出國報告（出國類別：其他）

馬尼拉鄰區航管作業協調
出國報告書

服務機關：交通部民航局飛航服務總台

姓名職稱：曾玉梅 督導

李嘉玉 管制員

派赴國家：菲律賓（馬尼拉）

出國期間：96.8.27~96.8.31

報告日期：96.9.20

公務出國報告摘要

頁數：56 頁 含附件：是

報告名稱：赴菲律賓執行「馬尼拉鄰區航管作業協調」出國報告書

主辦機關：交通部民航局

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出國類別：其他

出國地區：菲律賓,馬尼拉

出國期間：中華民國九十六年八月二十七日至八月三十一日

報告日期：中華民國九十六年九月二十日

分類號/目：H2/航空

關鍵詞： LOA、RVSM、CVSM、RNP、FLAS、LSWD、CNS/ATM

內容摘要：台北飛航情報區處於航行量密集的東亞樞紐地帶，爲東南亞與東北亞地區往來的必經要道，空中交通非常繁忙，相鄰之馬尼拉飛航情報區位居我飛航情報區南緣，與我合作一向愉快，近年來由於中韓復航，取道台北過境至東南亞之航行量大增，再加上原本過境及台北起飛航機，使得 B348 與 N892 之業務蒸蒸日上，彼此往來更爲密切。職等此次奉派至馬尼拉協商航管作業，除了想瞭解其對於雙方協議書之看法爲何之外，同時也參訪馬尼拉區管中心，釐清平日作業時之疑問，瞭解馬尼拉 LSWD 辦法及實施時機、當不正常情況發生時，班務督導通報程序、探詢其對 BONEY 航機是否有其他直飛路徑，或能否尋求

一對馬尼拉、台北及那霸三方都可接受之簡化方法、及使用馬赫數管制，進行雷達交接，或請求雙千呎交管，對馬尼拉是否會造成太大困擾等..並且蒐集有關訓練、航管作業程序之資料，以爲我方之參考。

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壹、目的

台北飛航情報區處於航行量密集的東亞樞紐地帶，爲東南亞與東北亞地區往來的必經要道，空中交通非常繁忙。自 2004 年中韓復航後，大量的韓航（KOREAN AIRLINE）及韓亞航（ASIANA AIRLINE）取道台北飛航情報區，再經馬尼拉飛航情報區至菲律賓，新加坡，馬來西亞等地，加上其他原本過境及台北起飛航機，使得往 KABAM，POTIB 之交通日益繁忙。

馬尼拉飛航情報區位居我飛航情報區南緣，與我合作一向愉快，職等此次奉派至馬尼拉，討論議題及目的如下：

1.瞭解其對於雙方協議書之看法。

2.瞭解馬尼拉 LSWD 辦法及實施時機。

3.瞭解其當不正常情況發生時，班務督導通報程序。

4.探詢其對 BONEY 航機是否有其他直飛路徑，以解決一直以來，台北、那霸及馬尼拉三邊之困擾。

5.RVSM 空域內，B348 往南僅有 FL310、FL350 及 FL390 可使用，但過境航機繁多，造成每天早上 9:00 至 10:30，許多由台北起飛經 B591-B348 往 POTIB 出管航機，都在地面等待，可用空層略顯不足，職等想要瞭解，若頻頻運用馬赫數管制，進行雷達交接，或請求雙千呎交管，對馬尼拉是否會造成太大困擾。

同時參訪其相關作業單位，藉此交流，增進彼此了解，建立互信，並蒐集馬尼拉裝備、程序、訓練、班務人力等有關資料，學其長處，汲取優點，以爲我方之參考。

貳、人員及行程

一、人員：

本次赴馬尼拉區域管制中心協商航管作業及參訪航管作業單位人員爲

飛航服務總台花蓮近場管制台督導**曾玉梅**與台北區域管制中心管制員**李嘉玉**共兩員。

二、行程：

（一）第一日(96/8/27)：

上午於台灣桃園國際機場搭乘長榮航空 EVA271 班機，於中午抵達馬尼拉艾奎諾機場，自行搭車前往下榻飯店：BAYVIEW PARK HOTEL，隨後聯絡馬尼拉區管中心主任 Mr. Michael Mapanao，約定明日展開拜會協商行程。

（二）第二日(95/8/28)：

上午 9 點由下榻飯店出發，搭車前往馬尼拉區域管制中心，拜會馬尼拉區管中心主任 Mr. Michael Mapanao，致贈禮物並寒暄問好，針對雙方作業上之幾項議題展開討論，並由其引導參觀該中心飛航管制作業實況。約於下午 2 點鐘在餐廳聚餐，隨後至塔台參訪管制作業實況。

（三）第三日(95/8/29)：

上午 9 點由下榻飯店出發，搭車前往馬尼拉區域管制中心與 Mr. Michael Mapanao 會合，由其陪同參訪馬尼拉近場管制台管制作業實況，下午 3 點搭車返回下榻飯店休息。

（四）第四日(95/8/30)：

整理相關資料。

（五）第五日(95/8/31)：

於中午搭乘長榮航空 EVA272 班機返國，下午 3 點抵達台灣桃園國際機場，順利完成此行赴馬尼拉協商航管作業與參訪行程。

參、協調聯繫過程

台北方面提問：

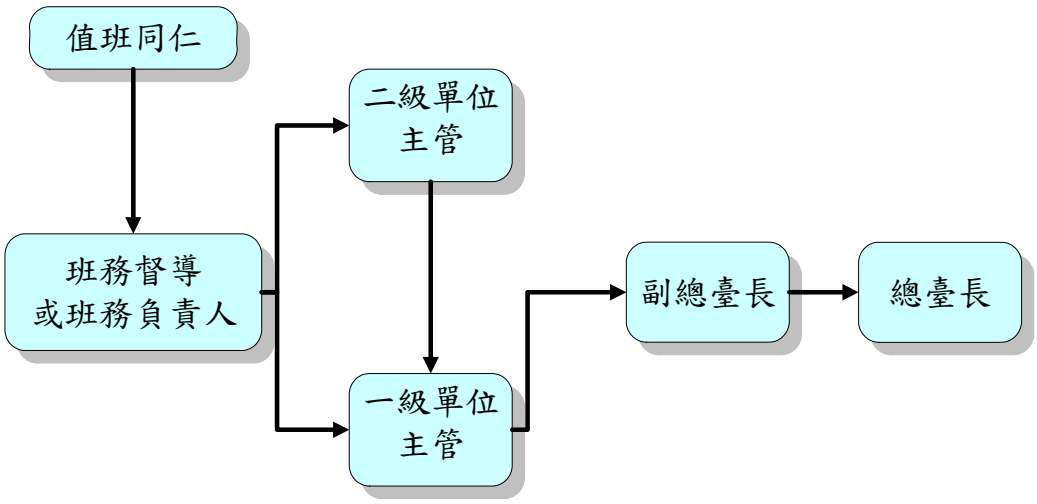
一、瞭解馬尼拉 LSWD 辦法及實施時機？

馬尼拉區管中心主任 Mr. Michael Mapanao 表示，只要連續數架航機報告，因天候影響，需請求超過航路外 20 浬之偏航，馬尼拉區管中心督導，即可請求鄰區配合實施 LSWD。方式則依航路分配不同之飛航空層，其與台北有關的爲 N892，可使用 FL320、FL360、FL400。（其餘航路詳見附件一）

二、瞭解當不正常情況發生時，包括：航機發生意外事故、劫機、機上爆炸物、航機不正常狀況、無線電或助航裝備嚴重受損、、等事項，班務督導通報程序爲何？

台北通報程序如下：

發生重大事件時，值班同仁立即通知班務督導或班務負責人及一、二級主管，應按通報之流程至副總臺長，由副總臺長通報總臺長及局長。



另疑似空中接近、航空器爆胎、跑道鋪泡沫、劫機、爆裂物、誤闖 R48 限航區、造成班機嚴重延誤等狀況亦應及時通報。行政院飛航安全委員會「民用航空器及公務航空器飛航事故調查作業處理規則」第二章第四條及第五條之規定，如有第五條所列之二十種狀況時摘錄（參考），飛航管制機構應於 24 小時之內通報飛航安全委員會值日官）

Michael 表示，他們的通報程序與我們相似，但沒有明令在類似通用手

冊的規定中，感覺台北的制度反而更完備，不過，因爲 ICAO 的要求，預定 2008 年前會將之納入相關的作業程序手冊內。

三、有關馬尼拉實施 RVSM 之現況如何？爲何需調整 N892 之使用空層爲 FL310、320、350、360、390、400？

爲了配合南中國海馬尼拉之鄰區實施新版 RVSM 航路空層分配，及避免其境內太多的 CONVERGING TRAFFIC，所以未來會調整 N892 爲以上使用空層。（詳見附件二）

四、爲何 BONEY 進管台北航機，電碼經常都與交管資料不同？

台北管制員反應，BONEY 進管的航機，經常於雷達幕上都顯示爲 SQUAWK 2000 或 06××，與馬尼拉交管資料不同，造成軍方詢問甚至緊張。

Mr. Michael Mapanao 表示，關於 R596 航機，馬尼拉區管中心於 TIDEL 點接獲奧克蘭管制中心之交管資料後，會輸入其系統中以利作業，然後得到一新電碼（即台北收到的電碼），旋即交管與台北。但因雷達涵蓋不足，所以該區域是作非雷達管制，且因無線電不佳，無法使用 VHF，只好委請陸空通信台(BDA)用 HF 監聽或呼叫，基本上管制員對 BONEY 航機是不管的，因爲叫不到也看不到，若 BDA 無法與航機構聯，自然就無法改電碼。

Mr. Michael Mapanao 並提到前陣子收到台北的提議，建議 TIDEL 直飛 ELMAS 直飛 BASCO 直飛 POTIB（詳見附件三），即把 BONEY 航機在馬尼拉飛航情報區引導到 POTIB 交管給台北，他不表贊成，理由如下：

（一）此飛航路徑較原來遠，不符經濟效應，飛行員容易抱怨。

（二）TIDEL 進管馬尼拉爲雙千，POTIB 進管台北爲單千，此區無線電不佳，他擔心執行轉換高度會有困難。

（三）馬尼拉要安排轉換後北上單千同高度之前後隔離，工作量增加。

我請教，若只是因爲系統作業的便利，而必須用新電碼，可否請馬尼拉

回搖奧克蘭，在 TIDEL 點就先請飛行員改電碼呢？

Michael 表示，此條航路因牽涉到台北、馬尼拉和那霸三方空域及管制權責，多年來也都一直採用對等三方做 INFORMATION TRANSFER 的模式，改電碼固然可行，但因爲正值我們參訪得當兒，馬尼拉區管中心副主任 Mr. Enrico Salita 就正好在日本福崗參加 NEAT（NORTH EAST ASIA TRAFFIC MEETING），台北也有與會，BONEY 就是其中一項議題，解決的方向朝乾脆直接改其他定點航路，而不經過 TAIPEI FIR，屆時在多方協商下，或許可以討論出讓大家都覺得更公平，更便利的作業方式。

五、爲什麼馬尼拉區管中心有時會拒絕馬赫數管制或雷達交接？

Michael 表示，整個馬尼拉飛航情報區的雷達涵蓋約爲 65%，只能看到 POTIB 北面 15 到 20 浬，有時高度低於 FL330 時，還不見得看的到，更糟的是系統會突然當機考驗管制員，但若以環保、節能角度考量，他還是歡迎台北請求，或者安排過境的航機較高空層，落馬尼拉飛航情報區的較低空層，按當時航情協調，單雙皆可，馬尼拉會儘量配合，若不同意，多半是因系統不穩，管制員需作非雷達管制，要較保守所致。

馬尼拉方面提問：

一、爲何經常星期三晚上，台北都要求作流量管制？

我向 Michael 解釋，由於台北區管中心固定利用星期三夜間（每月至少一次），進行系統改版或測試，作業環境由原來的 ATCAS 轉爲 IBAS，雖然管制員平時都會熟習備用系統的指令，督導也會執行季考核，加強熟悉程度，但畢竟不是天天在接觸的東西，只好實施流管來疏解當晚湧入的航機。

Michael 很訝異台北的主要/備份系統竟然會不一樣，當初的規劃不夠有遠見，我雖心有戚戚焉，但也只能無奈回應應是預算的原因吧！馬尼拉

毗鄰之相關 FIR 多達 8 處：日本那霸、美國奧克蘭、馬來西亞亞庇、新加坡、胡志明、香港、台北和印尼 UJUNG PANDANG。其航路結構錯綜複雜，雷達涵蓋僅 65%，管制困難度與複雜度其實並不低，一旦台北要求流管，仍在地上的航機容易解決，頂多算準時間放行，但天上過境的可就麻煩了，因爲航機從四面八方匯流，他們必須或引導、或限速、或 HOLDING 來作出隔離，管制員之工作其實並不輕鬆。

我想起每逢夏季，香港幾乎天天要求台北作流管，管制員辛苦的景象，不過香港的原因是惡劣天氣，人力不可抗拒，所以也只能盡力配合；而今我們卻是因系統不同，作業實在吃力而要求鄰區流管，建議未來的航管計劃，主要/備份系統的建置要一致，才不會有轉換的困擾。

肆、參訪過程及見聞心得

一、十月五日下午由 Mr. Michael Mapanao 陪同參觀馬尼拉區管中心。該中心管制作業室約只有台北區管中心不到一半的面積，樓房也無挑高。整個飛航情報區以 MIA(Manila) VOR 爲中心，區分爲東、南、西、北部四席位，席位與席位之間一字排開且彼此相鄰，無怪乎經常都覺得與馬尼拉通話時，背景聲音較吵雜。

二、馬尼拉區管中心目前使用法國 EUROCAT 200 型系統，於 1995 年啓用，原本預計 2008 年汰換，但因菲律賓國家財經實力較弱，預算有限，Michael 悲觀的表示，新系統可能要延宕至 2012 年，老舊的設備產生的問題如下：

（一）系統記憶體太小，無法負擔日益成長之航行量。

（二）滑鼠老舊，原廠已不生產，無法汰換。

（三）無備份系統，一遇當機只能作非雷達管制，且經常一天會面臨 4 到 5 次系統幾分鐘的當機，管制員雖然無奈但對此情況已司空見慣，而且都練就一身好工夫，臨危不亂。

（四）訓練系統不同於線上作業系統，管制員必須熟悉二種使用方法，

不符效益。

三、席位人力配置

每席位配置一雷達管制席（RADAR MAN），一航路管制席（DECISION MAN），D 席同時身兼協調員之角色，我好奇若無協調員，忙碌時他們如何應付，Michael 表示，督導隨時可機動找人任航路管制助理席（ASSISTANT），協助處理有關資料的工作，例如輸入飛行計劃、輸入接交管資料、修改時間等…。

四、人力年輕

馬尼拉區管中心的管制員普遍都很年輕， Mr. Michael 一面向我們介紹時，一面抽問管制員年齡，不知他們是隨口說說或開玩笑，竟然多是二十幾歲上下，督導的平均年齡也約才三十歲而已，由於年輕，督導可隨時上手接替管制員，完全沒有適應不良的問題，且因爲經驗豐富，複雜的席位也難不倒他們，遇特殊狀況發生，督導是管制員最佳的諮詢對象。

五、待遇微薄，人才流失嚴重

Mr. Michael 表示，菲律賓的最低工資每月約一萬左右比索，管制員每月約可領二萬左右的薪資，因人力缺乏，幾乎每個月都超時排班，可是政府會拖欠加班費的發放，有時甚至長達半年之久，且還要繳 25%的稅，所以收入並不算豐厚，出走比例甚高。他們多半用技術移民方式，遠赴剛果、蘇丹、達卡、甚至伊拉克，督導還說，據她瞭解，伊拉克的管制薪資依區域分級，危險地區拿得較多，烽火戰地區一個月約有 8000 美金，同事彼此”吃好道相報”，要是敢賭一賭，會選擇跳槽，而其中又以男性管制員流動率爲高，將來若薪資結構還是維持如此的話，在招募新人時會優先提高女性錄取比例，因爲雖然女性有產假，育嬰等班務需求，但畢竟屬短期的問題，且多半會因要照顧家庭，不輕易更動單位，如此較能夠留住人力與人才。

六、8/28 日參觀塔台，席位配置爲督導席、資料席、地面管制席及機場管制

席， 該機場有兩條跑道，以 T 字行交叉，分別爲跑道 24/06 及 31/13，前者做爲儀器航機使用，後者則爲目視航機使用；參觀時正巧遇到 FINAL 五邊西側不遠處的樓房失火，直昇機來回穿梭協助滅火，好不忙碌。

七、8/29 日由督導 Ma. Theresa L. Olpindo 陪同參觀近場台，一樣也是門禁森嚴，在管制作業室門口，有聖母瑪利亞的像（區管中心也有，而且更大），菲律賓人 90%信奉天主教，我觀察到許多位管制員，進門前都上前祈禱，感覺好特別！

八、馬尼拉近場管制台提供近場管制空域內軍、民儀航航機雷達管制服務，因爲人力不足，現無協調員配置，由 D 席兼任，一人飾二角；分離場（負責地面至 7000 呎範圍）及到場（負責 7000 呎以上至 11000 呎範圍）二區。裝備爲 2002 年，日本 NEC 所免費提供，但督導表示，後續的維修、零件的汰換，就要收錢了！她舉例，一個滑鼠大概要價 300000 比索（約 210000 台幣），看清楚，是四個零喔，她張大嘴巴說，真的很貴！

九、督導席配置一套獨立監看系統，可 MONITOR 所有航情，若發現管制員不當的處置，有權隨時 ON KEY 做修正。

伍、建議

一、在我們出發前，就被曾去過的同事諄諄告誡，菲律賓的治安不好，兩個弱女子沒事別在外遊蕩，但無親身經歷，總覺得再差也不至於壞到哪去吧！兩天參訪之過程，雖然 Michael 都熱心的表示可以來飯店接送，但我們也不想一直麻煩他，所以都靠自己，馬尼拉治安真的不太好，爲什麼？因爲舉目所見，到處都是荷槍實彈的警察，飯店或銀行有配置也就罷了，怎麼連 7-11、麥當勞、星巴克裡頭都躲了個保全，天啊！我不過想買杯咖啡而已，那黑色的長槍，或在保全腰側，或在肩後，還真有點

嚇人！

再說到交通狀況，有點兒混亂，早上 8：00 到 11：00，都是尖峰，若與人有約，千萬早點出發，免的遲到就太失禮了，所幸我與玉梅都屬緊張小心型，皆早早出門。

8/29 日參觀完近場台，坐計程車回飯店途中，我們刻意提前下車，沿著 MANILA BAY 旁的 ROXAS BOULEVARD 散步回去，發生了一個小插曲，因爲走到大使館前時，發現飯店就在使館前方大馬路的正對面，當我們正思索應該往下走，過下個斑馬線，還是退回上一個斑馬線會比較近時，警察突然一個箭步衝上，當他知道我們意向後，笑笑的拿了個圓牌子，說時遲，那時快，他已站在馬路中央，高舉著 STOP，並示意我們快過，天啊！只見車子都停了下來，拜託！六線道呢，跑會喘ㄟ！我長這麼大，還第一次有人爲我開道，實在有點承受不起，在充滿感激與飄飄然之餘，才想到，隨便就可暫停行車，怪不得交通會這麼亂！

以上有關治安及交通，提供給將來要去的同仁參考。

二、菲律賓管制員在訓練中心結訓後，可按區管中心、近場台或塔台當時缺額來選擇想服務的單位，此後就永遠固定了。所以有人永遠就是塔台管制員，各單位之間大家平起平坐，期別老少都有，沒有什麼你大我小，誰好像應該聽誰的問題，且不會調動的好處是生涯規劃不被打亂，此設計之精神值得參考。

三、在與 Michael 督導討論的同時，一位即將跳槽到伊拉克的管制員加入了談話，他笑說：無法改變大環境，只好出走尋求另一片天。我不禁聯想，若干年後，大家就要配合新的航管計劃遷移到南/北管，本來在台北的，還可以硬著頭皮通勤，但那些花蓮、台東、台中的管制員，面臨到的可能是整個生涯規劃的改變，是否還要在現在工作地置產、是否將來要舉家遷移、是否轉任等等；未來在新舊轉換的過渡期，人力夠不夠、人力資源流失、值班數是否太高、作業系統與備份是否一致、交通是否能更

便利、備勤室、宿舍是否足夠、若實施三班制，是否有完善的配套等等、、這都是管制員非常關心的問題啊！

四、參觀馬尼拉區管中心時，與他們相談甚歡，菲律賓人個性開朗活潑，討論的過程氣氛融洽，讓我們獲得許多寶貴的經驗，由於 Michael 之前有負責訓練的業務（有關訓練資料詳見附件四），所以對此著墨甚多，舉凡 RVSM 實施、全區規劃成四個象限之管制方法與高度分配、空域設計等，他們在事前都投注大量精神、金錢及時間進行模擬訓練，Michael 表示，雖然經費拮据，但訓練的投資決不可打折，任何作業方式的重大改變，唯有藉反覆不斷的演練，才能讓管制員熟悉並有信心上陣，也可以預先發現問題，提早解決。

台北區管中心為解決北部席無線電擁塞，航行量太大，管制員不堪負荷之問題，已有分區規劃，過去以來都用自力救濟（即由協調員輪值，或合併他席而將人力運用於分區席位）之權宜方式來試作，建議將來人力充足時，上級能支持我們進行一段長時間的分區管制席位熟習，給人給錢，畢竟，想要馬兒好，當然要給馬兒吃吃草，當第一線努力維護飛航安全的同時，也衷心期待能獲得上級最有力實質的幫助！

五、現今全球暖化問題、環境污染、石油枯竭及能源危機等日趨嚴重，若能利用職務之便，在航情許可，工作量可負擔之餘，儘量運用馬赫數管制，採取雷達交接，讓航機得到好高度，為環保善盡地球公民的責任，也是美事一樁。RVSM 空域運用設計之本意，不也就是希望管制容量增加，管制作業更便利彈性嗎！提供給同仁參考。

陸、附件

一、 馬尼拉飛航情報區實施 LSWD 期間，各航路的使用飛航高度

二、 未來 N892 預劃交管高度

三、 BONEY 直飛路徑相關參考資料

四、 MANILA ACC ENROUTE RADAR CONTROL RATING PROGRAM

五、 馬尼拉區域管制中心／台北區域管制中心　工作協議書

六、 MANILA AREA CONTROL CENTER OPERATING PROCEDURES

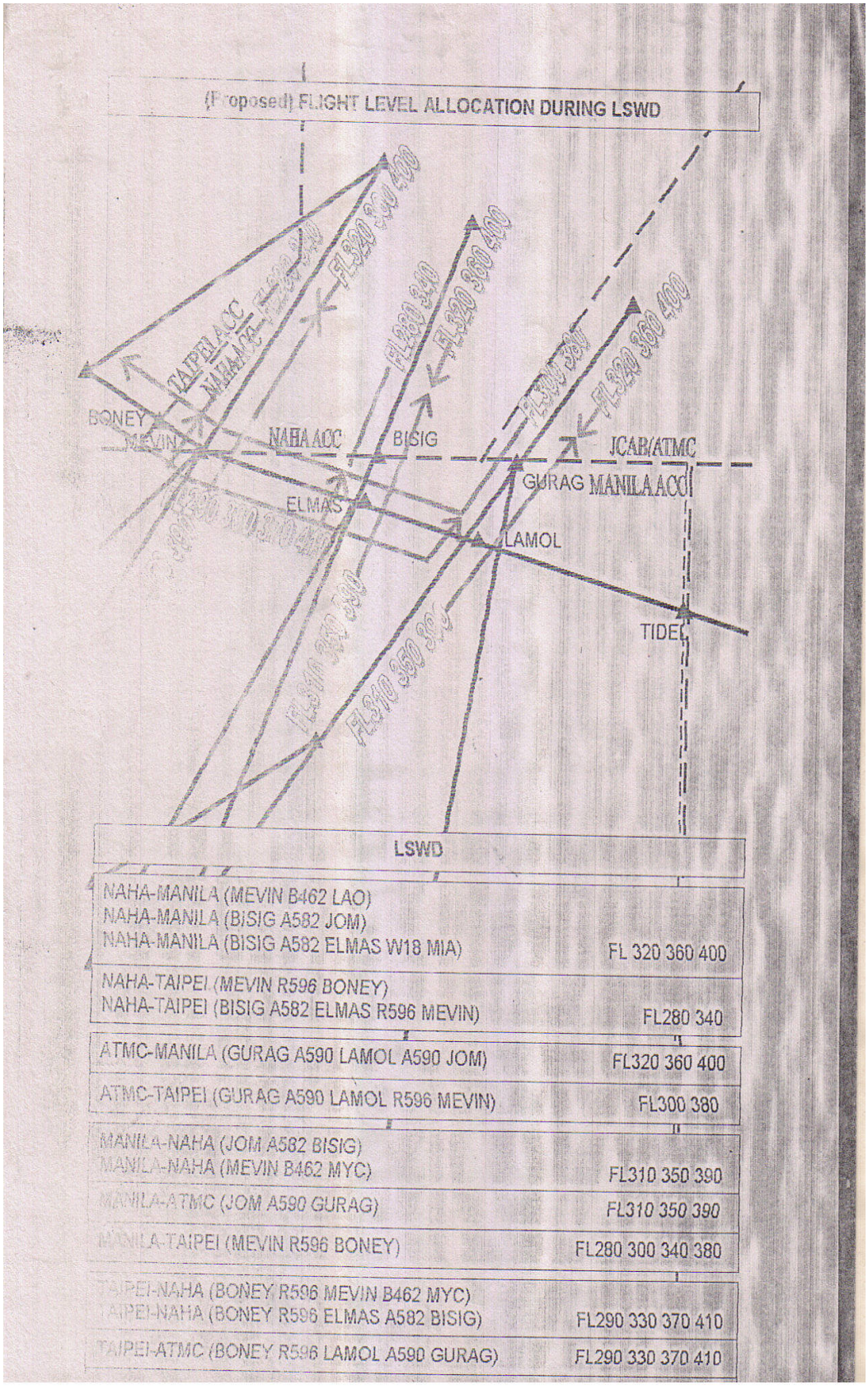
七、 ARRIVAL/DEPARTURE ROUTES FOR THE MANILA TMA

八、 MANILA APPROXIMATE COVERAGE OF VHF ANTENNAS

九、 MANILA OUTGOING RVSM FLIGHT LEVEL

十、 MANILA INCOMING RVSM FLIGHT LEVEL

附件一： 馬尼拉飛航情報區實施 LSWD 期間，各航路的使用飛航高度



LSWD	
NAHA-MANILA (MEVIN B462 LAO) NAHA-MANILA (BISIG A582 JOM) NAHA-MANILA (BISIG A582 ELMAS W18 MIA)	FL 320 360 400
NAHA-TAIPEI (MEVIN R596 BONEY) NAHA-TAIPEI (BISIG A582 ELMAS R596 MEVIN)	FL280 340
ATMC-MANILA (GURAG A590 LAMOL A590 JOM)	FL320 360 400
ATMC-TAIPEI (GURAG A590 LAMOL R596 MEVIN)	FL300 380
MANILA-NAHA (JOM A582 BISIG) MANILA-NAHA (MEVIN B462 MYC)	FL310 350 390
MANILA-ATMC (JOM A590 GURAG)	FL310 350 390
MANILA-TAIPEI (MEVIN R596 BONEY)	FL280 300 340 380
TAIPEI-NAHA (BONEY R596 MEVIN B462 MYC) TAIPEI-NAHA (BONEY R596 ELMAS A582 BISIG)	FL290 330 370 410
TAIPEI-ATMC (BONEY R596 LAMOL A590 GURAG)	FL290 330 370 410

附件二：未來 N892 預劃交管高度

Through examination into operational practices of each FIR, the new FLAS matrix table was agreed by the meeting as follows. This should be proposed to the ICAO RSG/3 meeting for adoption.

Flight Level Allocation	Airway and Direction of Flight											
	Taipei-Manila						Fukuoka-Manila					
	N892		B348		R596		B462		CAB-YURIX/ A582		A590	
		SW	NE	SW	SE	NW	NE	SW	NE	SW	NE	SW
410			410						410		410	
400		400					400			400		400
390		390	390				390		390		390	
380				380				380		380		380
370			370						370		370	
360		360					360			360		360
350		350	350				350		350		350	
340				340		340		340*		340*		340*
330			330						330		330	
320		320					320			320		320
310		310	310				310		310		310	
300				300				300		300		300
290			290**		290							

* Fukuoka ATMC and Naha ACC can assign when available.

** Only available for landing Taipei FIR.

8.9 The meeting discussed about the transition tasks with WP4-2 proposed by Manila ACC, and concluded as follows.

Route	Direction	Transit from	Transit to	Transition area	Responsibility of Transition
N892	SW	300 320 340 360 380 400	310 320 350 360 390 400	By KABAM	Taipei
L625 B348 POTIB	NE	310 320 350 360 390 400	290* 310 330 350 370 390 410	By POTIB	Manila

L625 MEVIN B462	NE	310 320 350 360 390 400	310 330 350 370 390 410	After MEVIN	Naha
N884 LBG-CAB-YURIX	NE	310 320 350 360 390 400	310 330 350 370 390 410	By Boundary	Manila
A582/A590 JOM M767	SW	300 320 360 380 400	310 320 350 360 390 400	After BISIG/GURAG	Manila
N884 A590 GURAG	NE	310 320 350 360 390 400	310 330 350 370 390 410	By GURAG	Manila

Proposed FLAS during Large Scale Weather Deviation (LSWD)
Manila ACC proposed the FLAS during LSWD. The single alternate FLs will ensure separation on the parallel routes and on the crossing tracks as follows. However, other FLs based on the semi-circular rule may be available subject to traffic of the receiving FIR. The meeting agreed as proposed by Manila ACC.

Flight Level Allocation (LSWD)	Parallel Airways Taipei-Manila				Parallel Airways Singapore-Manila				Crossing Airways Naha-Manila-Taipei			
	N892		L625		N884		M767		A582/B462 R596		A590 R596	
		SW	NE		NE			SW	E	W	E	W
410									410			
400		400						400				400
390			390		390						390	
380										380		
370									370			
360		360						360				360
350			350		350						350	
340										340		
330									330			
320		320						320				320
310			310		310						310	
300										300		
290									290			

附件三：BONEY 直飛路徑相關參考資料

Location of R596

2

Level Assignment of R596 (1)

- **Assignment of flight levels**
  - **East-bound traffic:**
    Odd flight levels up to FL410, then at intervals of 4000ft from FL450
  - **West-bound traffic:**
    Even flight levels up to FL400, then at intervals of 4000ft from FL430

Reroute of R596 3

Large Scale Weather Deviation

- **Flow management measures**
  - **Supervisors shall coordinate to regulate traffic flow in the event of traffic congestion caused by weather or other unforeseen circumstances.**
- **Level assignment**
  - **West-bound traffic: FL320, FL360, FL400**
  - **East-bound traffic : FL290, FL330, FL370**

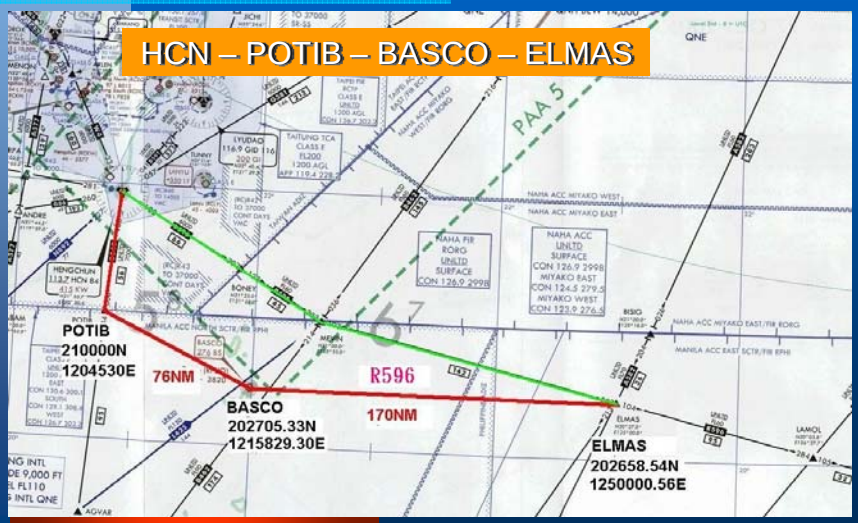
Taipei ACC Responsibility

- **For eastbound traffic on R596**
  - **Issue transfer of control message to Manila ACC 30 min before BONEY.**
  - **Issue transfer of information message to Naha ACC 30 min before BONEY.**
- **For eastbound traffic via BONEY then north off R596**
  - **Issue transfer of control message at BONEY to Naha ACC.**
  - **Issue transfer of information message at BONEY to Manila ACC.**

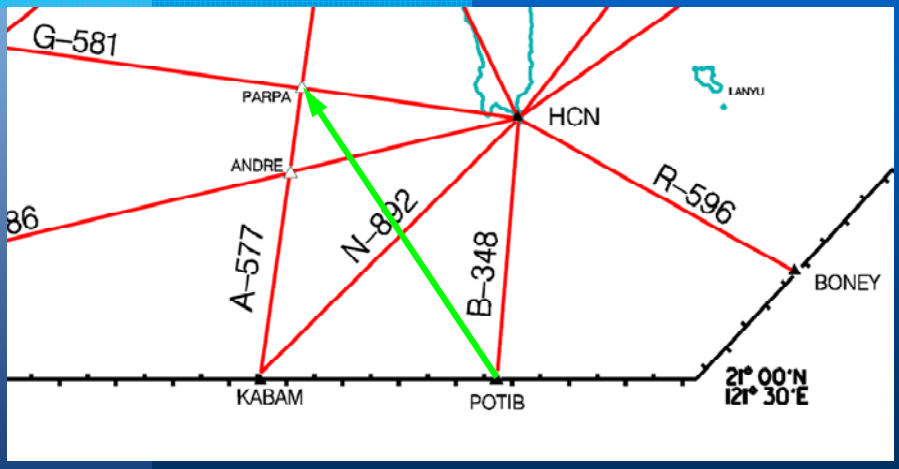
Manila ACC Responsibility

- Issue transfer of control message to Taipei ACC 30 min before BONEY.
- Issue transfer of information message to Naha ACC 30 min before MEVIN.

Suggested Reroute of R596



Benefit — Airline



Mutual Cooperation

- **Smooth Regional ATS operation is relied on close cooperation with neighboring FIRs. Some problems can't be solved by a lone FIR itself.**
- **Taipei is willing to adopt WPAC/SCS Flight Level Orientation Scheme with reroute of R596 at the same time.**


TULTO
BISIG
GURAG
TUNTO
KEITH
TIDEL
SKATE
MUPOB
KANDU
DILIS
ENDAX
TILLY
YELLO
WRNNR
ISGOG
TAGPI
BARAS
SADOK
OMGOX
PAKDO
MONPI
LUCKI
MENDE
KYWEE
TRITO
KERNE
MAKEO
BOONY
ASEDA
KALOK
MAKDA
LUNGO
SEE GUAM BLOW-UP
FOR AREA DETAIL
YAP
NAHA FIR/ACC MIYAKO EAST ROBC
OAKLAND OCEANIC FIR
KZAK/CTA KZOA
MANILA FIR RPHI

附件四：**MANILA** ACC ENROUTE RADAR CONTROL RATING PROGRAM

MANILA ACC
ENROUTE RADAR CONTROL RATING PROGRAM

I.	**THEORETICAL**	**(LECTURES / 5 days)**
	A. RADAR THEORY	½ day
	B. RADAR OPERATING PROCEDURES AND TECHNIQUES	3 days
	C. ENROUTE RADAR PHRASEOLOGIES	1 day
	D. ASSESSMENT	½ day
II.	**PRACTICAL TRAINING**	**(SIMULATOR / 21 days)**
	A. EQUIPMENT (RADAR SIMULATOR) FAMILIARIZATION	½ day
	C. PRELIMINARY RADAR VECTORING EXERCISES	10 days
	B. SIMULATED ENVIRONMENT EXERCISES	5 days
	C. SIMULATED CONTINGENCIES	5 days
	E. ASSESSMENT	½ day
III.	**ON-THE-JOB-TRAINING**	**(SECTOR EVALUATION / 5 days)**
	C. EQUIPMENT (MLA ACC RADAR) FAMILIARIZATION	½ day
	B. MLA ACC SECTOR EVALUATION WEST SECTOR NORTH SECTOR EAST SECTOR SOUTH SECTOR	4 days
	C. ASSESSMENT	½ day
IV.	**FINAL QUALIFICATION AND CERTIFICATION**	**(1 day)**
	A. CONFERMENT OF RADAR RATING	
	B. DEFERMENT OF RADAR RATING	

I. THEORETICAL (LECTURES)

A. RADAR THEORY
B. RADAR OPERATING PROCEDURES AND TECHNIQUES
C. ENROUTE RADAR PHRASEOLOGIES
D. ASSESSMENT

A. RADAR THEORY

1 Introduction to Radar
2 Primary Radar
3 Transmission and Reception of Radar Energy
4 Aerials
5 The Radar Equation and Radar Range
6 Choice of Wavelength
7 Display of Radar Information
8 Anti-Clutter Devices
9 Secondary Surveillance Radar
10 Radar Data and Display Processing
11 Technical Developments

B. RADAR SERVICES

1 Radar System Capabilities
2 Presentation of Radar Information
3 Communication
4 Provision of Radar Services
5 Use of SSR Transponders
6 General Radar Procedures
Performance Checks
Identification of Aircraft
Transfer of Radar Identification
Position Information
Radar Vectoring
Navigational Assistance
Interruption or Termination of Radar Service
Minimum Levels
Information Regarding Adverse Weather
Reporting of Significant Meteorological Information
7 Use of Radar in Air Traffic Control
Functions
Coordination of Traffic Under Radar and Non-Radar Control
Separation Application
Radar Separation Minima
Transfer of Radar Control
Speed Control
8 Emergencies, Hazards and Equipment Failure

9	Use of Radar in Approach Control Service	
10	Use of Radar in Aerodrome Control Service	
11	Use of Radar in Flight Information Service	

C.	**RADAR PHRASEOLOGIES**	
1	General Radar Phraseologies	
2	Radar in Approach Control Service	
3	Secondary Surveillance Radar Phraseologies	

D.	**ASSESSMENT**	
1	Radar Theory	
2	Radar Operating Procedures and Techniques	
3	Enroute Radar Phraseologies	

II.	**PRACTICAL TRAINING (SIMULATOR)**	
A.	EQUIPMENT (RADAR SIMULATOR) FAMILIARIZATION	
B.	PRELIMINARY RADAR VECTORING EXERCISES	
C.	SIMULATED ENVIRONMENT EXERCISES	
D.	SIMULATED CONTINGENCIES	
E.	ASSESSMENT	

A.	**EQUIPMENT (RADAR SIMULATOR) FAMILIARIZATION**	
1	Introduction / Overview	
2	Pilot and ATC Display	
3	Track Display Adjustment Commands	
4	CPDLC Operation	

B.	**PRELIMINARY RADAR VECTORING EXERCISES**	
1	Basic Identification & Termination	PRV1
2	Basic Vectoring (other tfc, tfc flow, wx, mea, etc)	PRV2
3	Basic Maneuvers	PRV3
4	Speed Restriction	PRV4
5	Same Tracks (same / dissimilar acft performance)	PRV5
6	Opposite Tracks	PRV6
7	Crossing Tracks (single tfc, multiple tfc)	PRV7
8	Successive Arrivals (overlapping, on trail, combination)	PRV8
9	Successive Departures (same / dissimilar acft performance)	PRV9
10	Multiple Arrivals and Departures	PRV10

C.	SIMULATED ENVIRONMENT EXERCISES	
1	West Sector / Midnight Shift	SEWM1
2	West Sector / Dayshift	SEWD2
3	West Sector / Evening Shift	SEWE3
4	North Sector / Midnight Shift	SENM4
5	North Sector / Dayshift	SEND5
6	North Sector / Evening Shift	SENE6
7	East Sector / Midnight Shift	SEEM7
8	East Sector / Dayshift	SEED8
9	East Sector / Evening Shift	SEEE9
10	South Sector / Midnight Shift	SESM10
11	South Sector / Dayshift	SESD11
12	South Sector / Evening Shift	SESE12

D.	SIMULATED CONTINGENCIES	
1	Emergency Procedures	SC11
2	Air-Ground Communications Failure	SC21
3	Assistance To VFR Flights	SC31
4	In-Flight Contingencies	SC4
	Strayed Or Unidentified Aircraft	SC41
	Interception Of Civil Aircraft	SC42
	Fuel Dumping	SC43
	Descents By Supersonic Aircraft	SC44
5	ATC Contingencies	SC5
	Radio Communication Contingencies	SC51
	Emergency Separation	SC52
	Short Term Conflict Alert (STCA) Procedures	SC53
	Airborne Collision Avoidance Systems (ACAS)	SC54
	Minimum Safe Altitude Warning (MWAS) Procedures	SC55
	Change Of Radiotelephony Callsign For Aircraft	SC56
6	Holding Procedures	SC61

E. ASSESSMENT FORM

MLA ACC RADAR RATING ASSESSMENT FORM					
ATCO	Exercise No.	1	2	3	4
	Date / Time				
Examiner	Sector				
	Peak Traffic Count				
Facility	Traffic Complexity				
A. SEPARATION					
1. Separation is not assured					
B. CONTROL JUDGMENT					
2. Awareness is not maintained					
3. Poor control judgment is applied					
4. Control actions are incorrectly planned					
C. TRAFFIC MANAGEMENT					
5. Positive control of situation is not provided					
6. Prompt action to correct errors is not taken					
7. Sector overload not prevented when possible					
8. Aircraft Identity is not maintained					
9. Board management is not maintained					
D. OPERATING METHODS AND PROCEDURES					
10. Flight Strip postings are incomplete or incorrect					
11. Clearance delivery incorrect/incomplete/untimely					
12. Letters of Agreement not adhered to					
13. Necessary traffic advisories are not provided					
14. Navigational assistance is not provided					
15. Hand-Off procedures are incorrectly performed					
E. COORDINATION AND COMMUNICATION					
16. Professional manner is not maintained					
17. Coordination is not thorough					
18. Communication is unclear, not concise					
F. PHRASEOLOGY					
19. Standard phraseology is not adhered to					
20. Uses poor quality voice					
21.Speech rate is incorrect					
22.Makes unnecessary transmissions					
G. EQUIPMENT					
23. Equipment status information is not maintained					
24. Computer entries are incorrect					
25. Adjustment of control display is incorrect					
26. Equipment capabilities not fully utilized/understood					
27.Radar changeover is incorrectly performed					
Total Deficiency					
Traffic Complexity : R-Routine, O-Occasionally Difficult, M-Mostly Difficult, V-Very Difficult					

III. ON-THE-JOB-TRAINING (SECTOR EVALUATION)

A. EQUIPMENT (MLA ACC RADAR) FAMILIARIZATION

B. MLA ACC SECTOR EVALUATION
- WEST SECTOR
- NORTH SECTOR
- EAST SECTOR
- SOUTH SECTOR

C. ASSESSMENT

A. EQUIPMENT (MLA ACC RADAR) FAMILIARIZATION

1. Radar Controller Position
2. Manual Controller Position
3. Flight Data Position
4. Operational Supervisor Position
5. Voice Communications Control System

B. MLA ACC SECTOR EVALUATION

1. West Sector
2. North Sector
3. East Sector
4. South Sector

C. ASSESSMENT

IV. FINAL QUALIFICATION AND CERTIFICATION (ORAL / WRITTEN EXAMINATION)

A. CONFERMENT OF RADAR RATING

B. DEFERMENT OF RADAR RATING

附件五：馬尼拉區域管制中心／台北區域管制中心　工作協議書

2.6　　馬尼拉區域管制中心／台北區域管制中心　工作協議書

LETTER OF AGREEMENT

Between

MANILA ACC AND TAIPEI ACC

Effective Date:　0000UTC March 16, 2006)

中華民國 95 年 3 月 3 日管制字第 09500060600 號函

1　PURPOSE:　To detail standard operating and coordinating procedures between　the Manila ACC and the Taipei ACC.

2　SCOPE:　Coordination and operations procedure detailed in this Letter of Agreement apply only to operations conducted by the Area Control Centers, when such operations will affect both Flight Information Regions.

3　CANCELLATION: This Letter of Agreement cancels the Manila ACC and Taipei ACC Letter of Agreement dated 21 February 2002.

4　PROCEDURES:　Separation standards, coordination and operations procedures shall be in accordance with the current edition of ICAO DOC PANS/RAC 4444, and other pertinent ICAO documents, except as herein noted in the LOA.

5　SEPARATION STANDARDS:

5.1　For aircraft maintaining levels at or above FL250, and whose destination is within the Manila or Taipei FIR:　Ten (10) minutes longitudinal separation between aircraft.

5.2　Radar Separation: The minimum longitudinal radar separation between aircraft, either one or both aircraft have to terminate within Manila or Taipei FIR, shall be Forty (40) nm or its equivalent in minutes.

5.3 For aircraft transiting airway R596, regardless of destination: Fifteen (15) minutes longitudinal separation between aircraft

5.4 For all other aircraft: Fifteen (15) minutes longitudinal separation between aircraft, or ten (10) minutes using Mach Number Technique.

5.4.1 Mach Number Technique

5.4.1.1 When the leading aircraft is faster than the following aircraft, the minimum longitudinal time separation at the common FIR boundary is defined in the following table:

Difference in Mach Number	**Separation (in minutes) required at the Transfer of Control Point**
0	10
0.02	9
0.03	8
0.04	7
0.05	6
0.06	5

5.4.1.2 When the following aircraft is faster than the leading aircraft, the minimum longitudinal time separation at the common FIR boundary is defined in the following table:

Difference in Mach Number	**Separation (in minutes) required at the Transfer of Control Point**
0.01	12
0.02	14
0.03	16
0.04	18
0.05	20
And so on	(multiply difference by factor of 2 + 10 minutes)

For example, assigning the lead aircraft to maintain Mach 0.84 and assigning the following aircraft to maintain M0.87 requires 16 minutes longitudinal separation at the transfer of control point.

5.5 The transferring ACC shall ensure that adequate separation exists between aircraft before such aircraft reach the transfer point, and that such separation is constant/continuous or increasing, except as specified in 5.4.1.2 above.

6 FLIGHT LEVEL ASSIGNMENT

6.1 Assignment of flight levels shall be as follows:

Rute	Assignment of Flight Levels	Direction
B348	FL 270, 290, 330, 370, 410	Manila FIR to Taipei FIR
	FL 260, 280, 310, 350, 390	Taipei FIR to Manila FIR
R596	FL260, 280, 310, 350, 390	Manila FIR to Taipei FIR
	FL 270, 290, 330, 370, 410	Taipei FIR to Manila FIR
N892	FL 300, 320,340, 360, 380,400	Taipei FIR to Manila FIR unidirectional (southbound RNAV/RNP 10 route)
Note: Assignment of other flight levels not indicated above shall be in acocordance with ICAO Annex 2 Appendix 3 b).		

6.2 Other flight levels may be requested upon transfer if estimates.

6.3 Aircraft that are non RNP-10 compliant shall be cleared below FL290 (inclusive) in accordance with ICAO Annex 2 Appendix 3 b).

6.4 In case of adverse weather i.e., typhoon, or RVSM suspension, the affected ACC upon declaring that it is under contingency situation, shall coordinate with adjacent ACC the altitude assignment.

7 TRANSFER OF CONTROL:

7.1 Transfer of control shall be effected on established airway at the common FIR boundaries, except traffic on R596 where the provision of ATC service along and including the southern airspace off the said airway within the NAHA FIR has been delegated to the MANILA ACC, in which case, the transfer shall be over BONEY.

7.2 Transfer of control points (except on R596) are as follows:

Route	**Transfer Points**
N892	KABAM (N2100.0, E11952.8)
B348	POTIB (N2100.0, E 12045.5)
R596	BONEY

7.3 In the event communications cannot be established within five (5) minutes of the ATC estimate, the receiving ACC must inform the transferring ACC.

8 COORDINATION PROCEDURES:

8.1 Transfer of control coordination shall be accomplished at least thirty (30) minutes prior to the time that aircraft is estimated to cross the FIR boundary.

8.2 Transfer of control coordination for departing aircraft not able to comply with the thirty-minute requirement shall be accomplished as soon as possible for approval of the receiving ACC.

8.3 Revision to FIR boundary estimates shall be forwarded if the revised estimate differs by more than three (3) minutes.

8.4 Flight plan changes for aircraft within thirty minutes of the FIR boundary shall not be issued without prior approval of the receiving ACC.

8.5 In the event a flight plan has not been received at the time transfer of control is initiated, an abbreviated flight plan may be passed by the

transferring ACC, and a complete flight plan be transmitted via AFTN to the receiving ACC prior to the flight crossing the FIR boundary. The abbreviated flight plan shall contain:

a) Aircraft Identification (call sign)
b) Aircraft Type (number of aircraft, if more than one)
c) True Airspeed (Mach Number, if requested)
d) Point of Departure and Destination
e) Route of Flight
f) FIR crossing position and estimated time
g) Flight level
h) SSR Code / Miscellaneous / pertinent information

8.6 For identification and integration into prevailing traffic, aircraft entering Taipei/Manila FIR along N892 and B348, shall establish communication with Taipei/Manila ACC before reaching KABAM and POTIB respectively.

9 COMMUNICATIONS:

9.1 The means of inter-facility coordination are listed as follows in the order of preference.

a) direct voice circuit or hotline
b) IDD telephone:
Manila ACC IDD tel. – (632)-7599643 / (632)-8799180 / 8799181 / 8799182
Taipei ACC IDD tel. – (886) 2-27333844 / (886)- 2-27363298
c) AFTN:
Manila ACC - RPHIZRZX
Taipei ACC - RCTPZRZX

9.2 When the voice circuits resume normal operation, and an aircraft which is being transferred is within the respective FIR, a previous transfer of control message which was made via the AFTN must be re-transmitted on the voice circuit for confirmation.

10 RADAR PROCEDURES:

10.1 Radar procedures maybe applied to all air traffic entering via KABAM and POTIB, on conditions that both Manila and Taipei long- range radars

covering the extent of ATS routes N892/B348 between Manila and Taipei, overlapping in coverage at KABAM and POTIB, are fully operational; and the Manila-Taipei speech circuits is also operational.

10.2 Hand-off:

10.2.1 Transfer of radar identity shall be accomplished before the aircraft enters the receiving ACC's airspace. Radar hand-off shall be made to the maximum extent practicable. (see Attachment 1)

10.2.2 Hand-off information shall be provided in the following order:

d) Aircraft position relative to the Transfer of Control Point (TCP)
e) Aircraft Identification/Callsign
f) Flight Level
g) Any other pertinent information

10.2.3 The transferring ACC shall:

10.2.3.1 Ensure that potential conflicts are resolved prior to transferring communications. To the extent possible, transfer communications when the hand-off has been accepted.

10.2.3.2 Consider that the target being transferred as identified on the receiving ACC's display when the latter acknowledges the hand-off verbally.

10.2.4 The receiving ACC shall:

10.2.4.1 Ensure that the target position corresponds with the position given by the transferring ACC before accepting the hand-off.

10.2.4.2 Obtain the transferring ACC's approval before making any changes to an aircraft's flight path, flight level, etc. after the hand-off had been accepted.

10.3 Point-out:

10.3.1 Transfer of radar identity of an aircraft to another controller if the aircraft will or may enter the airspace, or is within 10 nm of the FIR boundary, and radio communications will not be transferred.

10.3.2 Point-out information shall be provided in the following order:

h) Position of point-out aircraft
i) SSR code
j) Direction of flight
k) Any other pertinent information

10.3.3 The ACC initiating a point-out shall;

10.3.3.1 Obtain approval before permitting an aircraft to enter the receiving ACC's airspace.

10.3.3.2 Obtain the receiving ACC's approval prior to making any changes to an aircraft's flight path, flight level, etc., after the point-out had been approved.

10.3.3.3 Comply with the restrictions issued by the receiving ACC unless otherwise coordinated.

10.3.4 The receiving ACC shall:

10.3.4.1 Ensure that the target position corresponds with the position given prior to approving a point-out;

10.3.4.2 Be responsible for the separation between point-out aircraft and other aircraft within its area of jurisdiction.

10.4 RADAR FAILURE/LIMITATION:

10.4.1 Each facility shall advise the other of known navigational and radar outages or other limitations that may affect the air traffic control system.

10.4.2 In the event where radar services are not available due to radar outages, procedural type of separation shall apply.

11 SEARCH AND RESCUE: To the extent imparted authority will allow, both parties to this agreement shall permit the conduct of Search and Rescue operation within FIR boundary areas, in accordance with ICAO international Standards and Recommended Practices, as authorized in ICAO ANNEX 12 “Search and Rescue”.

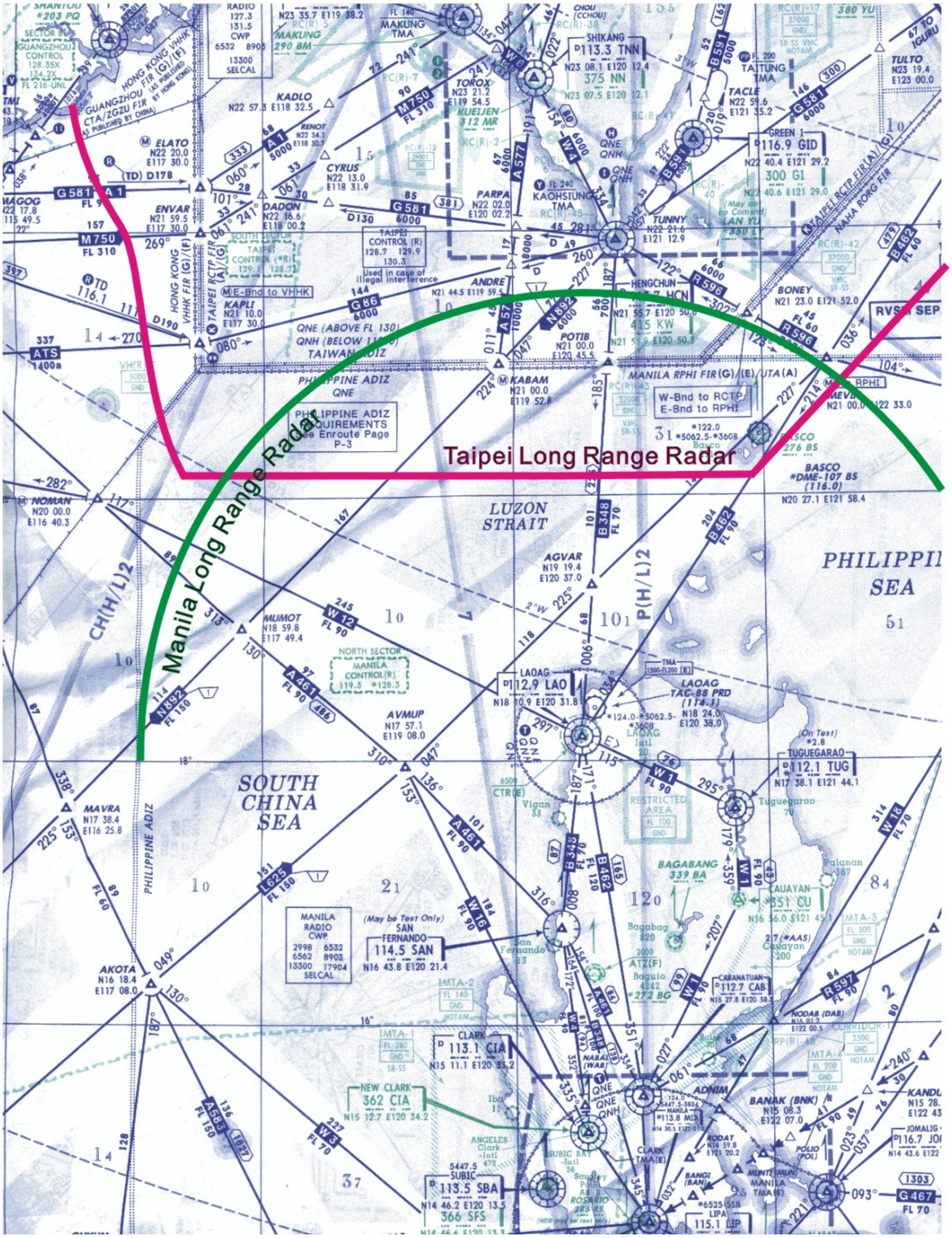
12 MODIFICATIONS:

12.1 With prior coordination, facilities may agree to modify provisions of this LOA, on a time-to-time basis, and for a specified period.

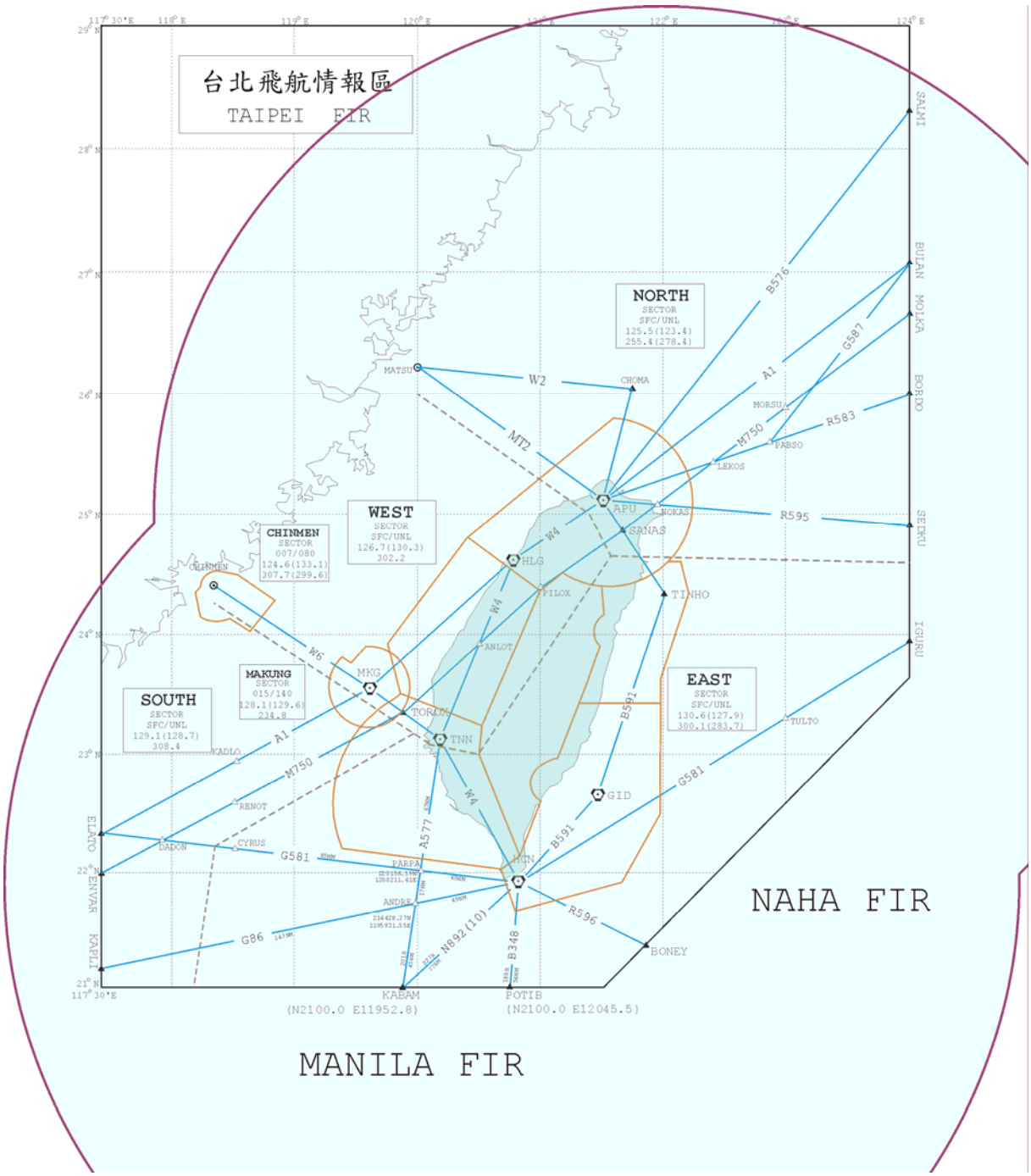
12.2 ATS representative shall plan to meet annually to review this Letter of Agreement and make necessary modifications.

Mr. ANDY CHEN	Mr. MICHAEL E. MAPANAO
Chief, Taipei ACC	Chief, Manila ACC
Date: 16 MAR 2006	Date: 16 MAR 2006

Attachment
Manila / Taipei Long Range Radar Coverage



ATTACHMENT 1B – TAIPEI FIR LONG RANGE RADAR COVERAGE



2.6a 馬尼拉區域管制中心／台北區域管制中心 有關縮減垂直高度隔離（RVSM）補充工作協議書

Supplementary Letter of Agreement Reduced Vertical Separation Minimum Between Manila and Taipei ACCs

中華民國 91 年 10 月 18 日航管一字第 09100301782 號函

1. General

1.1 Scope

1.1.1 These procedures are supplemental to the Letter of Agreement between Manila Area Control Center and Taipei Area Control Center dated 31 October 2002, and are intended to be used for the implementation of Reduced Vertical Separation Minimum (RVSM) beginning 31 October 2002.

1.2 Purpose

1.2.1 To detail procedures for RVSM implementation between the Manila and Taipei ACCs with respect to aircraft operating on routes within the Manila and Taipei Flight Information Regions.

1.3 RVSM Airspace

1.3.1 Reduced Vertical Separation Minimum may be applied in designated RVSM airspace, between FL290 and FL410 inclusive.

1.4 Effective Date

1.4.1 This Supplementary LOA shall become effective on 31 October at 1930 UTC.

2. Procedures

2.1 Assignment of flight levels shall be as follows:

Route	Flight Levels Assignment	Direction
N892	FL300, FL320, FL340, FL360, FL380, FL400	Taipei FIR to Manila FIR
B348	FL270, FL290, FL330, FL370, FL410 etc.	Manila FIR to Taipei FIR
	FL260, FL280, FL310, FL350, FL390 etc.	Taipei FIR to Manila FIR
R596	FL260, FL280, FL310, FL350, FL390 etc.	Manila FIR to Taipei FIR
	FL270, FL290, FL330, FL370, FL410 etc.	Taipei FIR to Manila FIR
Note: Assignment of other flight levels not indicated above shall be in accordance with ICAO Annex 2 Appendix 3 b).		

2.2 A 1,000 feet vertical separation maybe applied between RVSM approved aircraft in RVSM designated airspace, between FL290 – FL410 inclusive.

2.3 Cruising levels that do not correlate to track, as described in 2.1, maybe assigned subject to prior coordination and agreement.

2.4 2,000 feet vertical separation shall be applied between non-RVSM approved aircraft and other aircraft operating within RVSM airspace.

2.5 Only RVSM approved aircraft will be cleared to operate in designated RVSM airspace, between FL290 to FL410 inclusive except:

2.5.1 State aircraft, ferry and maintenance non-RVSM flights will be cleared to operate within RVSM airspace after the operator has completed prior coordination in accordance with published procedures, and approval has been granted.

2.6 RVSM phraseologies specified in Attachment A shall be used with aircraft operating in designated RVSM airspace, and ATC communication relating to RVSM corrdinations between Manila and Taipei ACCs.

3. Coordination

3.1 The ACC where the flight originates shall be responsible for ensuring RVSM compliance of aircraft that will operate in RVSM airspace.

3.2 The first ACC that had granted approval to non-RVSM compliant aircraft to operate in RVSM airspace shall be the one to corrdinate with the adjacent ACC that said aircraft is “NON-RVSM APPROVED”

4. Procedures for Suspension of RVSM

4.1 The affected ACC shall provide notice of suspension of RVSM to the adjacent ACC as soon as possible.

4.2 Aircraft operating on the parallel one-way routes, i.e. N892 shall have proiorty in the assignment of flight level.

4.3 The assignment of flight level for aircraft operating on B348 and R596 shall be coordinated with the affected ACC.

5. Procedures for Large-Scale Weather Deviations (LSWD) on N892

5.1 Large-scale weather deviations shall be considered when there are at least 5 weather deviation requests of 10 nm or more within a 30-minute period.

5.2 The No-PDC level assignment for N892 shall be FL320, FL360 and FL400.

5.3 The ACC that declared that LSWD procedures is being activated shall:

5.3.1 Immediately inform the transferring ACC of said activation and issure a NOTAM to that effect.

5.3.2 Inform the transferring ACC when LSWD procedures is de-activated and normal altitude assignments resume.

6. Amendment

6.1 If a deviation from the procedures in this Supplementary LOA becomes necessary, the Duty Watch Supervisors may agree to put into effect temporary changes, provided that safety of flight is not compromised.

	Andy Chen
Chief, Manila ACC	Chief, Taipei ACC
Date: 02. OCT. 2002	Date: 23. SEP. 2002

Attachment A

Phraseology for Coordination Between ATC Units

Message	Phraseology
For a controller to ascertain the RVSM approval status of an aircraft:	(call sign) **CONFIRM RVSM APPROVED**
To verbally supplement an automated estimate message exchange which does not automatically transfer item 18 flight plan information.	**NEGATIVE RVSM or NAGATIVE RVSM STATE AIRCRAFT** [as applicable]
To verbally supplement estimate message of non-RVSM approved aircraft.	**NEGATIVE RVSM or NEGATIVE RVSM STATE AIRCRAFT** [as applicable]
To communicate the cause of a contingency relating to an aircraft that is unable to conduct RVSM operations due to severe turbulence or other severe weather-related phenomenon [or equipment failure, as applicable].	**UNABLE RVSM DUE TO TURBULENCE** [or **EQUIPMENT**, as applicable]

2.7 LETTER OF AGREEMENT

AMONG

MANILA AREA CONTROL CENTER

NAHA AREA CONTROL CENTER

TAIPEI AREA CONTROL CENTER

Effective: 1900 UTC, September 29, 2005

SUBJECT: COORDINATION AND CONTROL OF AIR TRAFFIC ON AND AROUND R596

1. PURPOSE:
   This Agreement establishes standard procedures for the coordination / control of air traffic on and around R596 and is supplementary to the Letters of Agreement of the respective Centers.

2. CANCELLATION:
   The Letter of Agreement on COORDINATION AND CONTROL OF AIR TRAFFIC ON AND AROUND R596 effective 31 October 2002 is cancelled.

3. BACKGROUND:
   These special coordination and control procedures are required for efficient ATC services and clarity in transfer of control / information procedures affected by;
   a. The proximity of R596 to the common boundaries of Manila, Naha and Taipei FIRs,
   b. The unclear responsibilities for flights around the FIR boundaries.
   c. Reduced Vertical Separation Minimum (RVSM) is implemented between FL290 and FL410 inclusive in Manila, Naha and Taipei FIRs.

4. PROCEDURES:
   a. Assignment of flight levels shall be as follows;

(1) For east-bound traffic: Odd flight levels up to and including FL410, then odd

flight levels at intervals of 4,000ft beginning with FL450.

(2) For west-bound traffic: even flight levels up to and including FL400, then odd flight levels at intervals of 4,000ft beginning with FL430.

b. RVSM compliant aircraft will be cleared to operate in the RVSM airspace.

c. RVSM non-compliant aircraft will be cleared to operate in the RVSM airspace only in the following situations:

(1) The aircraft is being initially delivered to the State of Registry or Operator;

(2) The aircraft was formerly RVSM approved but has experienced an equipment failure and is being flown to a maintenance facility for repair in order to meet RVSM requirement and/or obtain approval;

(3) The aircraft is transporting a spare engine mounted under the wing;

(4) The aircraft is being utilized for mercy or humanitarian purposes; or

(5) State aircraft (those aircraft used in military, customs and police services shall be deemed as state aircraft).

d. 2,000ft vertical separation shall be applied to non-RVSM approved aircraft operating in the RVSM airspace.

e. Whenever aircraft report of greater than moderate turbulence, the affected ACC may coordinate with the adjacent ACC concerning temporarily suspending the use of RVSM.

5. CONTINGENCY PROCEDURES:

a. Under typhoon condition, the affected ACC shall coordinate the suspension of RVSM with the adjacent ACC in advance. Whenever suspension of RVSM is de- clared by the affected ACC, contingency flight levels should be assigned as follows;

For west-bound traffic: FL280, 340, 360

For east-bound traffic : FL290, 310, 390

b. Large Scale Weather Deviation:

(1) The watch supervisors of the ACC's concerned shall coordinate appropriate flow management measures to regulate traffic flow in the event of traffic congestion caused by weather or any other unforeseen circumstances.

(2) Flight level assignment for flow control measures should be as follows;

For west-bound traffic: FL320 FL360 FL400

For east-bound traffic : FL290 FL330 FL370

c. Points of contact (POCs) for the contingency procedures are entered on the Attachment.

6. RESPONSIBILITIES:

a. Naha ACC shall;

(1) Relinquish control of traffic along R596 and south of R596 between BONEY and MEVIN to Manila ACC except traffic via BONEY to the northern airspace off R596.

(2) For westbound traffic entering Taipei FIR via BONEY from the northern airspace off R596,

(a) Issue transfer of control message at BONEY to Taipei ACC at least 30
minutes prior to BONEY estimate.

(b) Issue transfer of information message at BONEY to Manila ACC at least 30 minutes prior to BONEY estimate.

(3) For westbound traffic via MEVIN – 21N – POTIB – KABAM N892,

(a) Issue transfer of control message at MEVIN to Manila ACC at least 30 minutes prior to MEVIN estimate.

(b) Issue transfer of information message at POTIB to Taipei ACC at least 30 minutes prior to MEVIN estimate.

b. Taipei ACC shall;

(1) For eastbound traffic on R596,

(a) Issue transfer of control message at BONEY to Manila ACC at least 30 minutes prior to BONEY estimate, or for flight of less than 30 minutes as soon as possible.

(b) Issue transfer of information message at BONEY to Naha ACC at least 30 minutes prior to BONEY estimate, or for flight of less than 30 minutes as soon as possible.

(2) For eastbound traffic enter Naha FIR via BONEY then northern airspace off R596,

(a) Issue transfer of control message at BONEY to Naha ACC at least 30 minutes prior to BONEY estimate, or for flight of less than 30 minutes as soon as possible.

(b) Issue transfer of information message at BONEY to Manila ACC at least 30 minutes prior to BONEY estimate, or for

flight of less than 30 minutes as soon as possible.

c. Manila ACC shall;

(1) Issue transfer of control message at BONEY to Taipei ACC at least 30 minutes prior to BONEY estimate.

(2) Issue transfer of information message at MEVIN and BONEY to Naha ACC at least 30 minutes prior to MEVIN estimate.

d. Revisions on MEVIN/BONEY/POTIB estimates shall be forwarded to the affected ACC if the variation is greater than three (3) minutes.

7. DEVIATIONS:

Temporary deviations from these procedures may only be made with prior coordination between Watch Supervisors concerned.

Arminda B. Mendador	Nobuyuki Kondo	Andy Chien
Chief	Director	Chief
Manila Area Control Center	Naha Area Control Center	Taipei Area Control Center

Attachment

Points of contact for the contingency procedures and Commercial phone numbers in case of the failure of direct speech circuits

1. POCs for the contingency procedures:

a. Manila ACC:
(1) Shift supervisors
(2) Deputy Chief (2300Z-0700Z, except Sat and Sun)
+63-2-879-9183

b. Naha ACC:
(1) Shift supervisors
(2) Airspace Manager (2330Z-0800Z, except Sat and Sun)
+81-98-858-7235

c. Taipei ACC:
(1) Shift supervisors
(2) Deputy Chief (0100Z-0900Z, except Sat and Sun)
+886-2-8733-3156

2. Commercial phone numbers in case of the failure of direct speech circuits:

a. Manila ACC:
Tel : +63-2-879-9180, 9181, 9182
Fax: +63-2-851-0639

b. Naha ACC:
Tel : +81-98-858-8206
Fax: +81-98-858-7427

c. Taipei ACC:

Tel : +886-2-8733-3165, +886-2-8733-3166

Fax: +886-2-2735-0331

附件六：MANILA AREA CONTROL CENTER OPERATING PROCEDURES

Operating Procedures

Manila ACC

1. Area of Jurisdiction :

1.1 The Manila FIR, with the exception of the Terminal Areas (1,500ft. up to and including 12,000ft) and the Mactan Sub-ACC's Area of Responsibility AOR (FL280 and below)

2. Responsibility Areas of Each Sector :

2.1 NORTH SECTOR :

2.1.1 Controls traffic departing Manila, Clark or Subic via CAB, DONNE and ANDRE;

2.1.2 Coordinates TRANSFERS/ESTIMATES to/from adjacent ACCs Hongkong, Taipei at FIR boundaries (FIRB) DOVAR then clockwise till MEVIN.

2.2 WEST SECTOR :

2.2.1 Controls traffic departing Manila, Clark or Subic via LUBANG and GOGOS;

2.2.2 Coordinates TRANSFERS/ESTIMATES to/from adjacent ACCs Hongkong, HoChi Minh, Singapore and Kota Kinabalu at FIRB LADER, then clockwise till MARDA.

2.3 SOUTH/EAST SECTORS COMBINED :

2.3.1 Controls traffic departing Manila via TMA boundaries ADNIM, then clockwise till VERDE;

2.3.2 Coordinates TRANSFERS/ESTIMATES to/from adjacent ACCs Naha, Oakland, Ujung Pandang and Kota Kinabalu via FIRB BISIG then clockwise till VIMAG;

2.3.3 Coordinates TRANSFERS/ESTIMATES to/from Mactan Sub-ACC for flights operating FL280 and below via SAJ, TAP, MIN, SAG, MBT, MAL, TAGPI, MAR, ZAM, COT, DAO.

3. Operating Positions :

3.1 Sector Controller (Radar Controller Position-RCP)

3.1.1 Traffic Management:

a) Controls all IFR traffic within his/her Area of Responsibility;

b) Functions both as Procedural and Radar Controller;

c) Establish and maintain positive aircraft identity during the entire time the aircraft is under control jurisdiction. Coordinate any restrictions or special instructions, and updating flight progress strips;

d) Provide altitude assignments. This includes maintaining knowledge of the altitude of all aircraft being controlled and seeing that all vertical separation requirements are adhered to. Coordination of altitude assignments and restrictions with other controllers or facilities is considered to be an extremely important part of this task;

e) Recognize saturation and employ procedures to prevent or alleviate this control problem. This includes observing presently controlled and forecast traffic and determining if an overload may occur, initiating control procedures to prevent or resolve overload, and informing the supervisor or coordinator of the actions taken or potential problems;

f) Sequence aircraft for orderly transfer of control. This includes ordering and positioning aircraft in a practical manner to ensure that unnecessary workloads are not placed on the next sector controller or next facility; using correct interphone and radio phraseology; and appropriate flight strip updating;

g) Recognize potential conflicts and employ appropriate procedures to resolve those situations; maintaining the "traffic picture" through use of flight progress strips and information received from other controllers;

h) Maintain board management. This includes properly sequencing the active and proposed flight strips, recognizing and correcting flight plan errors, ensuring that all necessary coordination for flight plan changes is accomplished, and that all unnecessary strips (deadwood) are rapidly removed from the bay.

3.2 Assistant Controller (Manual Controller Position MCP)

3.2.1 Operating Procedures and Equipment Handling:

a) Coordinates ATC clearances, TRANSFERS/ESTIMATES, Departures and other flight data to/from adjacent ACCs and other ATC Units;

b) Input above data in the ATC computer System for the activation of Flight Plans (FPLs);

c) Recording on flight progress strips, progress reports and control instructions;

d) Copy and relay information regarding aircraft under emergency conditions;

e) Adhere to Letters of Agreement and/or Office Directives;

f) Observe telephone courtesy in dealing with the public;

g) Detect and report equipment malfunction;

h) Service flight strip printer, and be able to load new thermal strip forms accordingly;

i) Advice maintenance of any equipment or system malfunction;

j) Operate facility equipment such as control panels, switches, headsets, handsets, etc. properly and correctly

3.3 *Flight Data Controller :*

3.3.1 Operating Procedures and Equipment Handling:

a) Relay position reports received from the AFTN to sectors concerned;

b) Compile all messages i.e. NOTAMS, ALTREVS and other messages addressed to Manila ACC for dissemination;

c) Process FPLs with erroneous ICAO FPL format so that they will be accepted by the FDP System and stored in the database;

d) Check route of flight entry so that there will be uniform generation of strips for FPLs with the same routing;

e) Compile used ACTIVE strips for storage (in case of incident reports or investigations)

f) Answer telephone calls, observe telephone courtesy in dealing with the public;

g) Provide assistance to MCPs i.e. CREATE FPLs, relay of messages or any other MCP functions as requested;

h) Detect and report equipment malfunction;

I) Advice maintenance of any equipment or system malfunction;

j) Operate facility equipment such as control panels, switches, headsets, handsets, etc. properly and correctly;

k) Ensure the cleanliness and orderliness of the facility.

3.4 *Supervisor Position (Operational Supervisor-OSUP)*

3.4.1 Shift Management:

a) Ensure proper briefing was made prior to take-over of shift;

b) Ensure that the shift complement is sufficient;

c) Schedule controllers to different control positions;

d) Recognize saturation and employ procedures to prevent or alleviate control problems;

e) Record on the operations log the activities or other events in the shift i.e. equipment failure, ALTREVs and other special flights or any other unusual events that may have occurred;

f) Ensure that controllers had logged in their signatures in the operation's log;

g) Prepare reports regarding filed complaints which occurred under their shift;

h) Assist in the training of non-rated controllers by assigning them to different control positions under the supervision of a rated controller;

3.4.2 Operating Procedures and Equipment Handling:

a) Responsible for modifying the following :

1) Sectorization

2) Information pages

3) STCA activation area

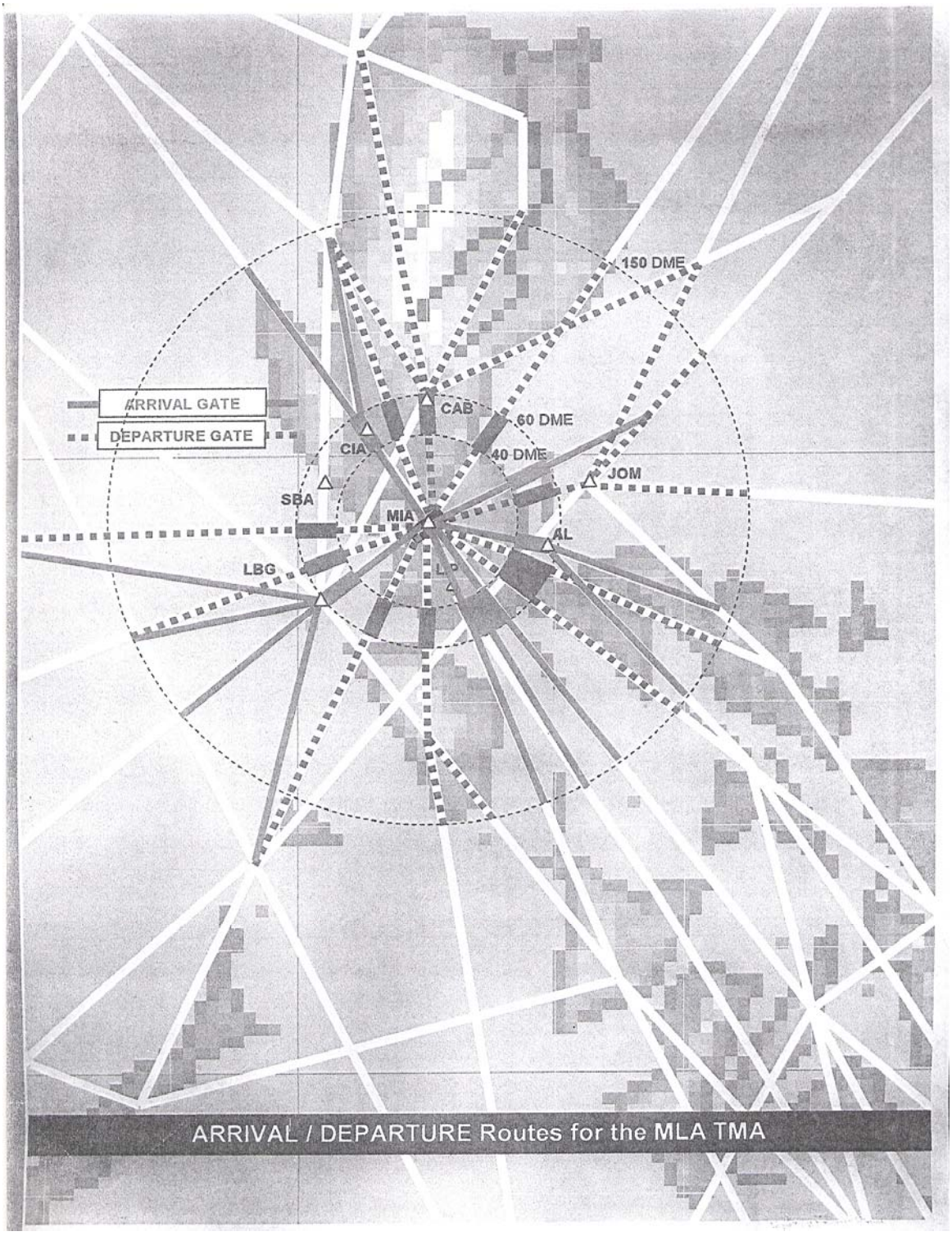
4) QNH & Transition layer values

b) Request for print-out of statistics or traffic count (daily or monthly);

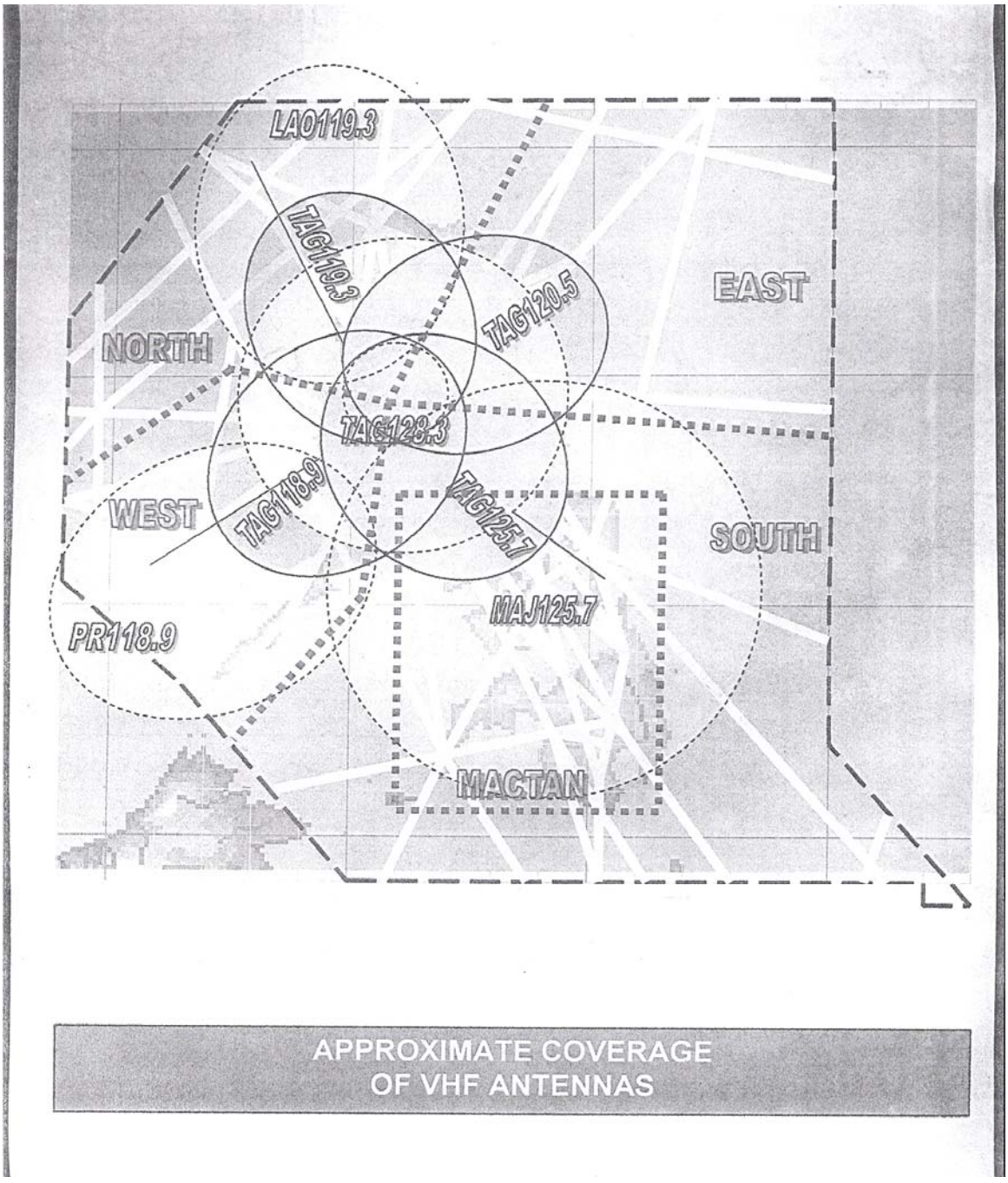
3.4.1 Responsible for modifying the following:

a) Sectorization
b) Information pages
c) STCA activation areas
d) QNH and Transition Layer values

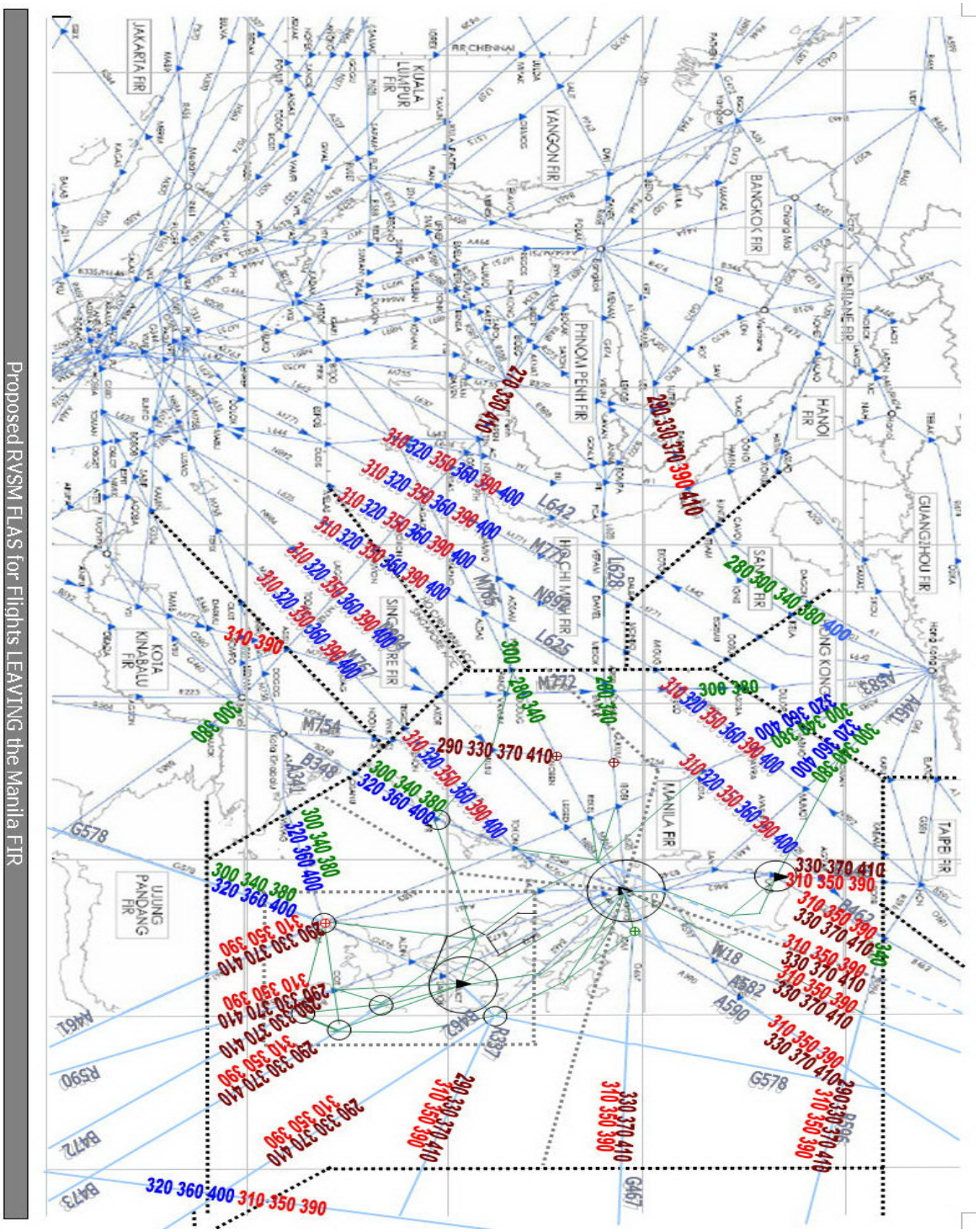
附件七：ARRIVAL/DEPARTURE ROUTES FOR THE MANILA TMA



附件八：MANILA APPROXIMATE COVERAGE OF VHF ANTENNAS



附件九：MANILA OUTGOING RVSM FLIGHT LEVEL



附件十：MANILA INCOMING RVSM FLIGHT LEVE