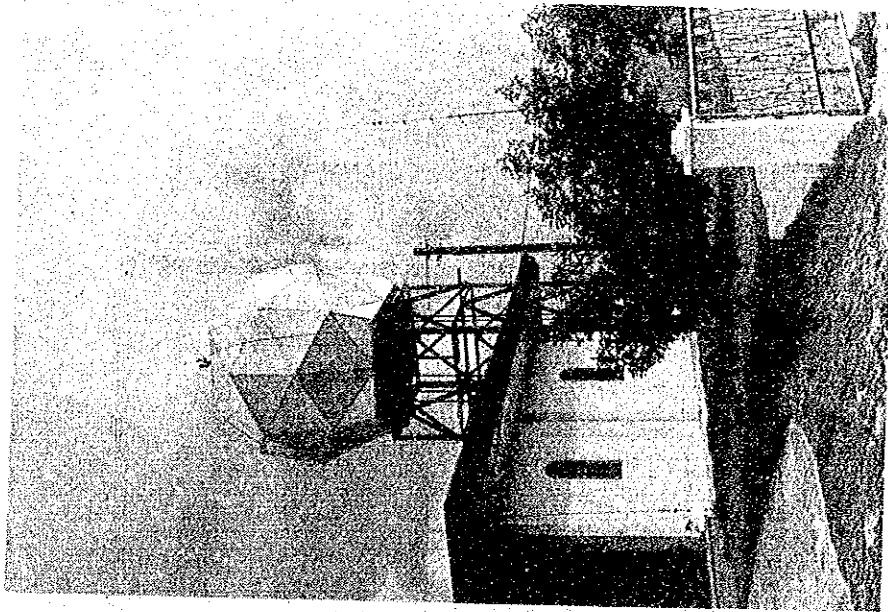


Paguio Station

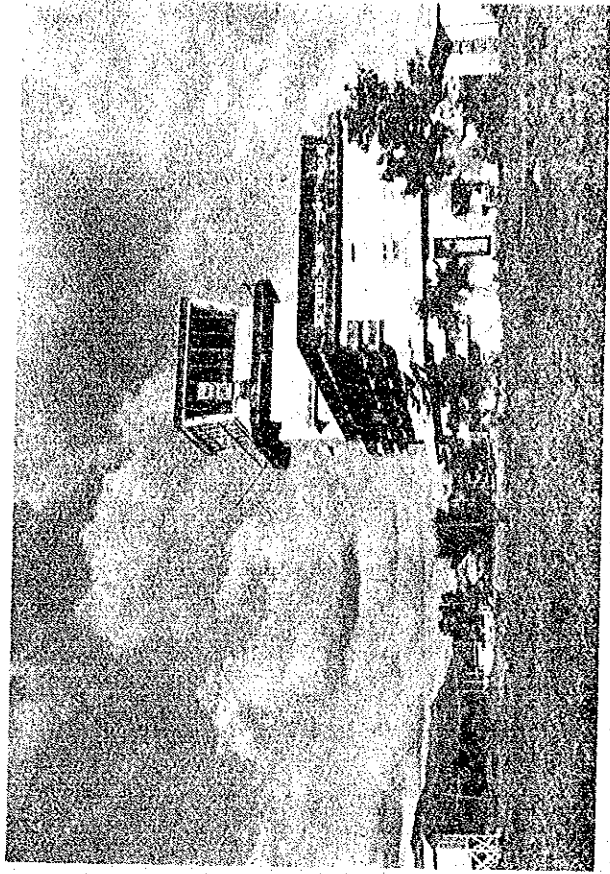


Dagupan Station

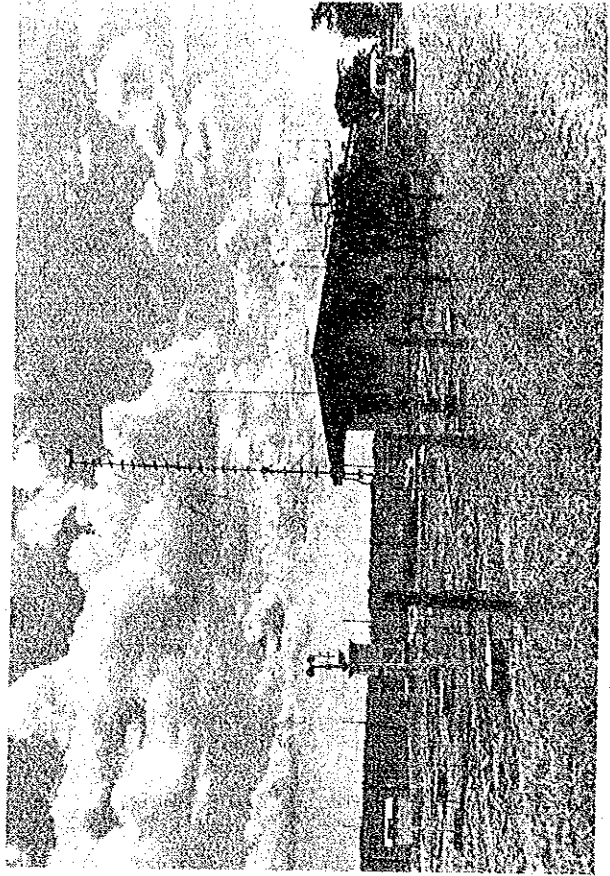


Paguio Radar Station

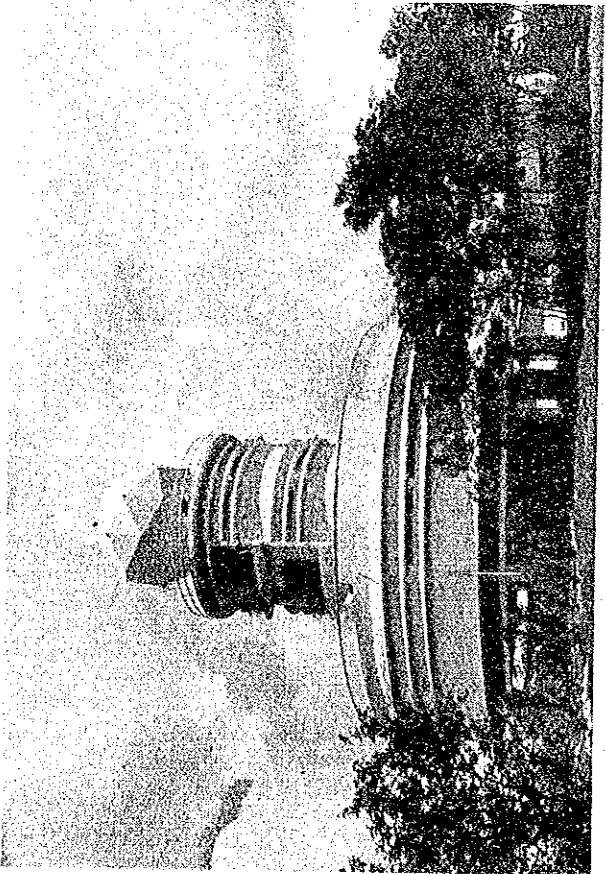
Fig.A.12 (1/3)



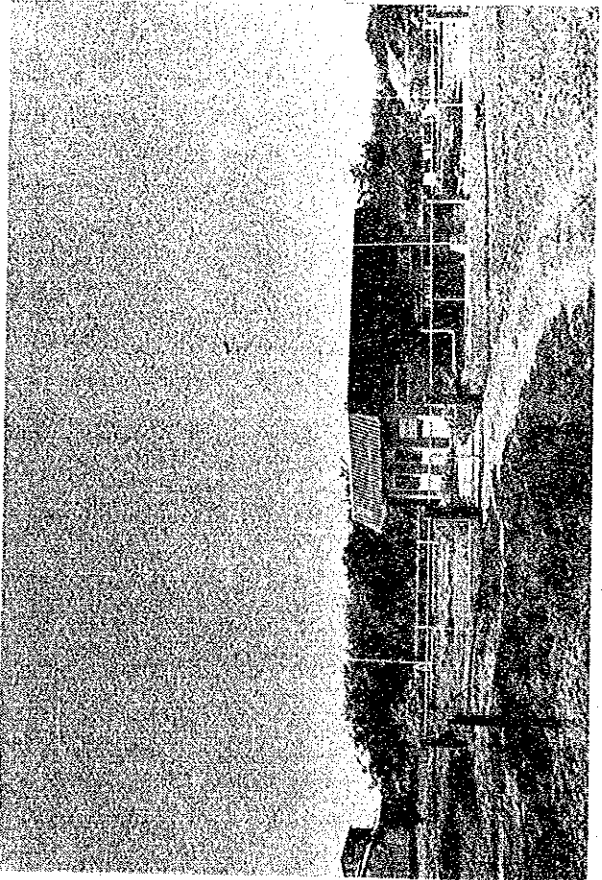
Virac Station



Munoz Station



Virac Radar Station



San Jose Mindoro Station

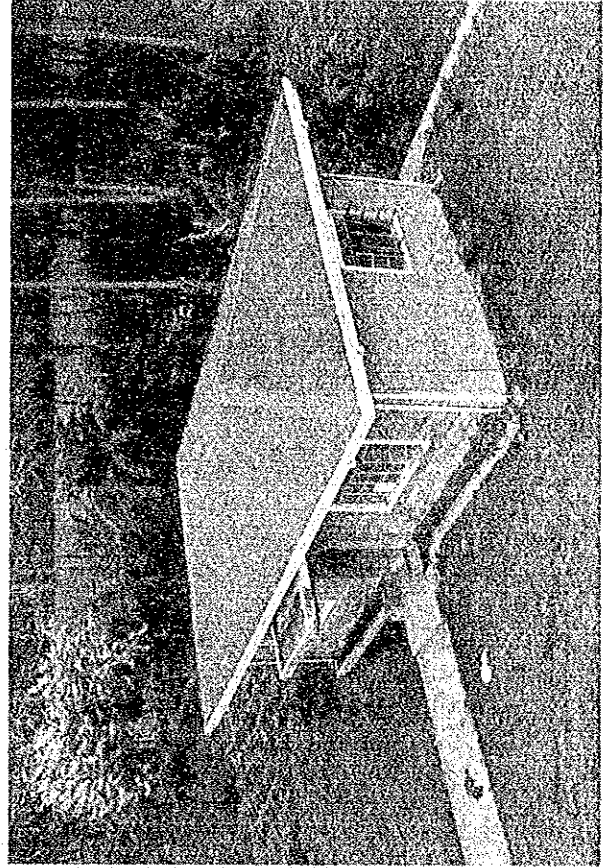
Fig.A.12 (2/3)



Davao Station



General Santos Station



Dumaguete Station

Fig.A.12 (3/3)

Table A.1 (1/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		TANAY - GAPAS		TANAY - GAPAS	
	Altitude	<u>640 m</u>	<u>142 m</u>	<u>640 m</u>	<u>145 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>13.7 m</u>	<u>22 m</u>
	Distance	<u>131.9 km</u>		<u>132.4 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.3 dB	8D-2w 1 m
				-4.0 dB	RG17/u 40 m
		-4.8 dB	40m + 40m	-0.5 dB	8D-2w 1.5m
				-0.3 dB	COUPLER
2-1	Duplexer Loss	dB		dB	
2-2	RF HYB Loss	dB		dB	
3	Combined Antenna Gain	+13.0dB +13.0dB	12ele YAGI 12ele YAGI	+15.3dB +15.3dB	12ele YAGI 12ele YAGI
4	Free Space Loss	-132.9 dB	800 MHz 131.9 km	-133.5 dB	861 MHz 132.4 km
5	Additional Loss	-21 dB	d:23.8km, 108.1km H: 140 m	-21 dB	d:23.8km, 108.6km H: 140 m
	(1) Shadow Loss	- 6 dB	d:12.6km, 95.9km H: 0 m	- 6 dB	d:12.6km, 96 km H: 0 m
	(2) Loss	dB		0 dB	d: 0.5km, 108.1km H: -20 m
	(3) Corrective Value	dB		dB	
6	Span Loss	-143.5 dB	Total of (1-5)	-139.0 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.2dBm	52 w
9	Receiving Power	-94.5dBm	(6+8)	-91.8dBm	(6+8)

Table A.1(2/11)

Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
S p a n		GAPAS - NAGA		GAPAS - NAGA	
	Altitude	<u>142 m</u>	<u>5 m</u>	<u>145 m</u>	<u>5 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>22 m</u>	<u>27.8 m</u>
	Distance	<u>91.0 km</u>		<u>90.5 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.5 dB	10D-2v 2 m
				-0.3 dB	COUPLER
		-4.8 dB	40m + 40m	-8.0 dB	RG17/u 40 m
				-0.3 dB	8D-2w 1 m
2 ₋₁	Duplexer Loss	- dB		- dB	
2 ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-129.7 dB	800 MHz 91.0 km	-130.2 dB	860 MHz 90.5 km
5	Additional Loss	-18 dB	d: 63.5km, 2.5km H: 35 m	-18 dB	d: 63km, 2.5km H: 35 m
	(1) Shadow Loss	-15 dB	d: 66km, 25km H: 70 m	-13.5dB	d: 65.5km, 25km H: 60 m
				0 dB	d: 1.5km, 23.5km H: -15 m
	(2) Loss				
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-146.3 dB	Total of (1-5)	-144.2 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.2 dBm	52 w
9	Receiving Power	-97.3dBm	(6+8)	-97.0 dBm	(6+8)

Table A.1 (3/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		NAGA - MALABOG		NAGA - MALABOG	
	Altitude	<u>5 m</u>	<u>340 m</u>	<u>5 m</u>	<u>330 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>22.85m</u>	<u>22 m</u>
	Distance	<u>74.2 km</u>		<u>74.2 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-8.0 dB	RG17/u 40m+40m
		-4.8 dB	40m + 40m	-0.3 dB	8D-2w 1 m
				-8.0 dB	RG17/u 40m+40m
				-0.5 dB	10D-2v 2 m
2 ₋₁	Duplexer Loss	- dB		- dB	
2 ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-127.9 dB	800 MHz 74.2 km	-128.5 dB	860 MHz 74.2 km
5	Additional Loss	- 6 dB	d: 10.5km, 41km H: 0 m	- 6 dB	d: 10.5km, 41km H: 0 m
	(1) Shadow Loss	-14.5dB	d: 41.5km, 32.7km H: 65 m	-14.5dB	d: 41.5km, 32.7km H: 65 m
	(2) Loss				
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-132.0 dB	Total of (1-5)	-135.2 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0 dBm	80 w	+47.2 dBm	52 w
9	Receiving Power	-83.0dBm	(6+8)	-88.0 dBm	(6+8)

Table A.1 (4/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		MALABOG - BALOD		MALABOG - BALOD	
	Altitude	<u>340 m</u>	<u>75 m</u>	<u>330 m</u>	<u>53 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>15 m</u>	<u>21.3 m</u>
	Distance	<u>130.5 km</u>		<u>130.5 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-8.0 dB	RG17/u 40m+40m
				-0.5 dB	10D-2v 2 m
		-4.8 dB	40m + 40m	-4.0 dB	RG17/u 40m
				-0.3 dB	8D-2w 1m
² ₋₁	Duplexer Loss	- dB		- dB	
² ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+31.5dB	6.0m ø G.P	+32.3dB	6.0m ø G.P
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-132.8 dB	800 MHz 130.5 km	-133.4 dB	861 MHz 130.5 km
5	Additional Loss	-33.5dB	d: 24.5km, 106.0km H: 600m	-33.5dB	d: 24.5km, 106.0km H: 600m
	(1) Shadow Loss	-3.5 dB	d: 70.5km, 35.5km H: -20 m	-3.5 dB	d: 70.5km, 35.5km H: -20 m
	(2) Loss				
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-134.9 dB	Total of (1-5)	-135.6 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.2dBm	52 w
9	Receiving Power	-85.9dBm	(6+8)	-88.4dBm	(6+8)

Table A.1 (5/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
S p a n		BALOD — CAPACUAN		BALOD — CAPACUAN	
	Altitude	<u>60 m</u>	<u>360 m</u>	<u>53 m</u>	<u>310 m</u>
	Antenna Height	<u>25 m</u>	<u>15 m</u>	<u>21.3 m</u>	<u>4 m</u>
	Distance	<u>25.7 km</u>		<u>25.7 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0dB	RG17/u 40m
		-4.8 dB	40 + 40m	-0.3dB	8D-2w 1m
				-4.0dB	RG17/u 40m
				-0.6dB	RG55A/u 0.7m
2 ₋₁	Duplexer Loss	— dB		— dB	
2 ₋₂	RF HYB Loss	— dB		— dB	
3	Combined Antenna Gain	+13.0 dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0 dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss		800 MHz		861 MHz
		-118.7dB	25.7 km	-119.3dB	25.7 km
5	Additional Loss	-8.5 dB	d:25km, d:23.2km H = 5 m	-7 dB	d:1.26km, 24.44km H = 2 m
	(1) Shadow Loss	-6.0 dB	d:17.5km,d:8.2km H = 0 m	-3.5 dB	d:16.24km,8.2km H = -10m
	(2) Loss				
	(3) Corrective Value	— dB		— dB	
6	Span Loss	-116.8dB	Total of (1-5)	-108.1dB	Total of (1-5)
7	System Value (Unweighted)	— dB		— dB	
8	Transmitting Power	+37.0dBm	5 w	+37.0dBm	5 w
9	Receiving Power	-79.8dBm	(6 + 8)	-71.1dBm	(6 + 8)

Table A.1 (6/11) Level Diagram of Oil Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		TINAMBACAN - DANA O		TINAMBACAN - DANA O	
	Altitude	<u>140 m</u>	<u>67 m</u>	<u>145 m</u>	<u>67 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>5 m</u>	<u>15.3 m</u>
	Distance	<u>183.9 km</u>		<u>183.9 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40m
		-4.8 dB	40m + 40m	-0.5 dB	10D-2v 2m
				-4.0 dB	RG17/u 40m
				-0.3 dB	8D-2w 1m
2 ₋₁	Duplexer Loss	- dB		- dB	
2 ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+31.5dB	6.0mø G.P	+32.3dB	6.0mø G.P
4	Free Space Loss	-135.8 dB	800 MHz 183.9 km	-136.4 dB	861 MHz 183.9 km
5	Additional Loss				
	(1) Shadow Loss	-40 dB	d: 48.5km,135.4km H: 1230 m	-40 dB	d: 48.5km,135.4km H: 1230 m
	(2) Loss	dB		dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-140.9 dB	Total of (1-5)	-137.6 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0 dBm	50 w
9	Receiving Power	-91.9dBm	(6 + 8)	-90.6 dBm	(6 + 8)

Table A.1 (7/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		DANA0 - MALASAG		DANA0 - MALASAG	
	Altitude	<u>67 m</u>	<u>240 m</u>	<u>67 m</u>	<u>275 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>15.3 m</u>	<u>5 m</u>
	Distance	<u>239.3 km</u>		<u>239.3 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40m
		-4.8 dB	40m + 40m	-0.5 dB	10D-2v 2m
				-4.0 dB	RG17/u 40m
				-0.3 dB	8D-2w 1m
2	Duplexer Loss	- dB		- dB	
2	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+31.5dB	6.0mø G.P	+32.3dB	6.0mø G.P
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-138.1 dB	800 MHz 239.3 km	-138.7 dB	861 MHz 239.3 km
5	Additional Loss				
	(1) Shadow Loss	-36.5dB	d: 88.5km, 150.8km H: 1300 m	-36.5dB	d: 88.5km, 150.8km H: 1290 m
		-6 dB	d: 4km, 146.8km H: 0 m	-6 dB	d: 4km, 146.8km H: 0 m
	(2) Loss	dB		dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-145.7 dB	Total of (1-5)	-142.4 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w
9	Receiving Power	-96.7dBm	(6 + 8)	-95.4dBm	(6 + 8)

Table A.1 (8/11)

Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
S p a n		MALABOG - MASBATE		MALABOG - MASBATE	
	Altitude	<u>340 m</u>	<u>5 m</u>	<u>360 m</u>	<u>6 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>4 m</u>	<u>10.5 m</u>
	Distance	<u>88.7 km</u>		<u>88.7 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.5 dB	10D-2v 2 m
				-4.0 dB	RG17/u 40 m
		-4.8 dB	40m + 40m	-0.3 dB	8D-2w 1 m
2 ₋₁	Duplexer Loss	- dB		- dB	
2 ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-129.5 dB	800 MHz 88.7 km	-130.1 dB	861 MHz 88.7 km
5	Additional Loss	-9.5 dB	d: 3km, 23.7km H: 10 m	-8.5 dB	d: 0.08km, 25.92km H: 1.1 m
	(1) Shadow Loss	-26 dB	d: 62km, 26.7km H: 235 m	- 6 dB	d: 2.5km, 23.5km H: 0 m
	(2) Loss			- 29 dB	d: 62.7km, 26km H: 330 m
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-148.6 dB	Total of (1-5)	-151.8 dB	Total of (1- 5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w
9	Receiving Power	-99.6dBm	(6 + 8)	-104.8 dBm	(6 + 8)

Table A.1 (9/11) Level Diagram of Oil Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		MASBATE - TINAMBACAN		MASBATE - TINAMBACAN	
	Altitude	<u>5 m</u>	<u>140 m</u>	<u>6 m</u>	<u>145 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>10.5 m</u>	<u>4.5 m</u>
	Distance	<u>102.9 km</u>		<u>102.9 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.5 dB	10D-2v 2 m
		-4.8 dB	40m + 40m	-4.0 dB	RG17/u 40 m
				-0.3 dB	8D-2w 1 m
2-1	Duplexer Loss	- dB		- dB	
2-2	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	- dB		-131.4 dB	861 MHz 102.9 km
5	Additional Loss	- dB		-12 dB	d: 0.12km, 16.62km H: 3.9 m
	(1) Shadow Loss			-37.5dB	ae=6370x4/3km 861MHz Smooth Earth Loss
	(2) Transmission Loss	-158.4 dB	800 MHz CCIR and Smooth Earth	- dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-142.0 dB	Total of (1-5)	-159.1 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w
9	Receiving Power	-93.0dBm	(6 + 8)	-112.1 dBm	(6 + 8)

Table A.1 (10/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		TINAMBACAN - MACTAN RADAR		TINAMBACAN - MACTAN RADAR	
	Altitude	<u>140 m</u>	<u>10 m</u>	<u>145 m</u>	<u>24.8 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>5 m</u>	<u>7.9 m</u>
	Distance	<u>204.6 km</u>		<u>204.6 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.5 dB	10D-2v 2 m
				-4.0 dB	RG17/u 40 m
		-4.8 dB	40m + 40m	-0.3 dB	8D-2w 1 m
2 -1	Duplexer Loss	- dB		- dB	
2 -2	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-136.7 dB	800 MHz 204.6 km	-137.3 dB	861 MHz 204.6 km
5	Additional Loss				
	(1) Shadow Loss	-39.5dB	d: 47.6km, 157km H: 1420 m	-39.5dB -14.5dB	d: 47.6km, 157km H: 1420 m d: 3km, 154km H: 25.1 m
	(2) Loss	dB		dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-159.8 dB	Total of (1-5)	-169.5 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w
9	Receiving Power	-110.8 dBm	(6 + 8)	-122.5 dBm	(6 + 8)

Table A.1 (11/11) Level Diagram of OH Test Link

		Estimated Value Before The Test		Estimated Value On The Test	
Span		MACTAN RADAR - MALASAG		MACTAN RADAR - MALASAG	
	Altitude	<u>10 m</u>	<u>240 m</u>	<u>24.8 m</u>	<u>275 m</u>
	Antenna Height	<u>15 m</u>	<u>15 m</u>	<u>7.9 m</u>	<u>5 m</u>
	Distance	<u>222.0 km</u>		<u>222.0 km</u>	
1	Combined Feeder Loss	-4.8 dB	RG17/u	-4.0 dB	RG17/u 40 m
				-0.5 dB	10D-2v 2 m
				-4.0 dB	RG17/u 40 m
		-4.8 dB	40m + 40m	-0.3 dB	8D-2w 1 m
2 ₋₁	Duplexer Loss	- dB		- dB	
2 ₋₂	RF HYB Loss	- dB		- dB	
3	Combined Antenna Gain	+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
		+13.0dB	12ele YAGI	+15.3dB	12ele YAGI
4	Free Space Loss	-137.4 dB	800 MHz 222.0 km	-138.0 dB	861 MHz 222.0 km
5	Additional Loss	-13 dB	d: 68km, 11.5km H: 40 m	-13 dB	d: 68km, 11.5km H: 40 m
	(1) Shadow Loss	-34 dB	d: 79.5km, 142.5km H: 990 m	-34 dB	d: 79.5km, 142.5km H: 990 m
	(2) Loss	dB		dB	
	(3) Corrective Value	- dB		- dB	
6	Span Loss	-168.0 dB	Total of (1-5)	-163.2 dB	Total of (1-5)
7	System Value (Unweighted)	- dB		- dB	
8	Transmitting Power	+49.0dBm	80 w	+47.0dBm	50 w
9	Receiving Power	-119.0 dBm	(6 + 8)	-116.2 dBm	(6 + 8)

Table A.2 (1/20) Level Diagram of OH link

	SPAN		TANAY		-		GAPAS	
	Altitude	Ant. Height	Distance	Multiplex	MODEL of EQUIPMENT			
	640 m	145 m	132.4 Km	SS-PM	PM24-800-70FD			
1	Combined Feeder Loss		-1.5 dB			$\left\{ \begin{array}{l} \text{SFZE 50-13W } 34\text{m } 42\text{m} \\ \text{8D-2W } 1.5\text{m} + 1.5\text{m} \end{array} \right\}$		
2-1	Duplex Loss		-1.8 dB					
-2	RF HYB Loss		-2.5 dB					
3	Combined Ant. Gain		+31.5 dB			6.0 m \emptyset G.P		
4	free Span Loss		+28.0 dB			4.2 m \emptyset G.P		
5	Additional Loss		-132.9 dB			800MHz		
	shadow Loss		-21 dB			132.4 Km		
	Shadow Loss		-6 dB			d = 23.8 Km, 108.6 Km		
	Loss		0 dB			H = 140m		
	Corrective Value		0 dB			d = 12.6 km, 96 km		
			-1.5 dB			H = 0 m		
6	Span Loss		-107.7 dB			d = 0.5 m, 108.1 km		
7	System Value		-			H = 20 m		
8	Transmitting Power		+48.5 dBm			Total of (1~5)		
9	Receiving Power		-59.2 dBm			70 Watt		
10	Threshold Level		-105.4 dBm			(6+8)		
11	Threshold Margin		46.2 dB			B= 460 kHz		
12	Safety Factor		3 dB			NF= 3 dB (with LNA)		
13	Actual Threshold Margin		43.2 dB			(9-10)		
14	Threshold S/N		16.7 dB			I+Cf= 7.7 + 9		
15	Diversity Improvement		4 dB			m=0.2 rad/rms		
16	Combined gain		- dB					
17	Standard S/N		63.4 dB					
18	Fadig Value Presumed		23.5 dB			$\rho=0.6$		
19	S/N exceed 99.95 %		40.4 dB			99.95 %		
20	Judgment of system					(17-18)		

Table A.2 (2/20) Level Diagram of OH link

	SPAN	GAPAS	NAGA
	Altitude Ant. Height Distance Multiplex MODEL of EQUIPMENT	145 m 22 m 90.5 Km SS-PM PM24-800-70FD	5 m 27.8 m
1	Combined Feeder Loss	-1.8 dB	$\left\{ \begin{array}{l} \text{SFZE50 -13W 42m + 48m} \\ \text{8D - 2W 1.5m + 1.5m} \end{array} \right\}$
2-1 -2	Duplex Loss RF HYB Loss	-1.9 dB - dB	
3	Combined Ant. Gain	+31.5 dB +31.5 dB	6.0 m \emptyset G.P 6.0 m \emptyset G.P
4	free Span Loss	-129.6 dB	800MHz 90.5 Km
5	Additional Loss	-18 dB -15 dB	d = 63.5 Km 2.5 km H = 35 m d = 66 km 25 km H = 70m
	Shadow Loss Corrective Value	0 dB -5.9 dB	d = 1.5 km 23.5 km H = 15m
6	Span Loss	-111.7 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 63.2 dBm	(6+8)
10	Threshold Level	-105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	42.2 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	39.2 dB	(11+12)
14	Threshold S/N	16.7 dB	I+Cf= 7.7 + 9 m= 0.2rad/rms
15	Diversity Improvement	4 dB	
16	Combined gain	- dB	
17	Standard S/N	59.9 dB	
18	Fadig Value Presumed	23.5 dB	$\rho=0.6$ 99.95 %
19	S/N exceed 99.95 %	36.4 dB	(17-18)
20	Judgment of system		

Table A.2 (3/20)

Level Diagram of OH link

SPAN		NAGA	MALABOG
	Altitude	5 m	330 m
	Ant. Height	22.85m	22 m
	Distance	74.2 Km	
	Multiplex	SS- PM	
	MODEL of EQUIPMENT	PM24-800-70FD	
1	Combined Feeder Loss	-1.8 dB	$\left\{ \begin{array}{l} \text{SFZE50 - 13W } 43\text{m} + 43\text{m} \\ \text{8D - 2W } 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		-1.8 dB	
2-1	Duplex Loss	-2.5 dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	+25.0 dB	3.0m \emptyset G.P
		+ 25.0 dB	3.0m \emptyset G.P
4	free Span Loss	-127.9 dB	800MHz 74.2 Km
5	Additional Loss	-14.5 dB	d = 41.5km, 32.7km
		dB	
	Shadow Loss	-6 dB	d = 10.5km, 41km
	Corrective Value	-2.6 dB	H = 0m
6	Span Loss	-107.1 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 58.6 dBm	(6+8)
10	Threshold Level	- 105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	46.8 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	43.8 dB	(11+12)
14	Threshold S/N	16.7 dB	I+Cf= 77 + 9 m=0.2 rad/rms
		dB	
15	Diversity Improvement	4 dB	
16	Combined gain	- dB	
17	Standard S/N	64.5 dB	
18	Fadig Value Presumed	23.5 dB	$\rho=0.6$ 99.95 %
19	S/N exceed 99.95 %	41.0 dB	(17-18)
20	Judgment of system		

Table.A.2 (4/20) Level Diagram of OH link

	SPAN	MALABOG	BALOD
	Altitude	330 m	53 m
	Ant. Height	15 m	21.3m
	Distance	130.5 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM 12-800-70 S.D	
1	Combined Feeder Loss	- 1.6 dB	{ SFZE50 - 13W 35m + 41m } 8D - 2W 1.5m + 1.5m
		- 1.7 dB	
2-1	Duplex Loss	- 2.5 dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	+ 35.5 dB	10.0m Ø G.P
		+ 31.5 dB	6.0m Ø G.P
4	free Span Loss	-132.8 dB	800MHz 130.5 Km
5	Additional Loss	- 33.5 dB	d = 24.5km, 106.0 km H = 600m
	Shadow Loss Corrective Value	- 3.5 dB	d = 70.5 km, 35.5 km H = 20m
6	Span Loss	-113.7 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 65.2 dBm	(6+8)
10	Threshold Level	- 105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	40.2 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	37.2 dB	(11+12)
14	Threshold S/N	22.8 dB	I+Cf= 13.8 + 9 m=0.4 rad/rms
15	Diversity Improvement (unequal)	1.5 dB	Sub ANT 6.0 m Ø G.P 4.2 m Ø G.P
16	Combined gain	- dB	
17	Standard S/N	61.5 dB	
18	Fadig Value Presumed	22.5 dB	$\rho=0.4$ 99.95 %
19	S/N exceed 99.95 %	39.0 dB	(17-18)
20	Judgment of system		

Table A.2 (5/20) Level Diagram of OH link

	SPAN	BALOD	TINAMBACAN
	Altitude Ant. Height Distance Multiplex MODEL of EQUIPMENT	53 m 145 m 40.4m 10 m 25.7+20.0Km SS- FM FM 60-6700 - 1	Passive Relay by using back-to-back coupling parabolic Antennas at CAPACUAN CAPACUAN Altitude 310m Antenna Height 15m
1	Combined Feeder Loss	- 3.1 dB	$\left\{ \begin{array}{l} \text{FR} - 6U \quad 60m + 30m \\ \text{WRJ} - 7 \quad 2m + 2m \end{array} \right\}$
2-1 -2	Duplex Loss RF HYB Loss	- 1.6 dB - 2.0 dB - 4.5 dB	
3	Combined Ant. Gain	+46.0 + 46.0dB +46.0 + 46.0 dB	4.0m \emptyset G.P x 4
4	free Span Loss	- 137.1 dB - 134.9 dB	800MHz 6700 MHz 25.7+20.Km
5	Additional Loss Feeder Loss Corrective Value	- dB - 0.5 dB -3.0 dB	Presumed 10m Presumed
6	Span Loss	- 102.7dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 30.0 dBm	1 Watt
9	Receiving Power	- 72.7 dBm	(6+8)
10	Threshold Level	-93.2 dBm	B= 6000 kHz NF= 4.0 dB
11	Threshold Margin	20.5 dB	(9-10)
12	Safety Factor	- dB	
13	Actual Thres- hold Margin	20.5 dB	(11+12)
14	Threshold S/N	38.3 dB dB	I+Cf= 29.3 + 9 fd = 200 KHz
15	Diversity Improvement	- dB	
16	Combined gain	3 dB	
17	Standard S/N	61.8 dB	
18	Fadig Value Presumed	15.6 dB	99.9975% (2.5x10 ⁻⁵ Time Rate)
19	S/N exceed 99.9975 %	46.2 dB	(17-18)
20	Judgment of system		

Table A.2 (6/20)

Level Diagram of OH link

SPAN TINAMBACAN -- DANA O			
	Altitude	145 m	67 m
	Ant. Height	10 ^m	15.3 m
	Distance	183.9 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM 12-800-70 S.D	
1	Combined Feeder Loss	- 1.4dB	{ SFZE 50 - 13W 30m + 35m 8D - 2W 1.5m + 1.5m }
		- 1.6 dB	
2-1	Duplex Loss	- 2.5dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	+ 35.5 dB	10.0m Ø G.P
		+ 35.5 dB	10.0m Ø G.P
4	free Span Loss	- 135.8 dB	800MHz 183.9 Km
5	Additional Loss	- 40dB	d = 48.5km 135.4km H = 1230m
		dB	
		dB	
	Loss Corrective Value	- 5.9dB	
6	Span Loss	- 116.2dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	20 Watt
9	Receiving Power	- 67.7 dBm	(6+8)
10	Threshold Level	-105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	37.7 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	34.7 dB	(11+12)
14	Threshold S/N	22.8 dB	I+Cf= 13.8 + 9 m=0.4 rad/rms
15	Diversity Improvement (unequal)	1.5 dB	sub ANT 6.0m Ø G.P 6.0m Ø G.P
16	Combined gain	- dB	
17	Standard S/N	59.0 dB	
18	Fadig Value Presumed	22.5 dB	$\rho=0.4$ 99.95%
19	S/N exceed 99.95 %	36.5 dB	(17-18)
20	Judgment of system		

Table A.2 (7/20)

Level Diagram of OH link

SPAN		DANA O - MALASAG	
	Altitude	67 m	275 m
	Ant. Height	15.3 m	10 m
	Distance	239.3 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM 6-800-70 S.D	
1	Combined Feeder Loss	- 1.6 dB	$\left\{ \begin{array}{l} \text{SFZE 50 - 13W 35m + 30m} \\ \text{8D - 2W 1.5m + 1.5m} \end{array} \right\}$
		- 1.4 dB	
2-1	Duplex Loss	- 2.5 dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	+31.5 dB	6.0m \emptyset G.P
		+ 31.5 dB	6.0m \emptyset G.P
4	free Span Loss	- 138.1 dB	800MHz 239.3 Km
5	Additional Loss	- 36.5 dB	d = 88.5 km, 150.8 km H = 1290m
		- dB	
	Shadow Loss	- 6 dB	d = 4 km, 146.8 km
	Corrective Value	-0.1 dB	H = 0m
6	Span Loss	-123.2 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 74.7 dBm	(6+8)
10	Threshold Level	- 105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	30.7 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	27.7 dB	(11+12)
14	Threshold S/N	28.8 dB	I+Cf= 19.8 + 9 m= 0.8rad/rms
		- dB	
15	Diversity Improvement (unequal)	1.5 dB	SUB ANT 4.2m \emptyset G.P 4.2m \emptyset G.P
16	Combined gain	- dB	
17	Standard S/N	58.0 dB	
18	Fadig Value Presumed (unequal)	22.5 dB	$\rho=0.4$ 99.95 %
19	S/N exceed 99.95 %	35.5 dB	(17-18)
20	Judgment of system		

Table A.2 (8/20) Level Diagram of OH link

SPAN		MALABOG	-	LEGASPI
	Altitude	330 m	5 m	
	Ant. Height	20 m	20 m	
	Distance	7.0 Km		
	Multiplex	SS-PM		
	MODEL of EQUIPMENT	PM12-800-5		
1	Combined Feeder Loss	- 2.9 dB		$\left\{ \begin{array}{ll} \text{AFZE 50-7} & 40\text{m} + 40\text{m} \\ \text{8D - 2W} & 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		- 2.9 dB		
2-1	Duplex Loss	- 4.5 dB		
-2	RF HYB Loss	- 3.5 dB		
3	Combined Ant. Gain	+ 13.0 dB		12 EL. YAGI
		+ 13.0 dB		12 EL. YAGI
4	free Span Loss	- 107.4 dB		800MHz 7.0 Km
5	Additional Loss			
	Shadow Loss	-0.5 dB		d = 6.5 km, 0.5 km
	Corrective Value	- 6 dB		H = 20m (presumed)
6	Span Loss	-101.7 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 37.0 dBm		5 Watt
9	Receiving Power	- 64.7 dBm		(6+8)
10	Threshold Level	- 101.4 dBm		B= 460 kHz NF= 7.0 dB
11	Threshold Margin	36.7 dB		(9-10)
12	Safety Factor	- dB		
13	Actual Threshold Margin	36.7 dB		(11+12)
14	Threshold S/N	22.8 dB		I+Cf= 13.8 + 9 m= 0.4rad/rms
15	Diversity Improvement	- dB		
16	Combined gain	3 dB		
17	Standard S/N	62.5 dB		
18	Fadig Value Presumed	7.4 dB		0.2 dB/km + 6 dB
19	S/N exceed 99.9 %	55.1 dB		(17-18)
20	Judgment of system			

Table A. 2 (9/20) Level Diagram of OH link

		SPAN	BALOD	-	CATARMAN
		Altitude	53 m	5 m	
		Ant. Height	30 m	20 m	
		Distance	2.9Km		
		Multiplex	SS-PM		
		MODEL of EQUIPMENT	PM 6-800-5		
1	Combined Feeder Loss		- 3.5 dB		{ AFZE 50-7 50m + 40m 8D - 2W 1.5m + 1.5m }
			- 2.9 dB		
2-1	Duplex Loss		- 4.5 dB		
-2	RF HYB Loss		- 3.5 dB		
3	Combined Ant. Gain		+ 13.0 dB		12 EL. YAGI
			+ 13.0 dB		12 EL. YAGI
4	free Span Loss		- 99.8 dB		800MHz 2.9 Km
5	Additional Loss				
	Shadow Loss Corrective Value		- 0.5 dB		d = 0.2 km, 2.7 km H = 12m
6	Span Loss		- 6 dB		(presumed)
7	System Value		-94.7 dB		Total of (1~5)
8	Transmitting Power		- dB		
9	Receiving Power		+ 37.0 dBm		5 Watt
10	Threshold Level		- 57.7 dBm		(6+8)
			-101.4 dBm		B= 460 kHz NF= 7.0 dB
11	Threshold Margin		43.7 dB		(9-10)
12	Safety Factor		- dB		
13	Actual Threshold Margin		43.7 dB		(11+12)
14	Threshold S/N		28.8 dB		I+Cf= 19.8 + 9 m= 0.8rad/rms
			dB		
15	Diversity Improvement		- dB		
16	Combined gain		3 dB		
17	Standard S/N		75.5 dB		
18	Fadig Value Presumed		6.6 dB		0.2dB/km + 6dB
19	S/N exceed 99.9 %		68.9 dB		(17-18)
20	Judgment of system				

Table A.2 (10/20) Level Diagram of OH link

	SPAN	DANA O	-	MACTAN	RADAR
	Altitude	67 m	24.8 m		
	Ant. Height	20 m	20 m		
	Distance	20.5 Km			
	Multiplex	SS-PM			
	MODEL of EQUIPMENT	PM 12 - 800 - 5			
1	Combined Feeder Loss	- 2.9 dB			$\left\{ \begin{array}{l} \text{AFZE 50 - 7 } 40\text{m} + 40\text{m} \\ \text{8 D - 2W } 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		- 2.9 dB			
2-1	Duplex Loss	-4.5 dB			
-2	RF HYB Loss	-3.5 dB			
3	Combined Ant. Gain	+20.0 dB		1.8m \emptyset G.P	
		+25.0 dB		3.0m \emptyset G.P	
4	free Span Loss	- 116.7 dB		800MHz	
				20.5 Km	
5	Additional Loss	-9 dB		d = 17.5 km, 3 km	
				H = 7m	
	Loss				
	Corrective Value	-6 dB		(presumed)	
6	Span Loss	-100.5 dB		Total of (1~5)	
7	System Value	- dB			
8	Transmitting Power	+ 37.0 dBm		5 Watt	
9	Receiving Power	- 63.5 dBm		(6+8)	
10	Threshold Level	- 101.4 dBm		B= 460 kHz NF= 7.0 dB	
11	Threshold Margin	37.9 dB		(9-10)	
12	Safety Factor	- dB			
13	Actual Threshold Margin	37.9 dB		(11+12)	
14	Threshold S/N	22.8 dB		I+Cf= 13.8 + 9 m= 0.4rad/rms	
15	Diversity Improvement	- dB			
16	Combined gain	3 dB			
17	Standard S/N	63.7 dB			
18	Fadig Value Presumed	10.1 dB		0.2 dB/km + 6 dB	
19	S/N exceed 99.9 %	53.6 dB		(17-18)	
20	Judgment of system				

Table A.2 (11/20) Level Diagram of OH link

SPAN MALASAG - CAGAYAN DE ORO			
	Altitude Ant. Height Distance Multiplex MODEL of EQUIPMENT	275 m 5 m 20 m 10 m Approx 10 Km SS-PM PM 6 - 800 - 5	Line of sight presumed
1	Combined Feeder Loss	- 2.9 dB - 2.3 dB	{ AFZE 50 - 7 40m + 30m } { 8D - 2W 1.5m + 1.5m }
2-1	Duplex Loss	- 4.5 dB	
-2	RF HYB Loss	- 3.5 dB	
3	Combined Ant. Gain	+ 13.0 dB + 13.0 dB	12 EL YAGI 12 EL YAGI
4	Free Span Loss	-110.5 dB	800MHz approx. 10 Km (presumed)
5	Additional Loss	- dB - dB - dB - dB	
	Loss Corrective Value	- 6 dB	(presumed)
6	Span Loss	- 103.7 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 37.0 dBm	5 Watt
9	Receiving Power	- 66.7 dBm	(6+8)
10	Threshold Level	- 101.4 dBm	B= 460 kHz NF= 7.0 dB (with LNA)
11	Threshold Margin	34.7 dB	(9-10)
12	Safety Factor	- dB	
13	Actual Threshold Margin	34.7 dB	(11+12)
14	Threshold S/N	28.8 dB	I+Cf= 19.8 + 9 m=0.8 rad/rms
15	Diversity Improvement	- dB	
16	Combined gain	3 dB	
17	Standard S/N	66.5 dB	
18	Fadig Value Presumed	8 dB	0.2 dB/km + 6 dB
19	S/N exceed 99.9 %	58.5 dB	(17-18)
20	Judgment of system		

Table A.2 (12/20) Level Diagram of OH link

		SPAN MALABOG - MASBATE		
Altitude		360 m	6 m	
Ant. Height		10 m	25 m	
Distance		88.7 Km		
Multiplex		SS-PM		
MODEL of EQUIPMENT		PM 12-800-70 S.D		
1	Combined Feeder Loss	- 1.4 dB	- 1.4 dB	$\left\{ \begin{array}{l} \text{SFZE 50 - 13W } 30\text{m} + 30\text{m} \\ \text{8D - 2W } 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
2-1	Duplex Loss	- 2.5 dB		
-2	RF HYB Loss	- dB		
3	Combined Ant. Gain	+ 35.5 dB	+ 31.5 dB	10.0 m \emptyset G.P 6.0 m \emptyset G.P
4	free Span Loss	- 129.5 dB		800MHz 88.7 Km
5	Additional Loss	- 29 dB	- 8.5 dB	d = 62.7 km, 26 km H = 330m d = 0.08 km, 25.92km H = 1.1m
	Shadow Loss	- 6 dB		d = 2.5 km, 23.5 km H = 0m
	Corrective Value	- 1.5dB		
6	Span Loss	- 112.8 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 48.5 dBm		70 Watt
9	Receiving Power	- 64.3 dBm		(6+8)
10	Threshold Level	- 105.4 dBm		B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	41.1 dB		(9-10)
12	Safety Factor	3 dB		
13	Actual Threshold Margin	38.1 dB		(11+12)
14	Threshold S/N	22.8 dB		I+Cf= 13.8 + 9 m=0.4 rad/rms
15	Diversity Improvement (unequal)	1.5 dB		SUB ANT 4.20 m \emptyset G.P 6.0 m \emptyset G.P
16	Combined gain	- dB		
17	Standard S/N	62.4 dB		
18	Fadig Value Presumed	22.5 dB		$\rho=0.4$ 99.95 %
19	S/N exceed 99.95 %	39.9 dB		(17-18)
20	Judgment of system			

Table A.2 (13/20)

Level Diagram of OH link

SPAN		MASBATE	TINAMBAGAN
	Altitude	6 m	145 m
	Ant. Height	10.5 m	10 m
	Distance	102.9 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM 12-800-70 SD	
1	Combined Feeder Loss	- 1.4 dB	$\left\{ \begin{array}{l} \text{SFZE 50 - 13W} \quad 30\text{m} + 30\text{m} \\ \text{8D - 2W} \quad 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		- 1.4 dB	
2-1	Duplex Loss	- 2.5 dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	+ 35.5 dB	10.0 m \emptyset G.P
		+ 35.5 dB	10.0 m \emptyset G.P
4	free Span Loss	- 130.8 dB	800MHz 102.9 Km
5	Additional Loss	- 12 dB	$d = 0.12 \text{ km}, 16.62\text{km}$ $H = 3.9 \text{ m}$
	smooth earth loss	- 37.5 dB	
	Loss	dB	
	Corrective Value	- 1.3 dB	
6	Span Loss	- 115.9 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 67.4 dBm	(6+8)
10	Threshold Level	- 105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	38.0 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	35.0 dB	(11+12)
14	Threshold S/N	22.8 dB	$I+C_f = 13.8 + 9$ $m=0.4 \text{ rad/rms}$
15	Diversity Improvement (unequal)	1.5 dB	SUB ANT 6.0 m \emptyset G.P 6.0 m \emptyset G.P
16	Combined gain	- dB	
17	Standard S/N	59.3 dB	
18	Fadig Value Presumed	22.5 dB	$\rho=0.4$ 99.95 %
19	S/N exceed 99.95%	36.8 dB	(17-18)
20	Judgment of system		

Table A.2 (14/20) Level Diagram of OH link

		SPAN TINAMBACAN - MACTAN RADAR	
	Altitude	145 m	24.8 m
	Ant. Height	10m	7.9 m
	Distance	204.6 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM 12-800-70 S.D	
1	Combined Feeder Loss	- 1.4 dB	$\left\{ \begin{array}{l} \text{SFZE 50 - 13W } 30\text{m} + 30\text{m} \\ \text{8D - 2W } 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		- 1.4 dB	
2-1	Duplex Loss	- 2.5 dB	
-2	RF HYB Loss	- dB	
3	Combined Ant. Gain	+ 35.5 dB	10.0 m \emptyset G.P
		+ 35.5 dB	10.0 m \emptyset G.P
4	free Span Loss	- 136.7 dB	800MHz 204.6 Km
5	Additional Loss	- 39.5 dB	$d = 47.6 \text{ km, } 157 \text{ km}$ $H = 1420\text{m}$ $d = 3 \text{ km, } 154 \text{ km}$ $H = 25.1\text{m}$
		- 14.5 dB	
	Reflection loss	- 8.4 dB	
	Loss	- dB	
	Corrective Value	- 5.5 dB	
6	Span Loss	- 130.5 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 82.0 dBm	(6+8)
10	Threshold Level	-105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	23.4 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	20.4 dB	(11+12)
14	Threshold S/N	22.8 dB	I+Cf= 13.8+9 m=0.4 rad/rms
		dB	
15	Diversity Improvement (unequal)	1.5 dB	SUB ANT 6.0 m \emptyset G.P 6.0 m \emptyset G.P
16	Combined gain	- dB	
17	Standard S/N	44.7 dB	
18	Fadig Value Presumed	17 dB	$\rho = 0.4$ 99.95 %
19	S/N exceed 99.95%	27.7 dB	(17-18)
20	Judgment of system		

Table A.2 (15/20) Level Diagram of OH link

SPAN MACTAN RADAR - MALASAG			
	Altitude	24.8 m	275 m
	Ant. Height	10 m	10 m
	Distance	222.0 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM6 - 800 - 70 SD	
1	Combined Feeder Loss	- 1.4 dB	$\left\{ \begin{array}{l} \text{SFZE 50 - 13W } 30\text{m} + 30\text{m} \\ \text{8D - 2W } 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		- 1.4 dB	
2-1	Duplex Loss	- 2.5 dB	
-2	RF HYB Loss	-	
3	Combined Ant. Gain	- 35.5 dB	10.0 m \emptyset G.P
		+ 35.5 dB	10.0 m \emptyset G.P
4	free Span Loss	-137.4 dB	800MHz 222.0 Km
5	Additional Loss	- 13 dB	d = 68 km, 11.5 km H = 40m
		- 34 dB	d = 79.5 km, 142.5 km H = 990m
	Loss		
	Corrective Value	- 3.3 dB	
6	Span Loss	- 122.0 dB	Total of (1~5)
7	System Value		
8	Transmitting Power	+ 48.5 dBm	70 Watt
9	Receiving Power	- 73.5 dBm	(6+8)
10	Threshold Level	- 105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	31.9 dB	(9-10)
12	Safety Factor	3 dB	
13	Actual Threshold Margin	28.9 dB	(11+12)
14	Threshold S/N	28.8 dB	I+Cf= 19.8 + 9 m=0.8 rad/rms
15	Diversity Improvement (unequal)	1.5 dB	SUB ANT 6.0 m \emptyset G.P 6.0 m \emptyset G.P
16	Combined gain	-	
17	Standard S/N	59.2 dB	
18	Fadig Value Presumed	22.5 dB	$\rho=0.4$ 99.95 %
19	S/N exceed 99.95 %	36.7 dB	(17-18)
20	Judgment of system		

Table A.2 (16/20) Level Diagram of OH link

	SPAN	BALOD	-	CAPACUAN
	Altitude	53 m	310 m	
	Ant. Height	23 m	15 m	
	Distance	25.7 Km		
	Multiplex	SS-PM		
	MODEL of EQUIPMENT	PM12 - 800- 0.5		
1	Combined Feeder Loss	- 3.1 dB		$\left\{ \begin{array}{l} \text{AFZE 50-7} \quad 43\text{m} + 35\text{m} \\ \text{8D - 2W} \quad 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		- 2.6 dB		
2-1	Duplex Loss	- 4.5 dB		
-2	RF HYB Loss	- 3.5 dB		
3	Combined Ant. Gain	+25.0 dB		3.0 m \emptyset G.P
		+ 25.0 dB		3.0 m \emptyset G.P
4	free Span Loss	- 118.7 dB		800MHz 25.7 Km
5	Additional Loss	- 7 dB		d = 1.26 km, 24.4 km H = 2m
	Shadow Los's Corrective Value	- 3.5 dB		d = 16.2 km, 8.2 km H = 10 m
		- 2.9 dB		
6	Span Loss	- 95.8 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 27.0 dBm		0.5 Watt
9	Receiving Power	- 68.8 dBm		(6+8)
10	Threshold Level	- 105.4 dBm		B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	36.6 dB		(9-10)
12	Safety Factor	- dB		
13	Actual Threshold Margin	36.6 dB		(11+12)
14	Threshold S/N	22.8 dB		I+Cf= 13.8 + 9 m=0.4 rad/rms
15	Diversity Improvement	- dB		
16	Combined gain	3 dB		
17	Standard S/N	62.4 dB		
18	Fadig Value Presumed	11.1 dB		0.2 dB/km + 6 dB
19	S/N exceed 99.9 %	51.3 dB		(17-18)
20	Judgment of system			

Table A.2 (17/20) Level Diagram of OH link

	SPAN	CAPACUAN	TINAMBACAN
	Altitude	310 m	145 m
	Ant. Height	15 m	10 m
	Distance	20.0 Km	
	Multiplex	SS-PM	
	MODEL of EQUIPMENT	PM 12-800-0.5	
1	Combined Feeder Loss	-2.6 dB	$\left\{ \begin{array}{ll} \text{AFZE 50-7} & 35\text{m} + 30\text{m} \\ \text{8D - 2W} & 1.5\text{m} + 1.5\text{m} \end{array} \right\}$
		-2.3 dB	
2-1	Duplex Loss	-4.5 dB	
-2	RF HYB Loss	-3.5 dB	
3	Combined Ant. Gain	+ 20.0 dB	1.8 m \emptyset G.P
		+ 20.0 dB	1.8 m \emptyset G.P
4	free Span Loss	-116.5 dB	800MHz 20.0km
5	Additional Loss	- dB	
		- dB	
		- dB	
	Loss	- dB	
	Corrective Value	- 6 dB	(presumed)
6	Span Loss	-95.4 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+ 27.0 dBm	0.5 Watt
9	Receiving Power	- 68.4 dBm	(6+8)
10	Threshold Level	-105.4 dBm	B= 460 kHz NF= 3 dB (with LNA)
11	Threshold Margin	37.0 dB	(9-10)
12	Safety Factor	- dB	
13	Actual Threshold Margin	37.0 dB	(11+12)
14	Threshold S/N	22.8 dB	I+Cf= 13.8 + 9 m= 0.4rad/rms
15	Diversity Improvement	- dB	
16	Combined gain	3 dB	
17	Standard S/N	62.8 dB	
18	Fadig Value Presumed	10.0 dB	0.2 dB/km + 6dB
19	S/N exceed %	52.8 dB	(17+18)
20	Judgment of system		

Table A.2 (18/20) Level Diagram of OH link

		SPAN BALOD - TINAMBACAN		
	Altitude	53 m	145 m	Reflector at CAPACUAN CAPACUAN ALT: 310m
	Ant. Height	60.6 m	10 m	
	Distance	25.7 + 20.0 Km		
	Multiplex	SS-PM		
	MODEL of EQUIPMENT	FM 60-6700 - 1		
1	Combined Feeder Loss	-4.2 dB	-1.6 dB	{ FR - 6U 81m + 30m } { WRJ 2m + 2m }
2-1	Duplex Loss	- 2.0 dB		
-2	RF HYB Loss	- 4.5 dB		
3	Combined Ant. Gain	+43.5 dB	+43.5 dB	3.0m Ø G.P 3.0m Ø G.P
4	free Span Loss	- 137.1 dB	- 134.9 dB	6700 MHz 25.7 Km 20.0 km
5	Additional Loss			
	Reflector Gain	+ 99.5 dB		4m x 6m x 2
	Angle Loss			
	Corrective Value	- 0.5 dB	- 3.0 dB	MAX 20° (presumed)
6	Span Loss	-101.3 dB		Total of (1~5)
7	System Value	-		
8	Transmitting Power	+ 30.0 dBm		1 Watt
9	Receiving Power	- 71.3 dBm		(6+8)
10	Threshold Level	- 93.2 dBm		B= 6000 kHz NF= 4.0dB (with LNA)
11	Threshold Margin	21.9 dB		(9-10)
12	Safety Factor	- dB		
13	Actual Threshold Margin	21.9 dB		(11+12)
14	Threshold S/N	38.3 dB		I+Cf= 29.3 + 9 m= rad/rms fd = 200 KHz
15	Diversity Improvement	- dB		
16	Combined gain	3 dB		
17	Standard S/N	63.2 dB		
18	Fadig Value Presumed	15.6 dB		2.5 x 10 ⁻⁵ 99.9975% Time rate
19	S/N exceed 99.9975 %	47.6 dB		(17-18)
20	Judgment of system			

Table A.2 (19/20) Level Diagram of OH link

SPAN		BALOD - TINAMBACAN		
	Altitude Ant. Height Distance Multiplex MODEL of EQUIPMENT	53 m 31.3m 24.5 + 21.0Km SS-FM FM 60-6700 - 1	145 m 33.8 m	Passive Relay by using back-to-back coupling parabolic Antennas at 490m point (Altitude 490m, Antennas Height 15m)
1	Combined Feeder Loss	- 2.7 dB	- 2.8 dB	{ FR - U 51m + 54m } { WRJ - 7 2m + 2m }
2-1 -2	Duplex Loss RF HYB Loss	- 2.0 dB	- 4.5 dB	
3	Combined Ant. Gain	+46.0 + 46.0 dB +46.0 + 46.0 dB		4.0 m \emptyset P.P x 4
4	free Span Loss	- 137.7 dB - 135.3 dB		6700 MHz 24.5 Km 21.0 km
5	Additional Loss	- dB	- dB	
	Loss Corrective Value	- 0.3 dB - 0.3 dB - 3 dB		(presumed 5m) (presumed)
6	Span Loss	- 104.3 dB		Total of (1~5)
7	System Value	- dB		
8	Transmitting Power	+ 30 dBm		1 Watt
9	Receiving Power	- 74.3 dBm		(6+8)
10	Threshold Level	- 93.2 dBm		B= 6000 kHz NF= 4.0 dB
11	Threshold Margin	18.9 dB		(9-10)
12	Safety Factor	- dB		
13	Actual Thres- hold Margin	18.9 dB		(11+12)
14	Threshold S/N	38.3 dB dB		I+Cf= 29.3 + 9 fd = 200 KHz
15	Diversity Improvement	- dB		
16	Combined gain	3 dB		
17	Standard S/N	60.2 dB		
18	Fadig Value Presumed	15.4 dB		2.5 x 10 ⁻⁵ 99.9975 % Time rate
19	S/N exceed 99.9975 %	44.8 dB		(17-18)
20	Judgment of system			

Table A.2 (20/20) Level Diagram of OH link

SPAN		BALOD - TINAMBACAN	
	Altitude Ant. Height Distance Multiplex MODEL of EQUIPMENT	53 m 59.2 m 24.5+ 21.0Km SS- FM FM 60 - 6700 - 1	145 m 43.8 m Reflector at 490m point
1	Combined Feeder Loss	- 4.1 dB - 3.3 dB	{ FR-U 79m + 64m } { WRJ - 7 2m + 2m }
2-1 -2	Duplex Loss RF HYB Loss	- 2.0 dB - 4.5 dB	
3	Combined Ant. Gain	+ 43.5 dB + 43.5 dB	3.0 m Ø P.P 3.0 m Ø P.P
4	free Span Loss	- 137.7 dB - 135.3 dB	6700 MHz 245 Km , 21.0 km
5	Additional Loss Reflector gain Angle Loss Corrective Value	 + 99.5 dB - 0.5 dB - 3.0 dB	 4m x 6m x 2 MAX 20° (presumed)
6	Span Loss	- 103.9 dB	Total of (1~5)
7	System Value	- dB	
8	Transmitting Power	+30 dBm	1 Watt
9	Receiving Power	- 73.9 dBm	(6+8)
10	Threshold Level	- 93.2 dBm	B= 6000 kHz NF= 4.0 dB
11	Threshold Margin	19.3 dB	(9-10)
12	Safety Factor	- dB	
13	Actual Threshold Margin	19.3 dB	(11+12)
14	Threshold S/N	38.3 dB dB	I+Cf= 29.3 + 9 fd = 200 KHz
15	Diversity Improvement	- dB	
16	Combined gain	3 dB	
17	Standard S/N	60.6 dB	
18	Fadig Value Presumed	15.4 dB	2.5 x 10 ⁻⁵ 99.9975% Time Rate
19	S/N exceed 99.9975 %	45.2 dB	(17-18)
20	Judgment of system		

Table A.3 (1/16)

Level Diagram VHF Link

Station	TX	DAGUPAN	BAGUIO RADAR	Frequency = 150 MHz
	RX	BAGUIO RADAR	DAGUPAN	Distance 38.9 Km
Transmitter				Remarks
Power		30 dBm	30 dBm	Pt = 1 watt
Max. Mod. Freq.		3 KHz	3 KHz	
Max Deviation		+ 5 KHz	+ 5 KHz	
Receiver				B
Band width		12 KHz	12 KHz	* BOTH DIRECTION ANT. 5 ELE. YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m 5 ELE. YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m
S/N Improvement		12.2 dB	12.2 dB	
Antenna				
Gain TX site		11 dB	*7.5 dB	
Feeder loss of TX		-2.6 dB	-2.6 dB	
Gain RX site		*7.5 dB	11 dB	
Feeder loss of RX		-2.6 dB	-2.6 dB	Ga
Total of Ant. Gain		13.3 dB	13.3 dB	Measured Value
Propagation Loss				
Free Span Loss		-108.0 dB	-108.0 dB	
Mountain Refraction Loss		dB	dB	
1st Fresnel Loss		dB	dB	
Surface Refraction Loss		dB	dB	
Corrective Value		-2.5 dB	-2.5 dB	
Total of Propagation Loss		-110.5 dB	-110.5 dB	Lp
Receiving Power				Pt + Ga + Lp = Pr Vi = 113 + Pr
Receiving Power		-67.2 dBm	-67.2 dBm	
Receiving Level		45.8 dB _μ	45.8 dB _μ	;NF ;NE NF = 10 log (F + E - 1) Prn = -144 + 10 log B + NF
Noise of Receiving side				
Internal Noise Figure		9.5 dB	9.5 dB	
External Noise Factor		9.5 dB	9.5 dB	
Link Noise Figure		12.3 dB	12.3 dB	
Receiver Front end Noise		-120.9 dBm	-120.9 dBm	Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Quality of Link				
Threshold level		-111.9 dBm	-111.9 dBm	
Drop out Margin		44.7 dB	44.7 dB	
Fading Presumed		3.9 dB	3.9 dB	
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		65.9 dB	65.9 dB	
S/N at Max. Fading		62.0 dB	62.0 dB	
Judgement				

Table A.3 (2/16)

Level Diagram VHF Link

				Frequency = 150 MHz
				Distance 135.8 Km
Station	TX	VIGAN	BAGUIO RADAR	Remarks
	RX	BAGUIO RADAR	VIGAN	
Transmitter				Pt = 1 watt
Power		30 dBm	30 dBm	
Max. Mod. Freq.		3 KHz	3 KHz	
Max Deviation		+ 5 KHz	5 KHz	
Receiver				B
Band width		12 KHz	12 KHz	
S/N Improvement		12.2 dB	12.2 dB	
Antenna				* BOTH DIRECTION ANT. Isotropic Gain 10D-2V-0.065dB/m x 40m Isotropic Gain 10D-2V-0.065dB/m x 40m Ga
Gain TX site		11 dB	*7.5 dB	
Feeder loss of TX		-2.6 dB	-2.6 dB	
Gain RX site		*7.5 dB	11 dB	
Feeder loss of RX		-2.6 dB	-2.6 dB	
Total of Ant. Gain		13.3 dB	13.3 dB	
Propagation Loss				Measured Value Lp
Free Span Loss		-118.6 dB	-118.6 dB	
Mountain Refraction Loss		dB	dB	
1st Fresnel Loss		dB	dB	
Surface Refraction Loss		dB	dB	
Corrective Value		+ 1.1dB	+ 1.1 dB	
Total of Propagation Loss		-117.5 dB	-117.5 dB	
Receiving Power				
Receiving Power		-74.2 dBm	-74.2 dBm	
Receiving Level		38.8 dB _μ	38.8 dB _μ	
Noise of Receiving side				; F ; E NF = 10 log (F + E - 1) Prn = -144 + 10 log B + NF
Internal Noise Figure		9.5 dB	9.5 dB	
External Noise Factor		9.5 dB	9.5 dB	
Link Noise Figure		12.3 dB	12.3 dB	
Receiver Front end Noise		-120.9 dBm	-120.9 dBm	
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level		-111.9 dBm	-111.9 dBm	
Drop out Margin		37.7 dB	37.7 dB	
Fading Presumed		13.6 dB	13.6 dB	
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		58.9 dB	58.9 dB	
S/N at Max. Fading		45.3 dB	45.3 dB	
Judgement				

Table A.3 (3/16) Level Diagram VHF Link

Station	TX	BAGUIO RADAR		Frequency = 150 MHz
	RX	LAOAG		Distance = 202.0 Km
Transmitter				Remarks
Power		44 dBm	44 dBm	Pt = 25 watt
Max. Mod. Freq.		3 kHz	3 kHz	
Max. Deviation		± 5 kHz	± 5 kHz	
Receiver				B
Band Width		12 kHz	12 kHz	
S/N Improvement		12.2 dB	12.2 dB	
Antenna				8 ELE. YAGI Isotropic Gain 8D2V 0.09dB/mx25m 8 ELE. YAGI Isotropic Gain 8D2V 0.09dB/mx25m Ga
Gain TX Site		13.0 dB	dB	
Feeder Loss of TX		-2.3 dB	dB	
Gain RX Site		13.0 dB	dB	
Feeder Loss of RX		-2.3 dB	dB	
Total of Ant. Gain		21.4 dB	dB	
Propagation Loss				Measured Value
Free Span Loss		-122.1 dB	dB	
Mountain Refraction Loss		-27 dB	dB	
1st Fresnel Loss		-6 dB	dB	
Surface Refraction Loss		dB	dB	
Corrective Value		-13.9 dB	dB	
Total of Propagation Loss		-169.0 dB	dB	
Receiving Power				Lp
Receiving Power		-103.6 dBm	dBm	
Receiving Level		9.4 dBμ	dBμ	Pt + Ga + Lp = Pr Vi = 113 + Pr
Noise of Receiving Side				; F ; E NF = 10 log (F+E-1) Prn = -144+10 logB+NF
Internal Noise Figure		9.5 dB	9.5 dB	
External Noise Factor		9.5 dB	9.5 dB	
Link Noise Figure		12.3 dB	12.3 dB	
Receiver Front End Noise		-120.9 dBm	-120.9 dBm	
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level		-111.9 dBm	-111.9 dBm	
Drop Out Margin		8.3 dB	dB	
Fading Presumed		20 dB	dB	
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		29.5 dB	dB	
S/N at Max. Fading		9.5 dB	dB	
Judgement				

Table A.3 (4/16)

Level Diagram VHF Link

Station	TX	VIGAN	LAOAG	Remarks
	RX	LAOAG	VIGAN	
Frequency = 150 MHz Distance 70 Km				
Transmitter				
Power		44 dBm	44 dBm	Pt = 25 watt
Max. Mod. Freq.		3 KHz	3 KHz	
Max Deviation		+ 5 KHz	+ 5 KHz	
Receiver				
Band width		12 KHz	12 KHz	B
S/N Improvement		12.2 dB	12.2 dB	
Antenna				
Gain TX site		11 dB	11 dB	5 ELE.YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m 5 ELE.YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m Ga
Feeder loss of TX		-2.6 dB	-2.6 dB	
Gain RX site		11 dB	11 dB	
Feeder loss of RX		-2.6 dB	-2.6 dB	
Total of Ant. Gain		16.8 dB	16.8 dB	
Propagation Loss				
Free Span Loss		-112.9 dB	-112.9 dB	Measured Value Lp
Mountain Refraction Loss		- 17.5 dB	- 17.5 dB	
1st Fresnel Loss		-10.8dB	-10.8 dB	
Surface Refraction Loss		- 4.5dB	- 4.5 dB	
Corrective Value		- 5 dB	- 5 dB	
Total of Propagation Loss		-150.7 dB	-150.7 dB	
Receiving Power				
Receiving Power		-89.9dBm	-89.9 dBm	Pt + Ga + Lp = Pr Vi = 113 + Pr
Receiving Level		23.1 dB _μ	23.1 dB _μ	
Noise of Receiving side				
Internal Noise Figure		9.5 dB	9.5 dB	; F ; E NF = 10 log (F + E - 1) Prn = -144 + 10 log B + NF
External Noise Factor		9.5 dB	9.5 dB	
Link Noise Figure		12.3 dB	12.3 dB	
Receiver Front end Noise		- 120.9 dBm	-120.9 dBm	
Quality of Link				
Threshold level		-111.9 dBm	-111.9 dBm	Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Drop out Margin		22 dB	22 dB	
Fading Presumed		7 dB	7 dB	
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		43.2 dB	43.2 dB	
S/N at Max. Fading		36.2 dB	36.2 dB	
Judgement				

Table A.3 (5/16)

Level Diagram VHF Link

Station	TX	CARMEN ROSALES	MUÑOZ	Frequency = 150 MHz
	RX	MUÑOZ	CARMEN ROSALES	Distance 38.0 Km
Transmitter				Remarks
Power		40 dBm	40 dBm	Pt = 10 watt
Max. Mod. Freq.		3 KHz	3 KHz	
Max Deviation		+5 KHz	+5 KHz	
Receiver				B
Band width		12 KHz	12 KHz	
S/N Improvement		12.2 dB	12.2 dB	
Antenna				5 ELE.YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m 5 ELE.YAGI Isotropic Gain 10D-2V-0.06dB/m x 40m Ga
Gain TX site		11 dB	11 dB	
Feeder loss of TX		-2.6dB	-2.6 dB	
Gain RX site		11 dB	11 dB	
Feeder loss of RX		-2.6dB	-2.6 dB	
Total of Ant. Gain		16.8 dB	16.8 dB	
Propagation Loss				Measured Value
Free Span Loss		-107.6 dB	-107.6 dB	
Mountain Refraction Loss		-19.0 dB	-19.0 dB	
1st Fresnel Loss		-11.0 dB	-11.0 dB	
Surface Refraction Loss		dB	dB	
Corrective Value		-4.9 dB	-4.9 dB	
Total of Propagation Loss		-142.5 dB	-142.5 dB	Lp
Receiving Power				
Receiving Power		-85.7 dBm	-85.7 dBm	Pt + Ga + Lp = Pr
Receiving Level		27.3 dB _μ	-27.3 dB _μ	Vi = 113 + Pr
Noise of Receiving side				
Internal Noise Figure		9.5 dB	9.5 dB	; F
External Noise Factor		9.5 dB	9.5 dB	; E
Link Noise Figure		12.3 dB	12.3 dB	NF = 10 log (F + E - 1)
Receiver Front end Noise		-120.9 dBm	-120.9 dBm	Prn = -144 + 10 log B + NF
Quality of Link				
Threshold level		-111.9 dBm	-111.9 dBm	Prn + 9 = Pth
Drop out Margin		26.2 dB	26.2 dB	Pr - Pth
Fading Presumed		3.8 dB	3.8 dB	0.1dB x d(Km)
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		47.4 dB	47.4 dB	
S/N at Max. Fading		43.6 dB	43.6 dB	
Judgement				

Table A.3 (6/16)

Level Diagram VHF Link

Station	TX	MUÑOZ	BALER RADAR	Frequency = 150 MHz
	RX	BALER RADAR	MUÑOZ	Distance 78.0 Km
Transmitter				Remarks
Power		44 dBm	44 dBm	Pt = 25 watt
Max. Mod. Freq.		3 KHz	3 KHz	
Max Deviation		+ 5 KHz	+ 5 KHz	
Receiver				B
Band width		12 KHz	12 KHz	
S/N Improvement		12.2 dB	12.2 dB	
Antenna				5 ELE.YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m 5 ELE.YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m Ga
Gain TX site		11 dB	11 dB	
Feeder loss of TX		-2.6 dB	-2.6 dB	
Gain RX site		11 dB	11 dB	
Feeder loss of RX		-2.6 dB	-2.6 dB	
Total of Ant. Gain		16.8 dB	16.8 dB	
Propagation Loss				Measured Value
Free Span Loss		-113.8 dB	-113.8 dB	
Mountain Refraction Loss		-29.2 dB	-29.2 dB	
1st Fresnel Loss		- 6 dB	- 6 dB	
Surface Refraction Loss		dB	dB	
Corrective Value		-1.5 dB	-1.5 dB	
Total of Propagation Loss		-150.5 dB	-150.5 dB	Lp
Receiving Power				Pt + Ga + Lp = Pr Vi = 113 + Pr
Receiving Power		-89.7 dBm	-89.7 dBm	
Receiving Level		23.3 dB _μ	23.3 dB _μ	
Noise of Receiving side				; F ; E NF = 10 log (F + E - 1) Prn = -144 + 10 log B + NF
Internal Noise Figure		9.5 dB	9.5 dB	
External Noise Factor		9.5 dB	9.5 dB	
Link Noise Figure		12.3 dB	12.3 dB	
Receiver Front end Noise		-120.9 dBm	-120.9 dBm	
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level		-111.9 dBm	-111.9 dBm	
Drop out Margin		22.2 dB	22.2 dB	
Fading Presumed		7.8 dB	7.8 dB	
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		43.4 dB	43.4 dB	
S/N at Max. Fading		35.6 dB	35.6 dB	
Judgement				

Table A.3 (7/16)

Level Diagram VHF Link

Station	TX	CASIGURAN	BALER RADAR	Frequency = 150 MHz
	RX	BALER RADAR	CASIGURAN	Distance 79.3 Km
Transmitter				Remarks
Power		44 dBm	44 dBm	Pt = 25 watt
Max. Mod. Freq.		3 KHz	3 KHz	
Max Deviation		± 5 KHz	± 5 KHz	
Receiver				
Band width		12 KHz	12 KHz	B
S/N Improvement		12.2 dB	12.2 dB	
Antenna				
Gain TX site		11 dB	11 dB	5 ELE.YAGI Isotropic Gain
Feeder loss of TX		-2.6 dB	-2.6 dB	10D-2V-0.065dB/m x 40m
Gain RX site		11 dB	11 dB	5 ELE.YAGI Isotropic Gain
Feeder loss of RX		-2.6 dB	-2.6 dB	10D-2V-0.065dB/m x 40m
Total of Ant. Gain		16.8 dB	16.8 dB	Ga
Propagation Loss				Measured Value
Free Span Loss		-114.0 dB	-114.0 dB	
Mountain Refraction Loss		dB	dB	
1st Fresnel Loss		dB	dB	
Surface Refraction Loss		-26.4 dB	-26.4 dB	
Corrective Value		-1.6 dB	-1.6 dB	
Total of Propagation Loss		-142.0 dB	-142.0 dB	Lp
Receiving Power				
Receiving Power		-81.2 dBm	-81.2 dBm	Pt + Ga + Lp = Pr
Receiving Level		31.8 dB μ	31.8 dB μ	Vi = 113 + Pr
Noise of Receiving side				
Internal Noise Figure		9.5 dB	9.5 dB	; F
External Noise Factor		9.5 dB	9.5 dB	; E
Link Noise Figure		12.3 dB	12.3 dB	NF = 10 log (F + E - 1)
Receiver Front end Noise		-120.9 dBm	-120.9 dBm	Prn = -144 + 10 log B + NF
Quality of Link				
Threshold level		-111.9 dBm	-111.9 dBm	Prn + 9 = Pth
Drop out Margin		30.9 dB	30.9 dB	Pr - Pth
Fading Presumed		8.0 dB	8.0 dB	0.1dB x d(Km)
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		51.9 dB	51.9 dB	
S/N at Max. Fading		43.9 dB	43.9 dB	
Judgement				

Level Diagram VHF Link

Table A.3 (8/16)

				Frequency = 150 MHz
				Distance 61.5 Km
Station	TX	AMBULONG	T A N A Y	Remarks
	RX	T A N A Y	AMBULONG	
Transmitter		(25W)	(50W)	Pt = watt
Power	44 dBm	47 dBm		
Max. Mod. Freq.	3 KHz	3 KHz		
Max Deviation	+ 5 KHz	+ 5 KHz		
Receiver				B
Band width	12 KHz	12 KHz		
S/N Improvement	12.2 dB	12.2 dB		
Antenna				TANAY: 6 ELE.CO-LINER AMBU.: 8 ELE.YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m Isotropic Gain 10D-2V-0.065dB/m x 40m Ga
Gain TX site	13 dB	8 dB		
Feeder loss of TX	- 2.6 dB	-2.6 dB		
Gain RX site	8 dB	13 dB		
Feeder loss of RX	- 2.6 dB	- 2.6 dB		
Total of Ant. Gain	15.8 dB	15.8 dB		
Propagation Loss				Measured Value
Free Span Loss	-111.7 dB	-111.7 dB		
Mountain Refraction Loss	-15.5 dB	-15.5 dB		
1st Fresnel Loss	- 6 dB	- 6 dB		
Surface Refraction Loss	dB	dB		
Corrective Value	-16.2 dB	-16.2 dB		
Total of Propagation Loss	-149.4 dB	-149.4 dB		
Receiving Power				Pt + Ga + Lp = Pr Vi = 113 + Pr
Receiving Power	-89.6 dBm	-86.6 dBm		
Receiving Level	23.4 dB _μ	26.4 dB _μ		
Noise of Receiving side				; F ; E NF = 10 log (F + E - 1) Prn = -144 + 10 log B + NF
Internal Noise Figure	9.5 dB	9.5 dB		
External Noise Factor	9.5 dB	9.5 dB		
Link Noise Figure	12.3 dB	12.3 dB		
Receiver Front end Noise	-120.9 dBm	-120.9 dBm		
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level	-111.9 dBm	-111.9 dBm		
Drop out Margin	22.3 dB	25.3 dB		
Fading Presumed	6.2 dB	6.2 dB		
S/N at Threshold Level	21.2 dB	21.2 dB		
Standard S/N	43.5 dB	46.5 dB		
S/N at Max. Fading	37.3 dB	40.3 dB		
Judgement				

Table A.3 (9/16)

Level Diagram VHF Link

				Frequency = 150 MHz
				Distance 127 Km
Station	TX	CALAPAN	TANAY	Remarks
	RX	TANAY	CALAPAN	
Transmitter				Pt = 50 watt
Power		47 dBm	47 dBm	
Max. Mod. Freq.		3 KHz	3 KHz	
Max Deviation		+ 5 KHz	+ 5 KHz	
Receiver				B
Band width		12 KHz	12 KHz	
S/N Improvement		12.2 dB	12.2 dB	
Antenna				TANAY: 6 ELE.CO.-LINER CALAP: 8 ELE.YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m Isotropic Gain 10D-2V-0.065dB/m x 40m Ga
Gain TX site		13 dB	8 dB	
Feeder loss of TX		-2.6 dB	-2.6 dB	
Gain RX site		8 dB	13 dB	
Feeder loss of RX		-2.6 dB	-2.6 dB	
Total of Ant. Gain		15.8 dB	15.8 dB	
Propagation Loss				Measured Value Lp
Free Span Loss		-118.0 dB	-118.0 dB	
Mountain Refraction Loss		-22.0 dB	-22.0 dB	
1st Fresnel Loss		-6.0 dB	-6.0 dB	
Surface Refraction Loss		dB	dB	
Corrective Value		-6.4 dB	-6.4 dB	
Total of Propagation Loss		-152.4 dB	-152.4 dB	
Receiving Power				
Receiving Power		-89.6 dBm	-89.6 dBm	
Receiving Level		23.4 dB _μ	23.4 dB _μ	
Noise of Receiving side				; F ; E NF = 10 log (F + E - 1) Prn = -144 + 10 log B + NF
Internal Noise Figure		9.5 dB	9.5 dB	
External Noise Factor		9.5 dB	9.5 dB	
Link Noise Figure		12.3 dB	12.3 dB	
Receiver Front end Noise		-120.9 dBm	-120.9 dBm	
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level		-111.9 dBm	-111.9 dBm	
Drop out Margin		22.3 dB	22.3 dB	
Fading Presumed		13 dB	13 dB	
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		43.5 dB	43.5 dB	
S/N at Max. Fading		30.5 dB	30.5 dB	
Judgement				

Table A.3 (10/16)

Level Diagram VHF Link

				Frequency = 150 MHz
				Distance 88.4 Km
Station	TX	ALABAT	TANAY	Remarks
	RX	TANAY	ALABAT	
Transmitter				Pt = 50watt
Power		47 dBm	47 dBm	
Max. Mod. Freq.		3 KHz	3 KHz	
Max Deviation		+ 5 KHz	+ 5 KHz	
Receiver				B
Band width		12 KHz	12 KHz	
S/N Improvement		12.2 dB	12.2 dB	
Antenna				TANAY: 6 ELE.CO.-LINER ALABAT: 5 ELE.YAGI Isotropic Gain
Gain TX site		13 dB	8 dB	10D-2V-0.065dB/m x 40m
Feeder loss of TX		-2.6 dB	-2.6 dB	
Gain RX site		8 dB	13 dB	Isotropic Gain
Feeder loss of RX		-2.6 dB	-2.6 dB	10D-2V-0.065dB/m x 40m
Total of Ant. Gain		15.8 dB	15.8 dB	Ga
Propagation Loss				Measured Value
Free Span Loss		-114.9 dB	-114.9 dB	Lp
Mountain Refraction Loss		-25.5 dB	-25.5 dB	
1st Fresnel Loss		- 6 dB	- 6 dB	
Surface Refraction Loss		dB	dB	
Corrective Value		- 5 dB	- 5 dB	
Total of Propagation Loss		-151.4 dB	-151.4 dB	
Receiving Power				
Receiving Power		-88.6 dBm	-88.6 dBm	
Receiving Level		24.4 dB _μ	24.4 dB _μ	
Noise of Receiving side				
Internal Noise Figure		9.5 dB	9.5 dB	; F
External Noise Factor		9.5 dB	9.5 dB	; E
Link Noise Figure		12.3 dB	12.3 dB	NF = 10 log (F + E - 1)
Receiver Front end Noise		-120.9 dBm	-120.9 dBm	Prn = -144 + 10 log B + NF
Quality of Link				
Threshold level		-111.9 dBm	-111.9 dBm	Prn + 9 = Pth
Drop out Margin		23.3 dB	23.3 dB	Pr - Pth
Fading Presumed		8.8 dB	8.8 dB	0.1dB x d(Km)
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		44.5 dB	44.5 dB	
S/N at Max. Fading		35.7 dB	35.7 dB	
Judgement				

Table A.3 (11/16)

Level Diagram VHF Link

Station	TX	INFANTA	TANAY	Remarks
	RX	TANAY	INFANTA	
				Frequency = 150 MHz Distance 38.3 Km
Transmitter				Pt = 50 watt
Power		47 dBm	47 dBm	
Max. Mod. Freq.		3 KHz	3 KHz	
Max Deviation		+ 5 KHz	+ 5 KHz	
Receiver				B
Band width		12 KHz	12 KHz	
S/N Improvement		12.2 dB	12.2 dB	
Antenna				TANAY: 6 ELE.CO.-LINER INFANTA: 8 ELE.YAGI Isotropic Gain 10D-2V-0.065dB/m x 40m Isotropic Gain 10D-2V-0.065dB/m x 40m Ga
Gain TX site		13 dB	8 dB	
Feeder loss of TX		-2.6 dB	-2.6 dB	
Gain RX site		8 dB	13 dB	
Feeder loss of RX		-2.6 dB	-2.6 dB	
Total of Ant. Gain		15.8 dB	15.8 dB	
Propagation Loss				Measured Value Lp
Free Span Loss		-107.6 dB	-107.6 dB	
Mountain Refraction Loss		-33.5 dB	-33.5 dB	
1st Fresnel Loss		- 12 dB	- 12 dB	
Surface Refraction Loss		dB	dB	
Corrective Value		-1.7 dB	-1.7 dB	
Total of Propagation Loss		-151.4 dB	-151.4 dB	
Receiving Power				Pt + Ga + Lp = Pr Vi = 113 + Pr
Receiving Power		-88.6 dBm	-88.6 dBm	
Receiving Level		24.4 dB _μ	24.4 dB _μ	
Noise of Receiving side				; F ; E NF = 10 log (F + E - 1) Prn = -144 + 10 log B + NF
Internal Noise Figure		9.5 dB	9.5 dB	
External Noise Factor		9.5 dB	9.5 dB	
Link Noise Figure		12.3 dB	12.3 dB	
Receiver front end Noise		-120.9 dBm	-120.9 dBm	
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level		-111.9 dBm	-111.9 dBm	
Drop out Margin		23.3 dB	23.3 dB	
Fading Presumed		3.8 dB	3.8 dB	
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		44.5 dB	44.5 dB	
S/N at Max. Fading		40.7 dB	40.7 dB	
Judgement				

Table A.3 (12/16) Level Diagram VHF Link

Station	TX	TANAY		Frequency = 150 MHz Distance = 116.6 Km
	RX	JOMALIG		
Transmitter				Remarks
Power		47 dBm	47 dBm	Pt = 50 watt
Max. Mod. Freq.		3 kHz	3 kHz	
Max. Deviation		± 5 kHz	± 5 kHz	
Receiver				B
Band Width		12 kHz	12 kHz	
S/N Improvement		12.2 dB	12.2 dB	
Antenna				CO-LINEAR Isotropic Gain 10D2V 0.065dB/mx40m 8 ELE. YAGI Isotropic Gain 10D2V 0.065dB/mx40m Ga
Gain TX Site		8.0 dB	dB	
Feeder Loss of TX		-2.6 dB	dB	
Gain RX Site		13.0 dB	dB	
Feeder Loss of RX		-2.6 dB	dB	
Total of Ant. Gain		15.8 dB	dB	
Propagation Loss				Measured Value
Free Span Loss		-117.3 dB	dB	
Mountain Refraction Loss		-27.0 dB	dB	
1st Fresnel Loss		dB	dB	
Surface Refraction Loss		dB	dB	
Corrective Value		-8.5 dB	dB	
Total of Propagation Loss		-152.8 dB	dB	Lp
Receiving Power				Pt + Ga + Lp = Pr Vi = 113 + Pr
Receiving Power		-90.0 dBm	dBm	
Receiving Level		23.0 dBμ	dBμ	
Noise of Receiving Side				; F ; E NF = 10 log (F+E-1) Prn = -144+10 logB+NF
Internal Noise Figure		9.5 dB	9.5 dB	
External Noise Factor		9.5 dB	9.5 dB	
Link Noise Figure		12.3 dB	12.3 dB	
Receiver Front End Noise		-120.9 dBm	-120.9 dBm	
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level		-111.9 dBm	-111.9 dBm	
Drop Out Margin		21.9 dB	dB	
Fading Presumed		11.7 dB	dB	
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		43.1 dB	dB	
S/N at Max. Fading		31.4 dB	dB	
Judgement				

Table A.3 (13/16) Level Diagram VHF Link

Station	TX	MALABOG		Frequency = 150 MHz
	RX	MASBATE		Distance = 88.6 Km
				Remarks
Transmitter				Pt = 25 watt
Power	44 dBm	44 dBm		
Max. Mod. Freq.	3 kHz	3 kHz		
Max. Deviation	± 5 kHz	± 5 kHz		
Receiver				B
Band Width	12 kHz	12 kHz		
S/N Improvement	12.2 dB	12.2 dB		
Antenna				8 ELE. YAGI Isotropic Gain 8D2V 0.09dB/mx25m 8 ELE. YAGI Isotropic Gain 8D2V 0.09dB/mx25m Ga
Gain TX Site	13 dB	dB		
Feeder Loss of TX	-2.3 dB	dB		
Gain RX Site	13 dB	dB		
Feeder Loss of RX	-2.3 dB	dB		
Total of Ant. Gain	21.4 dB	dB		
Propagation Loss				Measured Value
Free Span Loss	-114.9 dB	dB		
Mountain Refraction Loss	-26.5 dB	dB		
1st Fresnel Loss	-6.0 dB	dB		
Surface Refraction Loss	dB	dB		
Corrective Value	-2.6 dB	dB		
Total of Propagation Loss	-150.0 dB	dB	Lp	
Receiving Power				Pt + Ga + Lp = Pr Vi = 113 + Pr
Receiving Power	-84.6 dBm	dBm		
Receiving Level	28.4 dBμ	dBμ		
Noise of Receiving Side				; F ; E NF = 10 log (F+E-1) Prn = -144+10 logB+NF
Internal Noise Figure	9.5 dB	9.5 dB		
External Noise Factor	9.5 dB	9.5 dB		
Link Noise Figure	12.3 dB	12.3 dB		
Receiver Front End Noise	-120.9 dBm	-120.9 dBm		
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level	-111.9 dBm	-111.9 dBm		
Drop Out Margin	27.3 dB	dB		
Fading Presumed	9.0 dB	dB		
S/N at Threshold Level	21.2 dB	21.2 dB		
Standard S/N	48.5 dB	dB		
S/N at Max. Fading	39.5 dB	dB		
Judgement				

Table A.3 (14/16) Level Diagram VHF Link

Station	TX	MASBATE		Frequency = 150 MHz
	RX	ROMBLON(Mt.)		Distance = 147.5 Km
				Remarks
Transmitter				Pt = watt MASBATE 50 W ROMBLON 25 W
Power	47 dBm			
Max. Mod. Freq.	3 kHz		3 kHz	
Max. Deviation	± 5 kHz		± 5 kHz	
Receiver				B
Band Width	12 kHz		12 kHz	
S/N Improvement	12.2 dB		12.2 dB	
Antenna				BOTH DIRECTION ANT 5 ELE. YAGI Isotropic Gain 10D-2V 0.065dB/mx40m 5 ELE. YAGI Isotropic Gain 10D-2V 0.065dB/mx40m Ga
Gain TX Site	7.5 dB		dB	
Feeder Loss of TX	-2.6 dB		dB	
Gain RX Site	11 dB		dB	
Feeder Loss of RX	-2.6 dB		dB	
Total of Ant. Gain	13.3 dB		dB	
Propagation Loss				Measured Value
Free Span Loss	-119.3 dB		dB	
Mountain Refraction Loss	dB		dB	
1st Fresnel Loss	dB		dB	
Surface Refraction Loss	dB		dB	
Corrective Value	-27.1 dB		dB	
Total of Propagation Loss	-146.4 dB		dB	
Receiving Power				Lp Pt + Ga + Lp = Pr Vi = 113 + Pr
Receiving Power	-86.1 dBm		dBm	
Receiving Level	26.9 dBμ		dBμ	
Noise of Receiving Side				; F ; E NF = 10 log (F+E-1) Prn = -144+10 logB+NF
Internal Noise Figure	9.5 dB		9.5 dB	
External Noise Factor	9.5 dB		9.5 dB	
Link Noise Figure	12.3 dB		12.3 dB	
Receiver Front End Noise	-120.9 dBm		-120.9 dBm	
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level	-111.9 dBm		-111.9 dBm	
Drop Out Margin	25.8 dB		dB	
Fading Presumed	14.8 dB		dB	
S/N at Threshold Level	21.2 dB		21.2 dB	
Standard S/N	47.0 dB		dB	
S/N at Max. Fading	32.2 dB		dB	
Judgement				

Table A.3 (15/16) Level Diagram VHF Link

Station	TX	SAN FRANCISCO		Frequency = 150 MHz Distance = 89.0 Km
	RX	ROMBLON(Mt.)		
				Remarks
Transmitter				Pt = 25 watt
Power		44 dBm	44 dBm	
Max. Mod. Freq.		3 kHz	3 kHz	
Max. Deviation		± 5 kHz	± 5 kHz	
Receiver				B
Band Width		12 kHz	12 kHz	
S/N Improvement		12.2 dB	12.2 dB	
Antenna				5 ELE. YAGI Isotropic Gain 10D-2V 0.065dB/mx40m 5 ELE. YAGI Isotropic Gain 10D-2V 0.065dB/mx40m Ga
Gain TX Site		11 dB	11 dB	
Feeder Loss of TX		-2.6 dB	-2.6 dB	
Gain RX Site		11 dB	11 dB	
Feeder Loss of RX		-2.6 dB	-2.6 dB	
Total of Ant. Gain		16.8 dB	16.8 dB	
Propagation Loss				Measured Value
Free Span Loss		-114.9 dB	dB	
Mountain Refraction Loss		dB	dB	
1st Fresnel Loss		dB	dB	
Surface Refraction Loss		dB	dB	
Corrective Value		-8.9 dB	dB	
Total of Propagation Loss		-123.8 dB	dB	
Receiving Power				Lp
Receiving Power		-63.0 dBm	dBm	
Receiving Level		50.0 dBμ	dBμ	Pt + Ga + Lp = Pr Vi = 113 + Pr
Noise of Receiving Side				; F ; E NF = 10 log (F+E-1) Prn = -144+10 logB+NF
Internal Noise Figure		9.5 dB	9.5 dB	
External Noise Factor		9.5 dB	9.5 dB	
Link Noise Figure		12.3 dB	12.3 dB	
Receiver Front End Noise		-120.9 dBm	-120.9 dBm	
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)
Threshold level		-111.9 dBm	-111.9 dBm	
Drop Out Margin		48.9 dB	dB	
Fading Presumed		8.9 dB	dB	
S/N at Threshold Level		21.2 dB	21.2 dB	
Standard S/N		60.0 dB	dB	
S/N at Max. Fading		60.0 dB	dB	
Judgement				

Table A.3 (16/16) Level Diagram VHF Link

Station	TX	TACLOBAN		Frequency = 150 MHz	
	RX	GUIUAN RADAR		Distance = 80.7 Km	
				Remarks	
Transmitter				Pt = 25 watt	
Power	44	dBm	44		dBm
Max. Mod. Freq.	3	kHz	3		kHz
Max. Deviation	± 5	kHz	± 5		kHz
Receiver				B	
Band Width	12	kHz	12		kHz
S/N Improvement	12.2	dB	12.2		dB
Antenna				5 ELE. YAGI Isotropic Gain 10D-2V 0.065dB/mx40m 5 ELE. YAGI Isotropic Gain 10D-2V 0.065dB/mx40m Ga	
Gain TX Site	11	dB	11		dB
Feeder Loss of TX	-2.6	dB	-2.6		dB
Gain RX Site	11	dB	11		dB
Feeder Loss of RX	-2.6	dB	-2.6		dB
Total of Ant. Gain	16.8	dB	16.8		dB
Propagation Loss				Measured Value Lp	
Free Span Loss	-114.1	dB			dB
Mountain Refraction Loss	-24.5	dB			dB
1st Fresnel Loss	-6	dB			dB
Surface Refraction Loss		dB			dB
Corrective Value	-2.2	dB			dB
Total of Propagation Loss	-146.8	dB			dB
Receiving Power				Pt + Ga + Lp = Pr Vi = 113 + Pr	
Receiving Power	-86.0	dBm			dBm
Receiving Level	27.0	dBμ			dBμ
Noise of Receiving Side				; F ; E NF = 10 log (F+E-1) Prn = -144+10 logB+NF	
Internal Noise Figure	9.5	dB	9.5		dB
External Noise Factor	9.5	dB	9.5		dB
Link Noise Figure	12.3	dB	12.3		dB
Receiver Front End Noise	-120.9	dBm	-120.9		dBm
Quality of Link				Prn + 9 = Pth Pr - Pth 0.1dB x d(Km)	
Threshold level	-111.9	dBm	-111.9		dBm
Drop Out Margin	25.9	dB			dB
Fading Presumed	8.1	dB			dB
S/N at Threshold Level	21.2	dB	21.2		dB
Standard S/N	47.1	dB			dB
S/N at Max. Fading	39	dB		dB	
Judgement					