

BAB V PENUTUP

Kesimpulan

Pada perencanaan pengembangan jaringan komunikasi data wireless IEEE 802.11b atau yang biasa dikenal dengan istilah Wireless LAN di PT. Jakarta Internasional Container Terminal dapat disimpulkan sebagai berikut:

1. Untuk kalkulasi radio link antara master site dengan beberapa remote site. Power transmit yang diberikan sebesar 10 dBm karena jarak antara site tidak terlalu jauh, selain itu *obstacle* yang berupa tumpukan petikemas tidak mengganggu sistem komunikasi *line of sight* pada jaringan wireless. *Fade Margin* yang diperoleh dari perhitungan antara site LT C.402 – M.209 sebesar 26.29 dBm untuk *uplink* dan 25.657 dBm untuk *downlink*, dan antara M.209 – U.621(A) sebesar 30.04 dBm untuk *uplink* dan 30.04 dBm untuk *downlink*, sedangkan untuk site M.209 – U.621(B) sebesar 34,542 dBm untuk *uplink* dan 34,472 dBm untuk *downlink*, artinya sistem ini dapat berjalan dengan baik karena diatas standar sebesar 20 dBm.
2. Untuk kalkulasi radio link antara pemancar dengan beberapa penerima. Power transmit yang diberikan sebesar 50 mW (17 dBm), diperoleh dari hasil perhitungan untuk jarak Tx-Rx sejauh 25 meter RSI. sebesar -45,369 , untuk Tx-Rx sejauh 65 meter RSI. sebesar -52,369 . Level daya penerimaan mengalami penurunan sebesar 7 dBm untuk jarak antara 25 meter sampai 65 meter. Dan pada jarak 65 meter sampai dengan 105 meter

mengalami penurunan daya sebesar 4 dBm. Sehingga penurunan daya tidak linier terhadap jarak.



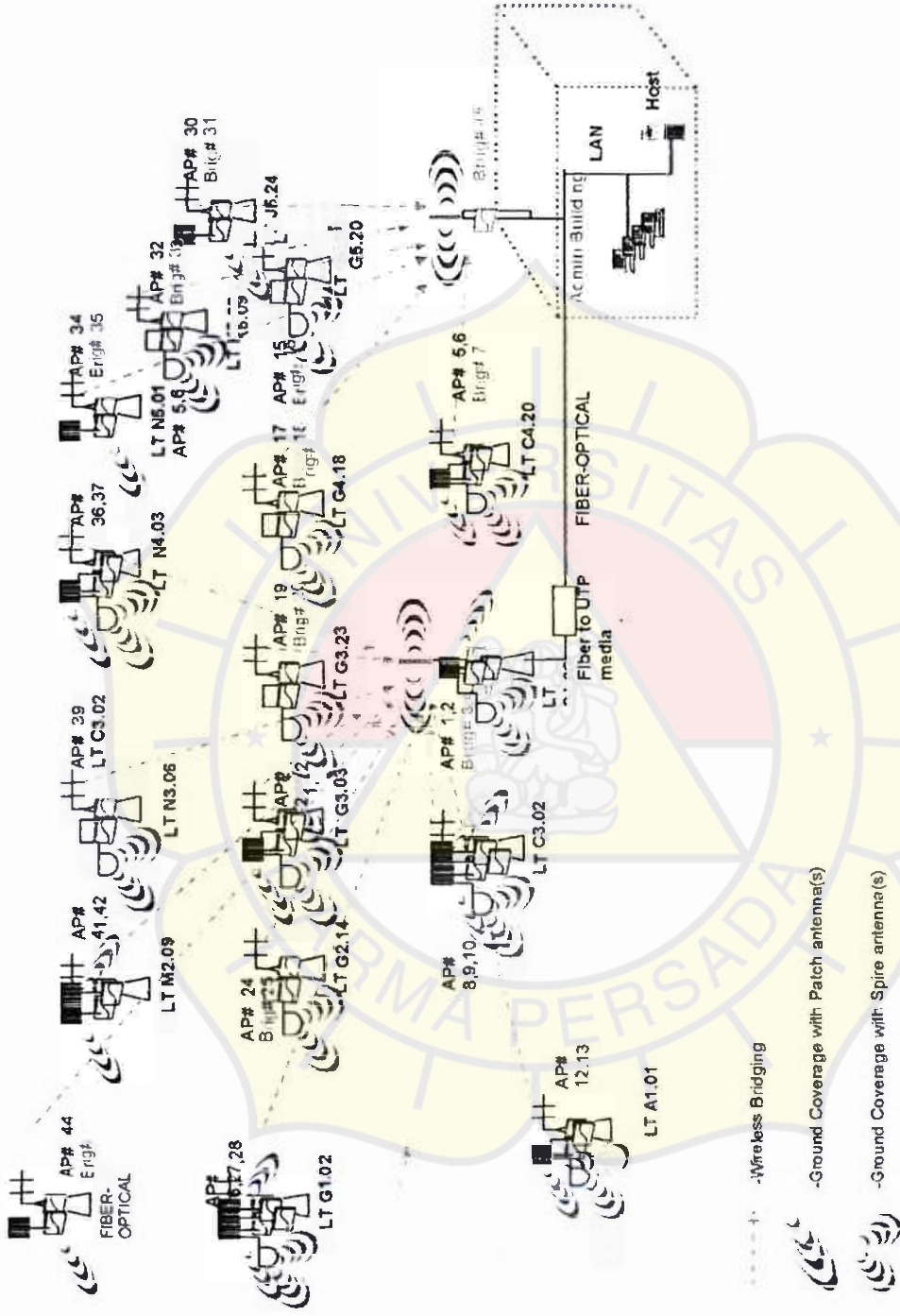
Daftar Pustaka

1. Freeman Roger L. "Telekomunikasi Transmission Hand Book" third edition, Jhon Wiley &son.1996.
2. Tomasi Wyne, "Advanced Electric Communication System", third edition, Prentice Hall,1994.
3. Sunomo,"Pengantar Sistem Komunikasi Nirkabel",PT Grasindo, Anggota IKAPI, Jakarta, 2004.
4."KEPUTUSAN DIREKTUR JENDERAL POS DAN TELEKOMUNIKASI",http://www.ap.jii.or.id/dokumentasi/peraturan/kepd/irjen241_2000.pdf
5. Tri Daryanto,S.Kom "Perluasan Aplikasi Local Area Network denganWireless Local Area Network",Universitas Budi Luhur http://www.bl.ac.id/dosen/tri_daryanto/wilan.PDF
6."WHITE PAPER PENATAAN SPEKTRUM FREKUENSI RADIO LAYANAN AKSES PITA LEBAR BERBASIS NIRKABEL (BROADBAND WIRELESS ACCESS/BWA)"<http://www.postel.go.id/content/ID/regulasi/frekuensi/kepmen/101106%20white-paper%20bwa.pdf>
7."JARINGAN LOKAL KOMPUTER TANPA KABEL (WLAN)",<http://www.elektroindonesia.com/elektro/komp13.html>
8. Jaka Fahrial,"Teknik Konfigurasi LAN", fahrial@telkom.net <http://noc.pu.go.id/artikel/lan.pdf>
9. Onno W. Purbo "Disain Metropolitan Area Network (MAN) Wireless 2-11Mbps", <http://perogram.files.wordpress.com/2007/07/ch-9-designing-wlan-based-metropolitan-area-ne.pdf>.
10."WLAN Radio Coverage Area Extension Methods",<http://www.cisco.com/warp/public/102/wlan-extend-radio-coverage.pdf>.



LAMPIRAN 1

Kondisi Existing jaringan wireless LAN di PT.JICT



DEMATIC

Confidential Document

The following are summary of existing installation for the Cisco 1300 and Antennas (for reference only)

1300	AP functionality	Location	Antenna Type			
			3dBI Sphire	7.5 dBI, Patch	15 dBI, Yagl	9 dBI Omni
Panel LT - C4.02						
AP#1	Access Point	LT - C4.02	2			
AP#2	Access Point	LT - C4.02		2		
BR#3	Remote Br	LT - C4.02				1
BR#4	Remote Br	LT - C4.02				1
Panel LT - C4.20						
AP#5	Access Point	LT - C4.20	2			
AP#6	Access Point	LT - C4.20		2		
BR#7	Remote Br	LT - C4.20				1
Panel LT - C3.02						
AP#8	Access Point	LT - C3.02	2			
AP#9	Access Point	LT - C3.02		2		
AP#10	Access Point	LT - C3.02		2		
BR#11	Remote Br	LT - C3.02				1
Panel LT - A1.01						
AP#12	Access Point	LT - A1.01	2			
AP#13	Access Point	LT - A1.01				2
BR#14	Remote Br	LT - A1.01				1
Panel LT - G5.20						
AP#15	Access Point	LT - G5.20	2			
BR#16	Remote Br	LT - G5.20				1
Panel LT - G4.18						
AP#17	Access Point	LT - G4.18	2			
BR#18	Remote Br	LT - G4.18				1
Panel LT - G3.23						
AP#19	Access Point	LT - G3.23	2			
BR#20	Remote Br	LT - G3.23				1
Panel LT - G3.03						
AP#21	Access Point	LT - G3.03	2			
AP#22	Access Point	LT - G3.03		2		
BR#23	Remote Br	LT - G3.03				1
Panel LT - G2.14						
AP#24	Access Point	LT - G2.14	2			
BR#25	Remote Br	LT - G2.14				1
Panel LT - G1.02						
AP#26	Access Point	LT - G1.02	2			
AP#27	Access Point	LT - G1.02		2		
AP#28	Access Point	LT - G1.02		2		
BR#29	Remote Br	LT - G1.02				1
Panel LT - J5.24						
AP#30	Access Point	LT - J5.24			2	
BR#31	Remote Br	LT - J5.24				1
Panel LT - K5.09						
AP#32	Access Point	LT - K5.09	2			
BR#33	Remote Br	LT - K5.09				1
Panel LT - N5.01						
AP#34	Access Point	LT - N5.01			2	
BR#35	Remote Br	LT - N5.01				1
Panel LT - N4.03						
AP#36	Access Point	LT - N4.03	2			
AP#37	Access Point	LT - N4.03		2		
BR#38	Remote Br	LT - N4.03				1
Panel LT - N3.06						
AP#39	Access Point	LT - N3.06	2			
BR#40	Remote Br	LT - N3.06				1

The following are summary of existing configurations for the 802.11b Cisco Wireless Infrastructure Equipments (for reference only)

Subnet mask: 255.255.254.0 Gateway: 172.16.250.1 WEP: STATIC (4a494354494e465241504a5431) Password:

AP Label	Host name	Type	Location	Serial Number	SSID	Reserved IP Address	MAC Address (Ethernet)	MAC address (Radio)
AP#1	AP01_C4.02	Access Point	LT-C4.02	FCZ0920U043	JICTAP	172.16.250.101	0013.801e.91be	0013.8094.7860
AP#2	AP01_C4.02	Access Point	LT-C4.02	FCZ0921U019	JICTAP	172.16.250.102	0013.801e.9830	0013.c306.a990
BR#3	BR03_C4.02_M B	Master Br	LT-C4.02	FCZ0920U052	JICTWB	172.16.250.51	0013.801e.91a6	0013.8094.15d0
BR#4	BR04_C4.02_M B	Master Br	LT-C4.02	FCZ0916U014	JICTWB	172.16.250.52	0013.60e9.7acc	0013.8004.f3b0
AP#5	AP05_C4.20	Access Point	LT-C4.20	FCZ0920U050	JICTAP	172.16.250.103	0013.801e.926a	0013.c306.b060
AP#6	AP06_C4.20	Access Point	LT-C4.20	FCZ0921U01D	JICTAP	172.16.250.104	0013.801e.982a	0013.c306.adc0
BR#7	AP07_C4.20	Remote Br	LT-C4.20	FCZ0920U04J	JICTWB01	172.16.250.53	0013.801e.922c	0013.8094.7ab0
AP#8	AP08_C3.02	Access Point	LT-C3.02	FCZ0920U045	JICTAP	172.16.250.105	0013.801e.9132	0013.c306.d4d0
AP#9	AP09_C3.02	Access Point	LT-C3.02	FCZ0916U041	JICTAP	172.16.250.106	0013.7f5f.dc08	0013.8011.2b20
AP#10	AP10_C3.02	Access Point	LT-C3.02	FCZ0920U049	JICTAP	172.16.250.107	0013.801e.914e	0013.8094.7bb0
BR#11	BR11_C302	Remote Br	LT-C3.02	FCZ0920U04J	JICTWB	172.16.250.54	0013.801e.95f4	0013.c310.4810
AP#12	AP12_A1.01	Access Point	LT-A1.01	FCZ0920U04X	JICTAP	172.16.250.108	0013.801e.91b4	0013.c306.d590
AP#13	AP13_A1.01	Access Point	LT-A1.01	FCZ0916U01R	JICTAP	172.16.250.109	0013.7f5f.dbc8	0013.8004.f2b0
BR#14	BR14_A1.01	Remote Br	LT-A1.01	FCZ0916U01K	JICTAP	172.16.250.68	0013.7f5f.dd70	0013.8004.d960
AP#15	AP15_G5.20	Access Point	LT-G5.20	FCZ0916U0UJ	JICTAP	172.16.250.111	0013.7f5f.de88	0013.8004.d9a0
BR#16	BR16_G5.20	Remote	LT-G5.20	FCZ0920U1048	JICTWB01	172.16.250.69	0013.801e.9238	0013.c306.cf60
AP#17	AP17_G4.18	Access Point	LT-G4.18	FCZ0916U0IIL	JICTAP	172.16.250.113	0013.7f5f.de76	0013.8004.d6a0
BR#18	BR18_G4.18	Remote Br	LT-G4.18	FCZ0920U04G	JICTWB01	172.16.250.66	0013.801e.96a6	0013.c310.4850
AP#19	AP19_G3.23	Access Point	LT-G3.23	FCZ0920U047	JICTAP	172.16.250.115	0013.801e.91ba	0013.8094.8ea0
BR#20	BR20_G3.23	Remote Br	LT-G3.23	FCZ0920U04T	JICTWB	172.16.250.55	0013.801e.9602	0013.c306.d5f0
AP#21	AP21_G3.03	Access Point	LT-G3.03	FCZ0920U04	JICTAP	172.16.250.116	0013.801e.9540	0013.c310.4760
AP#22	AP22_G3.03	Access Point	LT-G3.03	FCZ0916U01C	JICTAP	172.16.250.117	0013.60e9.7af2	0013.7f9c.80c0

DEMATIC

Confidential Document

BR#23	BR23_G3.03	Remote Br	LT_G3.03	FCZ0920U04Y	JICTWB	172.16.250.56	0013.801e.914a	0013.c306.d470
AP#24	AP24_G2.14	Access Point	LT_G2.14	FCZ0920U04V	JICTAP	172.16.250.118	0013.801e.923a	0013.c306.ae20
BR#25	BR25_G2.14	Remote Br	LT_G2.14	FCZ0916U04E	JICTWB	172.16.250.57	0013.715f.dbee	0013.8004.f090
AP#26	AP26_G1.02	Access Point	LT_G1.02	FCZ0916U01N	JICTAP	172.16.250.119	0013.715f.dbc4	0013.7f8c.c9f0
AP#27	AP27_G1.02	Access Point	LT_G1.02	FCZ0916U011	JICTAP	172.16.250.120	0013.60e9.7a78	0013.8004.ef90
AP#28	AP28_G1.02	Access Point	LT_G1.02	FCZ0916U013	JICTAP	172.16.250.121	0013.60e9.7b8d	0013.8004.f010
BR#29	BR29_G1.02	Remote Br	LT_G1.01	FCZ0916U01F	JICTWB	172.16.250.58	0013.715f.dbde	0013.7f8c.ca60
AP#30	AP30_J5.24	Access Point	LT_J5.24	FCZ0920U04W	JICTAP	172.16.250.122	0013.801e.9138	0013.c306.d440
BR#31	BR31_J5.24	Remote Br	LT_J5.24	FCZ0920U04R	JICTWB01	172.16.250.59	0013.801e.9274	0013.c306.d450
AP#32	AP32_K5.09	Access Point	LT_K5.09	FCZ0916U016	JICTAP	172.16.250.123	0013.715f.dbf2	0013.7f9c.62f0
BR#33	BR33_K5.09	Remote Br	LT_K5.09	FCZ0920U04G	JICTWB01	172.16.250.60	0013.801e.956e	0013.c310.4710
AP#34	AP34_N5.01	Access Point	LT_N5.01	FCZ0920U04P	JICTAP	172.16.250.124	0013.801e.9556	0013.c310.48b0
BR#35	BR35_N5.01	Remote Br	LT_N5.01	FCZ0916U01L	JICTWB01	172.16.250.61	0013.715f.dbf6	0013.7f8c.cca0
AP#36	AP36_N4.03	Access Point	LT_N4.03	FCZ0916U01J	JICTAP	172.16.250.125	0013.715f.abe4	0013.7f8c.cc60
AP#37	AP37_N4.03	Access Point	LT_N4.03	FCZ0916U019	JICTAP	172.16.250.126	0013.60e9.7a26	0013.7f8c.c730
BR#38	BR40_N4.03	Remote Br	LT_N4.03	FCZ0920U056	JICTWB	172.16.250.62	0013.801e.9268	0013.8094.7d00
AP#39	AP39_N3.06	Access Point	LT_N3.06	FCZ0916U0DY	JICTAP	172.16.250.127	0013.60e9.7a5c	0013.7f8c.b0e0
BR#40	BR40_N3.06	Remote Br	LT_N3.06	FCZ0916U010	JICTWB	172.16.250.63	0013.60e9.7bbe	0013.7f9c.64d0
AP#41	AP41_M2.09	Access Point	LT_M2.09	FCZ0920U04M	JICTAP	172.16.250.128	0013.801e.9156	0013.c306.d560
AP#42	AP42_M2.09	Access Point	LT_M2.09	FCZ0920U04Z	JICTAP	172.16.250.129	0013.801e.9120	0013.c306.d5d0
BR#43	BR43_M2.09	Remote Br	LT_M2.09	FCZ0920U053	JICTWB	172.16.250.64	0013.801e.923c	0013.c306.d240
AP#44	AP44_T1.01	Access Point	LT_T1.01	FCZ0920U055	JICTAP	172.16.250.130	0013.801e.917c	0013.c306.d500
BR#45	BR45_T1.01	Remote Br	LT_T1.01	FCZ0920U042	JICTWB	172.16.250.65	0013.801e.970e	0013.8094.1da0
BR#46	BR46_Office_M B	Master Br	Office Bldg	FCZ0916U00Z	JICTWB01	172.16.250.67	0013.60e9.788a	0013.8004.f240

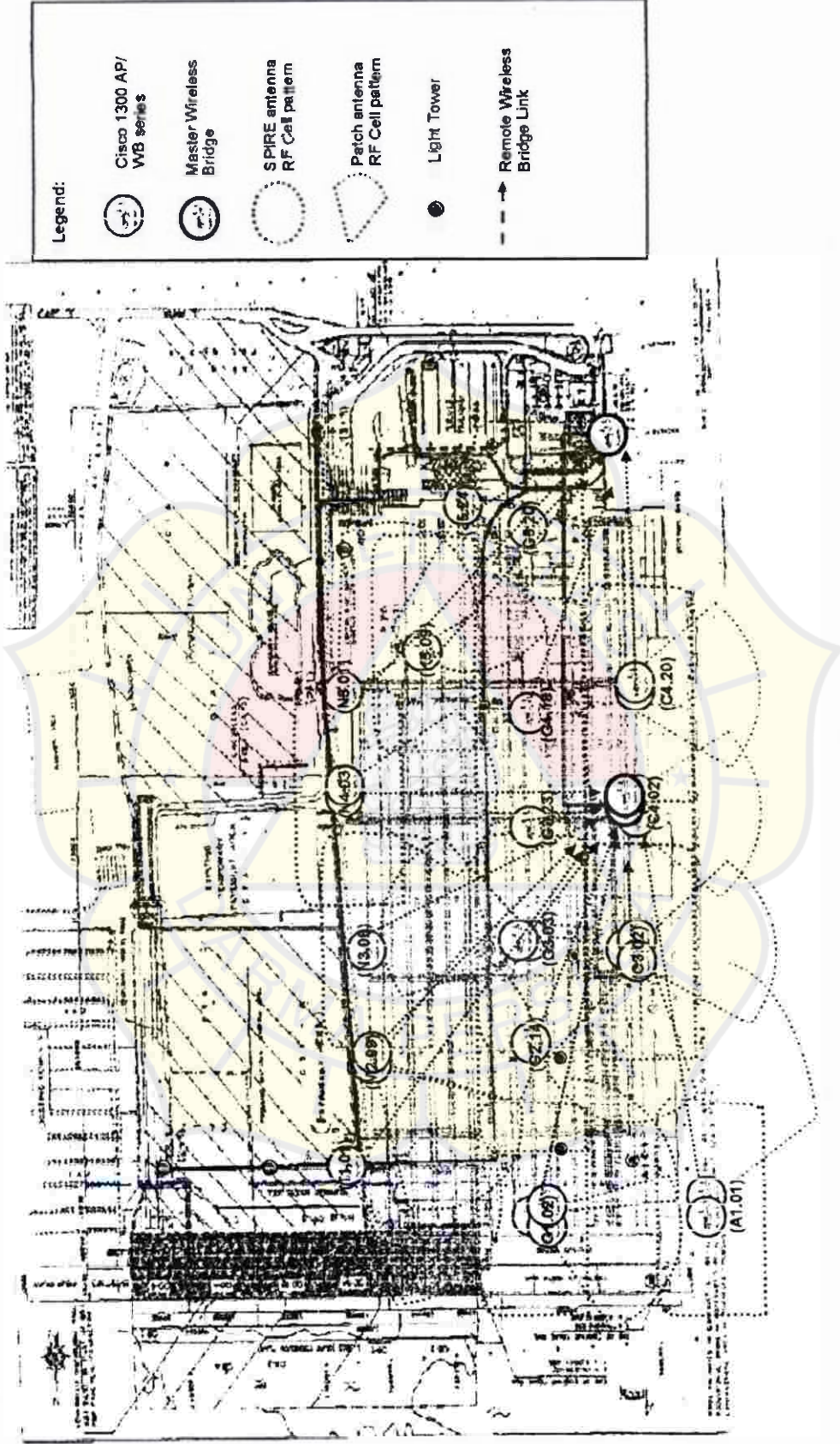


LAMPIRAN 2.

Peta lokasi PT.JICT

Existing Cisco 802.11b/g AP and Wireless Bridge (for reference only)

The following are detail layout for the existing 802.11b Cisco Wireless Infrastructure Equipments





LAMPIRAN 3

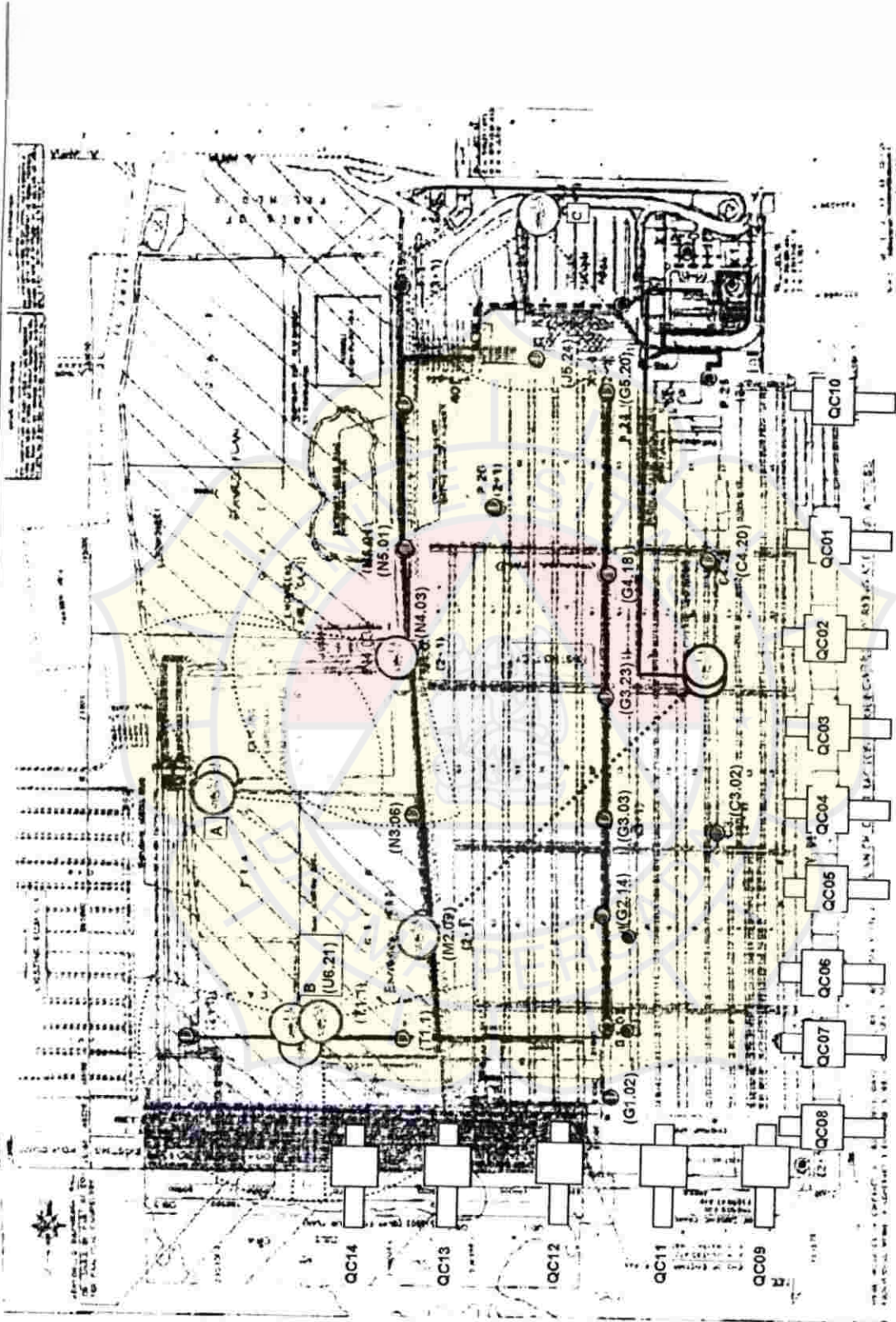
Lokasi penambahan jaringan

JICT 2.4 GHz Wireless Infrastructure Proposal – Signal Coverage Details










- Legends:**
-  Existing Wireless Bridge
 -  New Wireless Bridging for
 -  New Wireless Bridging (extension)
 -  Cisco 1300 series – access point
 -  Light Tower
 -  Remote Wireless Bridge Link
 -  SPIRE RF Cell pattern
 -  Sector Panel RF Cell pattern



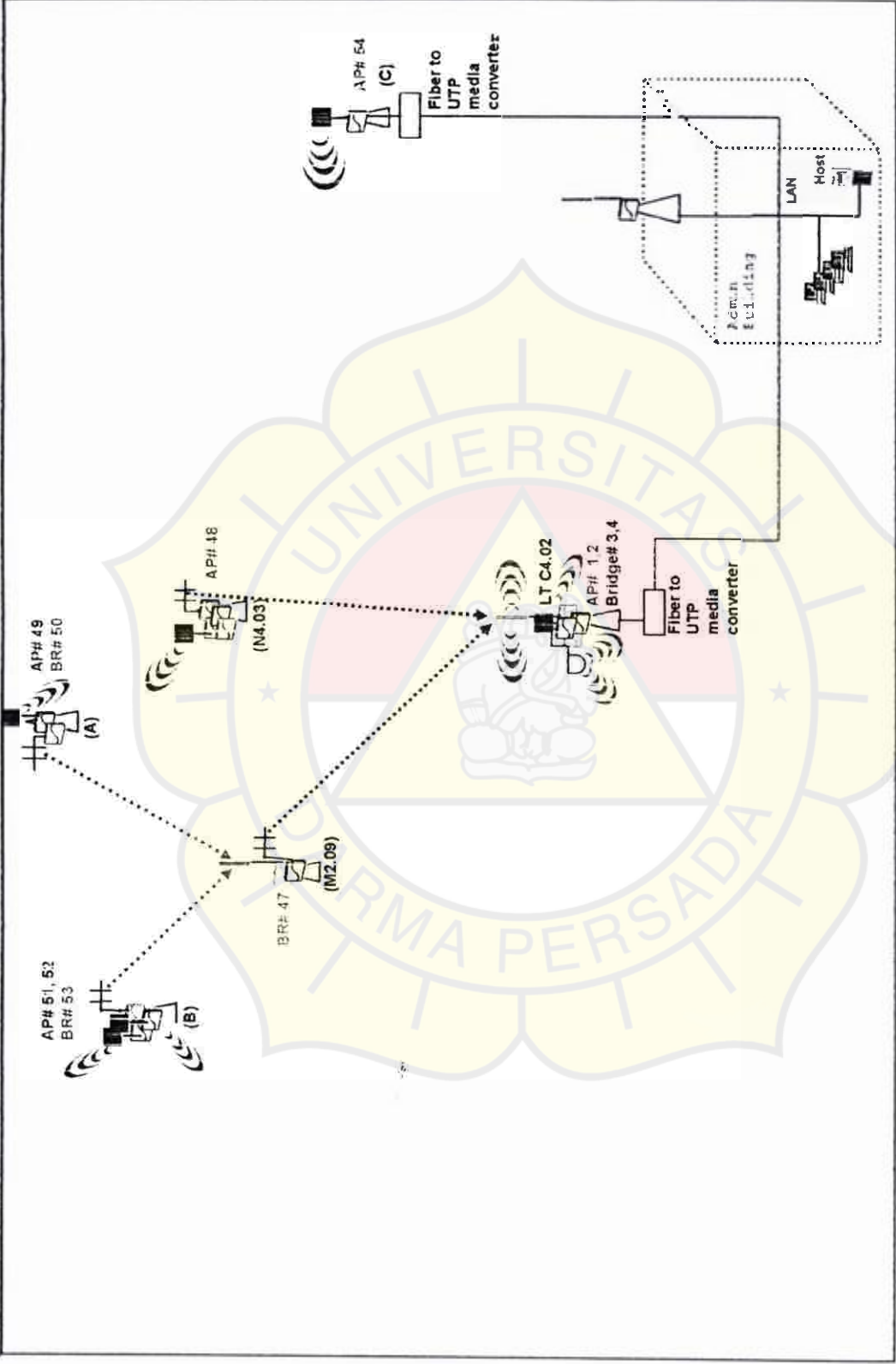
© Dematic (M) Sdn. Bhd.	Chen Meng Hwa	Page 12 of 26
Version 2	Release date: 4/12/2006	JICT Phase II Installation Proposal R2.DOC



LEGENDS

-  Ground Coverage with Patch antenna(s)
-  Ground Coverage with Spire
-  Existing bridges(s)
-  Additional bridges for extension
-  Omni-directional antenna(s)
-  Sector Panel antenna(s)
-  Yagi antenna(s)
-  Wireless Bridging
-  Wireless Bridging





1300	AP functionality	Location	Antenna Type			
			3dBi Sphire	7.5 dBi Patch	15 dBi Yagi	9 dBi Omni
Panel LT - M2.09						
AP#41	Access Point	LT- M2.09		2		13 dBi Maxrad Sector
AP#42	Access Point	LT- M2.09		2		
BR#43	Remote Br	LT- M2.09			1	
Panel LT - T1.1						
AP#44	Access Point	LT- T1.1		2		
BR#45	Remote Br	LT- T1.1			1	
BR#46	Master Br	Office Bldg				1





LAMPIRAN 4

Spesifikasi Cisco Aironet (AP) 1300

Cisco Aironet 1300 Series

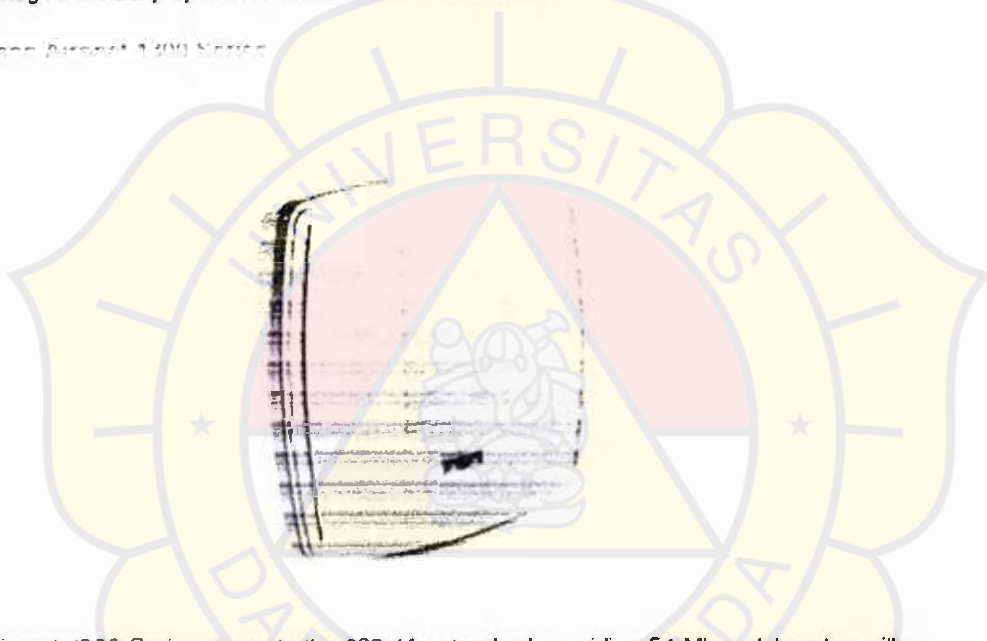
Cisco Aironet 1300 Series Outdoor Access Point/Bridge

CISCO AIRONET 1300 SERIES OUTDOOR ACCESS POINT OR BRIDGE

PRODUCT OVERVIEW

The Cisco® Aironet® 1300 Series Outdoor Access Point or Bridge (Figure 1) is an 802.11g access point and bridge that provides high-speed and cost-effective wireless connectivity between multiple fixed or mobile networks and clients. Building a metropolitan-area wireless infrastructure with the Cisco Aironet 1300 Series provides deployment personnel with a flexible, easy-to-use solution that meets the security requirements of wide-area networking professionals. The Cisco Aironet 1300 Series can be deployed as an autonomous access point or bridge, providing intelligent network services as a standalone device. Alternatively, the Cisco Aironet 1300 Series can be deployed as part of the Cisco Unified Wireless Network, managed centrally by a Cisco wireless LAN controller.

Figure 1. Cisco Aironet 1300 Series



The Cisco Aironet 1300 Series supports the 802.11g standard-providing 54-Mbps data rates with a proven, secure technology while maintaining full backward compatibility with legacy 802.11b devices. It is delivered in a compact, rugged enclosure for deployment in outdoor environments, and is available in two versions. The Cisco Aironet 1300 Series with integrated antenna can be quickly installed to provide a LAN bridge to a remote site or multiple sites. The 1300 Series with antenna connectors supports a variety of Cisco 2.4-GHz antennas, providing range and coverage versatility.

The Cisco Aironet 1300 Series is available either as part of the Cisco Unified Wireless Network or as an autonomous access point or bridge. The Cisco Unified Wireless Network is a comprehensive solution that delivers an integrated, end-to-end wired and wireless network. Using the radio and network management features of the Cisco Unified Wireless Network for simplified deployment, the Cisco Aironet 1300 Series extends the security, scalability, reliability, ease of deployment, and manageability available in wired networks to the wireless LAN. Unified access points operate with the Lightweight Access Point Protocol (LWAPP) and work in conjunction with Cisco wireless LAN controllers and the Wireless Control System (WCS). When configured with LWAPP, the Cisco Aironet 1300 Series can automatically detect the best-available Cisco wireless LAN controller and download appropriate policies and configuration information with no hands-on intervention.

Autonomous access points are based on Cisco IOS® Software and may optionally operate with the CiscoWorks Wireless LAN Solution Engine (WLSE). Autonomous access points, along with the WLSE, deliver a core set of features and may be field-upgraded to take advantage of the full benefits of the Cisco Unified Wireless Network as requirements evolve. As an autonomous access point or bridge, the Cisco Aironet 1300 Series may be configured to operate as a wireless access point, bridge, or a workgroup bridge.