25

Name of Grantee: Alvarion Ltd.

Equipment Class: Licensed Non-Broadcast Station Transmitter

Notes: WIMAX Base Station

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
	27	2592.5 - 2687.5	6.76	0.00485 %	4M77W7D
	27	2595.0 - 2685.0	6.76	0.0002 %	9M60W7D

Power listed is conducted. The antenna(s) used for this transmitter are to be mounted to provide a separation distance of at least 2 m from all persons during normal operation. The maximum radiated output power at each antenna must satisfy the MPE Categorical Exclusion Requirements of §2.1091. RF exposure compliance may need to be addressed at the time of licensing, as required by the responsible FCC Bureau(s), including antenna co-location requirements of §1.1307(b)(3).

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**GRANT OF EQUIPMENT
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By:**

Curtis-Straus LLC
527 Great Road
Littleton, MA 01460

Date of Grant: 04/15/2009
Application Dated: 04/14/2009

GIL Technology. CO., Ltd
8F., No 8, Lane 345, Yangguang St., Neihu District
Taipei City, 114
Taiwan

Attention: Vincent Chen , VP

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE,
and is VALID ONLY for the equipment identified hereon for use under the
Commission's Rules and Regulations listed below.

FCC IDENTIFIER: WRZGILSS

Name of Grantee: GIL Technology. CO., Ltd

Equipment Class: Digital Transmission System

Notes: WiMax Outdoor CPE (A-TYPE and N-TYPE)

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
20	15C	5729.0 - 5846.0	0.512		

Output Power listed is conducted. This device must be professionally installed for P2P application only. Marketing to the General Public is prohibited. Only those antenna(s) tested with the device or similar antenna(s) with equal or lesser gain may be used with this transmitter. The use of other antenna requires a Class II Permissive Change filing. The antennas used for this transmitter must be installed to provide a separation distance of at least 50 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End -users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

20: All electrical and mechanical devices employed for spurious radiation suppression, including any modifications made during certification testing, must be incorporated in each unit marketed.

TCB

**GRANT OF EQUIPMENT
AUTHORIZATION**

TCB

**Certification
Issued Under the Authority of the
Federal Communications Commission
By:**

**Curtis-Straus LLC
527 Great Road
Littleton, MA 01460**

**Date of Grant: 04/22/2009
Application Dated: 04/22/2009**

**Green Packet Inc.
4F, No.53, Lane 258, Rueiguang Road, NeiHu Distric
Taipei City, 11492
Taiwan**

Attention: James Wang , VP

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE,
and is VALID ONLY for the equipment identified hereon for use under the
Commission's Rules and Regulations listed below.

FCC IDENTIFIER: W9V-OS250-GP

Name of Grantee: Green Packet Inc.

Equipment Class: Licensed Non-Broadcast Station Transmitter

Notes: WiMAX 16e 2.5-2.7GHz Outdoor CPE

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
20	27	2502.5 - 2687.5	0.463	2.5 PM	4M82W7D
20	27	2505.0 - 2685.0	0.463	2.5 PM	9M48W7D

Output power is conducted. The product is a WIMAX user station. The antenna(s)
used for this transmitter must be installed to provide a separation distance of at least
40 cm from all persons and must not be co-located or operating in conjunction with
any other antenna or transmitter. Users and installers must be provided with
antenna installation instructions and transmitter operating conditions for satisfying
RF exposure compliance.

20. All electrical and mechanical devices employed for spurious radiation suppression, including any modifications made
during certification testing, must be incorporated in each unit marketed.

TCB

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**Compliance Certification Services
47173 Benicia Street
Fremont, CA 94538**

**Date of Grant: 10/27/2008
Application Dated: 10/27/2008**

**R-TRON, Inc.
Jisan IT Venture Bldg., 2/3F, 1004-9/10,
Doksan-Dong, Gumcheon-Gu, Seoul, Korea
Seoul,
South Korea**

Attention: Jong Hwa Park , R&D Center Director

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE,
and is VALID ONLY for the equipment identified hereon for use under the
Commission's Rules and Regulations listed below.

FCC IDENTIFIER: STESN-4GIR-30S


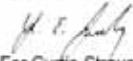
Name of Grantee: R-TRON, Inc.

Equipment Class: Licensed Non-Broadcast Station Transmitter

Notes: Wireless Booster (WiMAX)

<u>Grant Notes</u>	<u>FCC Rule Parts</u>	<u>Frequency Range (MHZ)</u>	<u>Output Watts</u>	<u>Frequency Tolerance</u>	<u>Emission Designator</u>
	27	2502.0 - 2690.0	1.0	Amp	9M20W7D
	27	2502.0 - 2690.0	1.079	Amp	9M20W7D

Booster. Output power listed is conducted. Uplink: 1.0 W; Downlink: 1.079 W. The antenna installation and operating configurations of this transmitter, including antenna gain and cable loss must satisfy MPE categorical Exclusion Requirements of §2.1091. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 30 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

CERTIFICATE OF ACCEPTANCE FOR CANADA		 CURTIS-STRAUS
Certificate No.	: CS04233	
Certification (label) No.	: 109AV-CPE35450	
Certificate issued to (holder)	: Motorola Inc. 1475 W. Shure Drive, Arlington Heights, IL 60004 U.S.A.	
Type of certification	: Single	
Model name	: CPEo 35450	
Type of equipment	: Fixed Wireless Access System (3400-3700 MHz): WiMAX 3.5G Outdoor CPE	
Specifications	: RSS-Gen, Issue No. 2, Issue Date: June 2007 RSS102, Issue No. 2, Issue Date: November 2005 RSS192, Issue No. 3, Issue Date: January 2008	
Frequency range	: 3480.5 – 3594.5MHz	
R.F. power rating/field strength	: 3480.5 – 3594.5MHz (5M Channel): 11.143 W eirp 3480.5 – 3594.5MHz (7M Channel): 10.965 W eirp 3480.5 – 3594.5MHz(10M Channel): 11.066 W eirp	
Antenna information	: Directional antenna with 14dBi net gain	
Emission designator	: 3480.5 – 3594.5MHz (5M Channel): 4M56W7D 3480.5 – 3594.5MHz (7M Channel): 6M56W7D 3480.5 – 3594.5MHz(10M Channel): 9M16W7D	
Test laboratory	: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch 81-1 Luliakoen, 9 th Lin, Wulung Tsuen, Chiunglin, Hsinchu, Taiwan, R.O.C. Tel: 886-3-5935343/Fax: 886-3-5935342 Email: amanda_chu@adt.com.tw	
Test lab company No.	: 7450G	
<p>Certification of equipment means only that the equipment has met the requirements of the above noted specification. Licence applications, where applicable to use certified equipment, are acted on accordingly by the issuing office and will depend on the existing radio environment, service and location of operation. This certificate is issued on condition that the holder complies and will continue to comply with the requirements and procedures issued by Industry Canada / La certification du matériel signifie seulement que le matériel a satisfait aux exigences de la norme indiquée ci-dessus. Les demandes de licences nécessaires pour l'utilisation du matériel certifié sont traitées en conséquence par le bureau de délivrance et dépendent des conditions radio ambiantes, du service et de l'emplacement d'exploitation. Le présent certificat est délivré à la condition que le titulaire satisfasse et continue de satisfaire aux exigences et aux procédures d'Industrie Canada</p> <p>Certified radio equipment shall not be distributed, leased, sold, or offered for sale in Canada prior to the listing of the device in the Industry Canada radio equipment list (REL).</p>		
Date of issue:	April 29, 2009	
Authorized by:	 For Curtis-Straus LLC Yunus Faziloglu Certifier	
Curtis-Straus LLC - A Bureau Veritas Company, 527 Great Road, Littleton, MA 01460, USA Tel: (978) 486-8880, Fax: (978) 486-8828, Email: certification@curtis-straus.com Rev 6 Certification Body No. US0106		

Field calculation

A.1 Purpose

This annex contains the background on “electromagnetic field calculation” including the justification of the boundaries between field regions and some supporting information for the formulas used in the calculation methods.

A.2 Far-field region

The field calculation does not take into account the antenna size, which is assumed to be a point source. An ideal isotropic antenna is used as a reference to compare the performance of practical antennas: P watts is radiated, from a point, uniformly over the surface of sphere of radius r .

The Pointing vector gives the power density: $S = E \times H = \frac{E^2}{\eta} = \frac{P}{4\pi r^2}$

In free space:

$$E = \eta_0 H = \frac{\sqrt{30PG(\theta, \phi)}}{r}$$

where

- G is the antenna gain relative to an isotropic antenna;
- θ, ϕ are elevation and azimuth angles to point of investigation;
- r is the distance from observation point to the antenna;
- η_0 is the characteristic impedance of free space.

telefication bv
The Netherlands
Chamber of Commerce
09076358
www.telefication.com



Statement

of Opinion

No: 09214073/AA/00

With respect to Chapter 10 of the Telecommunications Act of The Netherlands, Telefication declares that to our opinion the listed product complies with the essential requirements, in accordance with Article 3 of the Directive 1999/5/EC, as indicated under Annex 1 of this statement.

Product description: **WIMAX 3.5G Outdoor CPE**
Trademark: **Motorola**
Family name: --
Type designation: **CPEo 35450**
Serial No: --
Hard- / Softw. release No: --

Manufacturer: **Hon Hai Precision Ind. Co., Ltd.**
Address: **5F-1, 5 Hsin-An Road, Science-Based Industrial Park**
City: **300 Hsinchu**
Country: **Taiwan R.O.C.**

This statement is granted to:

Name: **Motorola Inc.**
Address: **1475 W. Shure Drive**
City: **IL 60004 Arlington Heights**
Country: **United States**

This statement has THREE Annexes.

Zevenaar, 29 April 2009



M.H. Koop
Handwritten signature in blue ink.

M.H. Koop
Manager Certification



For each product to which this Statement of Opinion relates (see annex 3) our opinion with respect to the essential requirements is as follows:

Article 3.1

- C (a) The protection of the health and safety of the user and other person, including the objectives with respect to safety requirements contained in Directive 73/23/EEC¹⁾, but with no voltage limit applying.
- C (b) The protection requirements with respect to electromagnetic compatibility contained in Directive 89/336/EEC¹⁾.

¹⁾ In addition standards published under Directives 2006/95/EC, 2004/108/EC, 90/385/EEC and 93/42/EEC may have been used to demonstrate compliance with articles 3.1.a and 3.1.b of Directive 1999/5/EC.

Article 3.2

- C The radio product shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communication and orbital resources so as to avoid harmful interference.

Article 3.3

- NA (a) The product shall be so constructed that it interworks via networks with other apparatus and that it can be connected to interfaces of the appropriate type throughout the Community.
- NA (b) The product shall be so constructed that it does not harm the network or its functioning nor misuse network resources, thereby causing an unacceptable degradation of service.
- NA (c) The product shall be so constructed that it incorporates safeguards to ensure that the personal data and privacy of the user and of the subscriber are protected.
- NA (d) The product shall be so constructed that it supports certain features ensuring avoidance of fraud.
- NA (e) The product shall be so constructed that it supports certain features ensuring access to emergency services.
- NA (f) The product shall be so constructed that it supports certain features in order to facilitate its use by users with a disability.

Opinions

- C = Conform
- NC = Not Conform
- NA = Not applicable (for this product)
- NP = Not performed (in this type examination)

Telefication, Edisonstraat 12A, 6902 PK Zevenaar, The Netherlands
Tel: +31 316 583 180, Fax: +31 316 583 189

- The validity of this Statement of Opinion is limited to products, which are equal to the one examined in the type-examination.
- When the manufacturer (or holder of this statement) is placing the product on the European market or the countries of the EEA, the marking of this product must contain (among other elements) the Notified Body number of Telefication: 0560
- This Statement of Opinion does not imply that the product can be used in the European Union or the countries of the EEA. If the product can not be identified as 'class-1' in accordance with Commission Decision 2000/299/EC, then:
 - Placing the product on the market may be subject to notification to the national radio agencies.
 - Putting the product into service is subject to national frequency regulation and may require licencing.

Remarks and observations

The following conditions are applicable:

Equipment Classification (EqC):

EqC-STN= TS
EqC-PET= O
EqC-FR= 3400-3600 MHz
EqC-EMO= 2, 4, 6
EqC-SET= MA
EqC-Chs= 5, 7, 10 MHz

Environmental classification:
EN 300 019 part 1-3 class 3.3

Manufacturers Declaration:
MGBR > 11.429 Mb/s for EqC-Chs=5 MHz
MGBR > 16 Mb/s for EqC-Chs=7 MHz
MGBR > 22.8 Mb/s for EqC-Chs=10 MHz

Manufacturers Declaration:
Conducted output power at 5 MHz, 7MHz and 10 MHz bandwidth=26dBm (+/- 2 dB)

To comply with RF exposure requirements, this transmitter should be operated at a minimum separation distance of 50 cm from all persons.

Antennas for WiMAX:

- Directional antenna, max. gain of 14 dBi at 3.5 GHz

審驗一致性意見提案處理單

提案日期: 98 年 6 月 1 日

提案編號: 9807104

提案單位: 香港商立德桃園分公司(原誠信科技) 聯絡人: 郭吉安 聯絡電話: 03-3183232 轉 1893

低功率射頻電機

電信終端設備

提案主旨	提案說明 (依據及理由)	相關文件 (需註明文件或 檔案之名稱)	提案建議(解決方法)
<p>車用 GPS 導航機內建 3G 行動通訊模組要申請 NCC 型式認證，若 3G 行動通訊模組已先取得 NCC 證書，以車用 GPS 導航機申請 NCC 證書時，通信介面的審驗費(6500 元)可否全部減免？又 BSMI 自 98 年 7 月起列管 GPS 導航機，若 EMC/SAFETY 也取得 BSMI 證書，NCC 審驗時規費如何計算？</p>	<p>多功能複合性的電信終端設備在申請 NCC 型式認證時，若 EMC 已有 BSMI 證書及測報，則 NCC 審驗的 EMC 費用(5500 元)可全部減免 [92 年 TTE 一致性會議]，而若 SAFETY 及 3G 行動通訊模組的審驗費部份也都比照全部減免，則這個案例會變成 RCB 不收任何費用，但須發給車用 GPS 導航機(內建 3G 行動通訊模組)一張 NCC 證書。</p>		<p>建議改採系列方式(減半)收費。</p>

審驗一致性會議結論:

開會日期: 98 年 7 月 17 日

考量本案審驗器材數量不多，暫不收審驗規費，俟未來相關案例增多時，檢討本會電信終端設備規費收費標準及低功率射頻電機規費收費標準。

備註: 1.對不同的提案主旨，請個別填具提案處理單。

2.提案編號由國家通訊傳播委員會填寫。

審驗一致性意見提案處理單

提案日期：98 年 06 月 24 日

提案編號：9807105

提案單位：立德國際桃園分公司
#1893

聯絡人：郭吉安

聯絡電話(03)3183232

低功率射頻電機

電信終端設備

提案主旨	提案說明 (依據及理由)	相關文件 (需註明文件或檔案 之名稱)	提案建議(解決方法)
<p>室內型WiMAX增波器 (repeater)在檢測頻率穩定性項目時溫度範圍能否調整為攝氏 0~50 度?</p>	<p>依 NCC 技術規範要求 WiMAX 增波器的型式認證適用 IS2045-0 技術規範，在 IS2045-0 第 4.3 節規定頻率穩定性量測的溫度範圍在攝氏 -20~50 度間變化；現有室內型 WiMAX 增波器，因主要設置地點為室內，廠商要求溫度範圍改為攝氏 0~50 度，並提請於一致性會議討論。</p>	<p>IS2045-0 技術規範</p>	

審驗一致性會議結論：

開會日期：98 年 7 月 17 日

技術規範已有規定者，即依技術規範規定辦理，若技術規範未有明確規定，才須提案在審驗一致性會議中共同討論。另若外國相關技術規範已部分修訂，請將相關資料告知本會，本會將檢討現行技術規範，技術規範未修訂前，仍依原規定辦理。

備註：1. 對不同的提案主旨，請個別填具提案處理單。

2. 提案編號由國家通訊傳播委員會填寫。

審驗一致性意見提案處理單

提案日期: 98 年 07 月 10 日

提案編號: 9807106

提案單位: 耕興股份有限公司 聯絡人: 姚金鴻

聯絡電話: 03-3273456 # 535

低功率射頻電機 電信終端設備

提案主旨	提案說明 (依據及理由)	相關文件 (需註明文件或檔案之 名稱)	提案建議(解決方法)
手錶手機是否需符合頭部 SAR 測試要求, 或引用四肢 SAR 限制值 4.0 W/kg? 其它配帶於四肢的行通信訊終端產品是否要評估四肢 SAR (如電子定位手環, 腳鐐, 手持式 MID 等)	手錶手機, 正常使用時佩戴於手腕經由擴音喇叭方式對話, 或外接藍牙或有線耳機使用, 與一般手持式行動電話機, 靠近耳朵通話方式不同, 請問此類產品是否要需符合頭部 SAR 之要求, 因 PLMN01 規範非手持式免驗, 在美國此類產品 FCC 只針對四肢 SAR 做評估。	參考 IEC 62209-2 (6.1.4.7) (limb worn device) PLMN01 必要檢驗項目第 8 項電磁波能量比吸收率 SAR(非手持式免驗)限制: 2.0W/Kg(10g)	若手錶手機需測 SAR 是否依 FCC 的測試方式和四肢限制值而非較嚴格 PLMN01 定義的生物體局部組織 SAR(最大值): $\leq 2.0W/Kg(10g)$ 限制

審驗一致性會議結論:

開會日期: 98 年 7 月 17 日

因其使用有可能靠近頭部, SAR 限制值以 CNS 標準 2.0w/kg 測試, 俟後 CNS 有規定四肢 SAR 限制值標準時, 再另案討論。

備註: 1.對不同的提案主旨, 請個別填具提案處理單。

2.提案編號由 NCC 填寫。

IEC 62209-2

測試法規是 IEC 62209-2, 測試方法同 Body SAR, 將手錶背面貼在 Flat Phantom 上, 如果錶帶會影響就需要先移除再測.

6.1.4.7 Limb worn device

A limb-worn device is a unit whose intended use includes being strapped to the arm or leg of the user while transmitting (except in idle mode). It is similar to a body-worn device. Therefore, the instructions of 6.1.4.2 also apply. The strap shall be opened so that it is divided into two parts as shown in Figure 10. The device shall be positioned directly against the phantom surface with the strap straightened as much as possible and the back of the device towards the phantom.

If the strap cannot normally be opened so that the device can be placed in direct contact with the phantom surface it might be necessary to break the strap of the device without damaging the antenna.

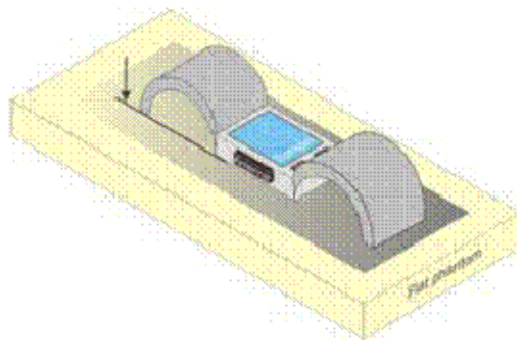


Figure 10 – Test position for limb worn devices

審驗一致性意見提案處理單

提案日期: 98 年 07 月 10 日

提案編號: 9807107

提案單位: 耕興股份有限公司 聯絡人: 姚金鴻

聯絡電話: 03-3273456 # 535

低功率射頻電機 電信終端設備

提案主旨	提案說明 (依據及理由)	相關文件 (需註明文件或檔案之 名稱)	提案建議(解決方法)
便捷買 e 網合格器材清單, 除放置器材照片外, 審驗合格證明是否亦需一併放置於網站上, 供使用者查詢? 目前有的 RCB 有放審驗合格證明, 有的 RCB 沒有, 查詢資料庫的廠商在詢問是不是有一致性的作法。			

審驗一致性會議結論:

開會日期: 98 年 7 月 17 日

今年 (98 年) 審驗之器材, 請於 8 月底前將審驗合格證明放置於本會便捷買 e 網網站上, 另為防止有心人士非法使用該審驗合格證明, 請參考 FCC 做法, 在審驗合格證明上加浮水印「copy」記號。今年年底前須將 95 年 2 月以後 (NCC 成立時) 審驗合格證明放置於本會便捷買 e 網網站上。

- 備註:
1. 對不同的提案主旨, 請個別填具提案處理單。
 2. 提案編號由 NCC 填寫。

審驗一致性意見提案處理單

提案日期: 98年6月24日

提案編號: 9807108

提案單位: 香港商立德桃園分公司(原誠信科技) 聯絡人: 郭吉安 聯絡電話: 03-3183232 轉 1893

<input type="checkbox"/> 低功率射頻電機		<input checked="" type="checkbox"/> 電信終端設備	
提案主旨	提案說明 (依據及理由)	相關文件 (需註明文件或 檔案之名稱)	提案建議 (解決方 法)
GSM汽車追蹤防盜器具備AGPS定位功能, 可否受理型式認證? 是否須比照AGPS行動照護器材, 請廠商提出切結保證書 或 在使用手冊上說明如何保護個人隱私, 以避免日後消費糾紛?	GSM汽車追蹤防盜器具備有AGPS定位功能, 器材安裝在車上. 使用者可利用手機簡訊傳給此GSM汽車追蹤防盜器, 此器材即傳簡訊回報經緯度位置, 再輸入於電子地圖上, 如果用PDA手機簡訊傳給此GSM汽車追蹤防盜器, 則可直接在PDA上顯示經緯度位置, 做車輛追蹤。	廠商使用手冊	建議請廠商提出切結保證書且在使用手冊上加註個人隱私保護注意事項, 以避免日後消費糾紛。

審驗一致性會議結論:

開會日期: 98年7月17日

追蹤器隱私權警語標示、警語內容:「為維護隱私權, 請妥適使用」
標示方式: 設備本體適當位置標示, 且於設備外包裝及使用說明書上標明。
申請者須提出保證書

- 備註: 1. 對不同的提案主旨, 請個別填具提案處理單。
2. 提案編號由國家通訊傳播委員會填寫。

GPS/GSM 汽車追蹤防盜器

型號：TK-601S

安裝使用手冊



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1. 配備及安裝

1.1 配備說明



1.2 安裝說明

- SIM 卡需要先以手機解除密碼設定，SIM 卡座右方有黃色鈕按下卡座即可彈出，缺角對準放入 SIM 卡(金屬面朝上)再推回定位。(2G, 3G 卡都可，威寶/亞太除外)
- 初次安裝先做 GPS 定位，先將 UPS 不斷電開關向右打開供電，請將車機面朝上在可見天處定位，定好位後再用魔鬼氈固定在儀表板下或座椅下即可。金屬隔熱紙也可穿透。
- 電源線正電(紅)線接汽車永久電源，例如煞車燈電源，負電(黑)線直接接車子的鐵殼。
- 正觸發(黃)線依功能需求選擇下列 1 項接線。
 - A. 如果要使用電瓶被剪斷通報功能，將正電(紅)線及正觸發(黃)線接在一起即可。
 - B. 如果要使用防盜器被短路通報功能，將防盜器正電，正電(紅)線及正觸發(黃)線，三條線接在一起即可。
 - C. 如果要使用防盜器連動通報功能，正觸發(黃)線接防盜器喇叭正極。
- 接上緊急開關。

1.3 SIM 卡注意事項

- SIM 卡密碼先以手機解除，再用手機輸入 1, 2, 3, 4 組電話號碼。
 - 第 1, 2 組為防盜通知，第 3, 4 組為緊急求救通知電話號碼。
 - (姓名處空白，不輸入)
- SIM 卡第 1 組姓名處為原始密碼(最多 8 個)，若沒設時代表空白。(這個密碼是為防止別人隨意撥打車機追蹤車輛)
- 直接在手機螢幕輸入電話號碼→儲存→選擇 SIM 卡→選擇位置。

以上裝機手續完成後，接著啟動車機。

2. 啟動車機 (請依下列順序操作)

- UPS 不斷電開關向右打開供電。
- GSM 的綠燈及 GPS 的橘燈會恆閃。
- 接上電源連接端子。
- 將 UPS 不斷電開關向左關閉，確定電源有來電後，再向右打開，使 UPS 保持供電中。
- 等到 GSM 的綠燈閃 0.075 秒亮 3 秒滅，GPS 的橘燈恆亮即開機成功。(在 GPS 能夠收訊的環境)
- 如果 GSM 的綠燈燈號沒有如上述(或恆滅)，請關機 2 分鐘後再重覆以上步驟。

開機後 GSM 燈號狀態閃爍速度如下：

搜尋網路 (需約 7~12 秒) = 0.6 秒亮 0.6 秒滅
待機 = 0.075 秒亮 3 秒滅

開機後 GPS 燈號狀態閃爍速度如下：

GPS 未定位 (無效位置) = 0.1 秒亮 2.5 秒滅
GPS 已定位 (有效位置) = 恆亮

2.1 安裝電子地圖

- 將光碟放入磁碟機, 如果沒自動進入。
- 請從我的電腦→光碟→PaPaGO!R16PC 進入。
- →安裝→下一步, 同意, 下一步... →關閉。
- 點桌面 PaPaGO!R17 圖案, 選地圖檔 TWdwfaultR17 開啟。

3. 車輛定位

3.1 輸入座標於個人電腦、PDA 或導航 PDA

- 發送簡訊 S,,P, 給車機(沒設密碼時)，車機會立即回復給發送簡訊的手機。

回覆內容為

ACK P

E, 121. 26' 1592" N, 24. 57' 5908" 06/03/01, 14:28:35, A, 2457. 9847, N, 12126. 0987, E, 339. 1, 0000. 0, K, 000. 0, N,

- E, 121. 26' 1592" 為 WGS84 座標東經(度分秒)

N, 24. 57' 5908" 為 WGS84 座標北緯(度分秒)

■ 再根據簡訊的經緯度，輸入座標於個人電腦/PDA/導航主機的電子地圖。

■ 秒數輸入時請多加小數點，例如：1592 輸入 15.92 5908 輸入 59.08。

■ 輸入座標後，按定位鈕，車輛位置就在地圖上顯示，可按右鍵在箭頭處設為我的地標，以免地圖移動後消失。

注意：

- 一般 PDA/導航主機電子地圖的座標位於[工具]→[進階]→[搜尋]→[索引]→[座標]
- 簡訊 S, , P, 可儲存起來，以備不時之需。
- 發送及接收簡訊的手機的簡訊收件箱，記得要定時清除，以免滿了收不到回報簡訊。
- 車機如果有更換過 SIM 卡，需要重開機啟動。

3.2 導航/PDA 手機即時回報自動顯示

■ 用導航/PDA 手機發送簡訊 S, , D, 10, 給車機。

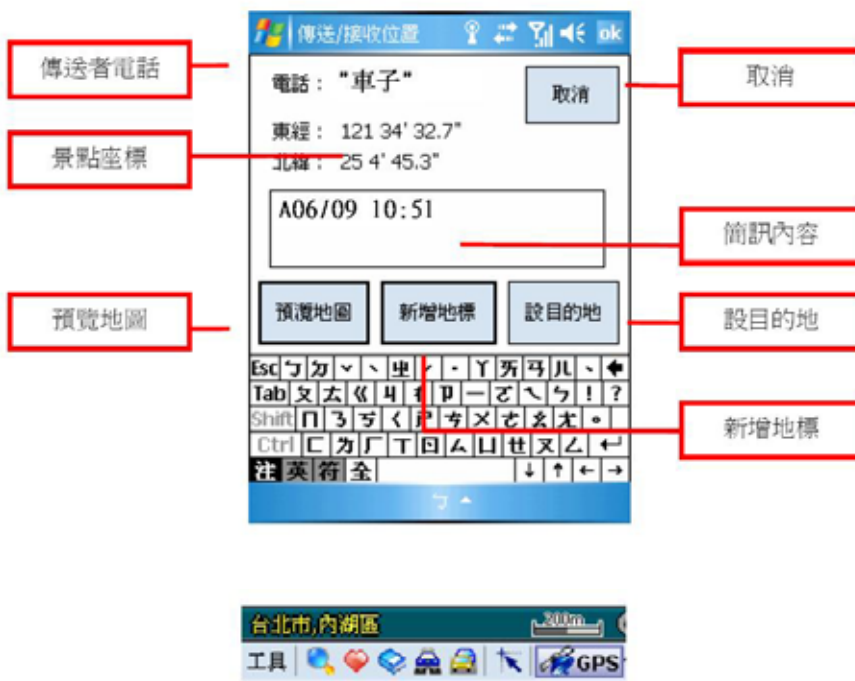
■ 開啟 PAPAGO R12 地圖等回報，任何擁有 PAPAGO R12 的導航手機可以直接顯示。

■ 因為必須先開啟 PAPAGO R12 地圖等回報，S, , D, 10, 是有 10 秒時間以便打開地圖(10 可改 0~99 秒)。

■ 10 秒後會收到一通簡訊，點中間的新增地標再點下方的紅心→定位，即在地圖中心會有紅心例如 A06/09 10:51(A: 定位，V:沒定位，6 月 9 日 10 點 51 分)。

極致衛星導航系統

假設您趴趴走是在開啓中，當您收到座標簡訊後，系統即會產生這個訊息給你，您可立即依下列功能鍵來設定功能。



4. GSM 自動通報系統

■ 車主啟動防盜或關閉防盜，車機 GSM 自動通報系統會撥接第 1 組電話號碼作安全連線確認，此時電話會響 2 聲後自動掛斷，進入待機狀態，若 5 秒未能收到車機自動通報之安全連線確認，請回廠檢修。(若車子位於地下室，山區...等訊號太弱之地區，可能造成無法安全連線確認，此為正常現象)。

- 當防盜器被觸發鳴叫超過 2 秒時，就會啟動自動通報系統，立即撥接所設定之第 1, 2 組電話號碼。自動通報系統會先撥接第 1 組電話號碼，若沒接聽時則再撥接第 2 組電話號碼。若第 1 組電話號碼有接聽，則麥克風會自動打開，停止下一通撥接。

5. SOS 求救

- 當觸發緊急開關時，就會啟動自動通報系統，立即撥接所設定之第 3, 4 組電話號碼。自動通報系統會先撥接第 3 組電話號碼，若沒接聽時則再撥接第 4 組電話號碼。若第 3 組電話號碼有接聽，則麥克風會自動打開，停止下一通撥接。

6. 以簡訊變更密碼及電話號碼

SIM 卡第 1 組姓名處為原始密碼(最多 8 個)，若沒設時代表空白。

變更空白密碼為 1234 密碼範例：

- 發送 **S, , S, PA, 1234**，給車機，車機會立即回復 ACK S PA1234

此時密碼已更改為 1234。設定密碼後，如要更改第一組電話號碼時，則要輸入

S, 1234, S, 1, 新電話號碼,

追蹤車輛發送簡訊給車機要改為 **S, 1234, P**，或是 **S, 1234, D, 10**,

變更第 1~2 組電話號碼範例：(沒有設定密碼時)

- 發送 **S, , S, 1, 新電話號碼**，給車機，車機會立即回復

ACK S 1 新電話號碼

- 發送 **S, , S, 2, 新電話號碼**，給車機，車機會立即回復

ACK S 2 新電話號碼

- 一般手機在建立簡訊訊息時，右下#字鍵為字母選擇鍵，左下*字鍵為符號選擇鍵，請選擇英文大寫/數字/,(逗號)建立。(或者請經銷商傳簡訊給你儲存)

- 發送 **S, , S, 1, 新電話號碼**，或 **S, , S, PA, 1234**，時包括 ,(逗號)

7. 產品規格

7.1 主機規格 尺寸 = 13cm x 10cm x 1.7cm

淨重 = 200g

7.2 GSM 規格

頻率範圍 = 雙頻 EGSM900/GSM1800(GSM Phase 2+)

傳輸功率：Class 4 (2W) / EGSM900

Class 1 (1W) / GSM1800

溫度範圍 = -20°C ~ 55°C (一般工作溫度)

-40°C ~ 85°C (一般儲存溫度)

消耗電流 = 2A (全功率峰對峰值)

25mA (待機狀態) 300mA (通話狀態)

7.3 GPS 規格

採用 SIRF star[□] 高感度接收晶片

接收衛星 = 20 顆

溫度範圍 = -40°C ~ 85°C (工作溫度)

-40°C ~ 90°C (儲存溫度)

輸入電壓 = 3.3Vdc 輸入電流 = 42mA

收訊靈敏度 = -159dBW minimum

數據更新 = 1 秒

開機第一次定位時間 =

1 秒 (熱開機)

35 秒 (暖開機 - 有全部數據時)

42 秒 (冷開機 - 只有初始位置、時間、年曆但無日曆數據時)

定位精度 = <2.5m RMS (愈多顆衛星定位愈準)

速率精度 = 0.05m/sec RMS

7.4 鋰電池規格

常規電壓 = 7.4V

電流容量 = 1800mA

截止電壓 = 5.5V

最大充電電壓 = 8.4V

工作溫度 = 0 °C ~ 45°C

儲存溫度 = -20°C ~ 60°C (1 個月)

-20°C ~ 45°C (3 個月)

-20°C ~ 25°C (12 個月)

最大充電電流 = 600mA-hr

8. 保固

8.1 期限：產品保固期為 12 個月。(自出貨日起算)

8.2 範圍：若操作/使用不當、拆封、外力/故意/人為破壞、或企圖更改設計/零件而導致損壞恕不保固。

9. 繼電器正觸發線轉換負觸發接法

