Respectfully submitted,

THE LARGE PUBLIC POWER COUNCIL

By Thomas J. Keller

Thomas J. Keller
Amy Bondurant
Erwin G. Krasnow
Lawrence R. Sidman
Jacqueline R. Kinney

VERNER, LIIPFERT, BERNHARD,
McPHERSON AND HAND, CHARTERED
901 15th Street, N.W.
Suite 700
Washington, D.C. 20005
(202) 371-6060

Its Attorneys

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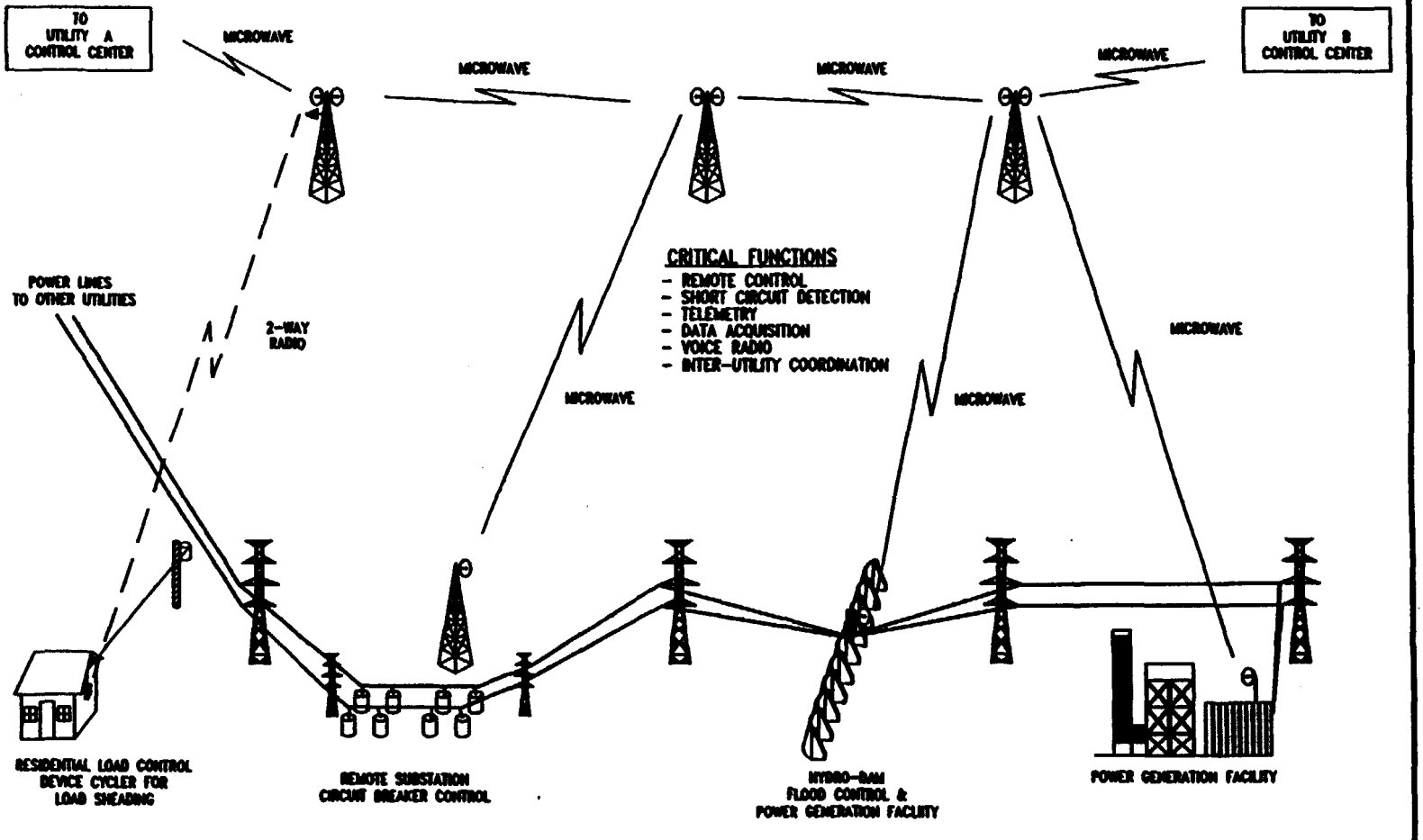
ELECTRIC UTILITY MICROWAVE RADIO SYSTEMS

- are essential for safe, reliable, and efficient transmission of electric power through interconnected utility networks



PUBLIC SAFETY IS DEPENDENT ON RELIABLE ELECTRIC POWER AND SHORT CIRCUIT DETECTION

RELIABLE ELECTRIC TRANSMISSION IS CRITICAL TO BOTH THE STATE AND LOCAL ECONOMY

Attachment A

F A R I N O N

A FULL SPECTRUM OF PRODUCTS & SERVICES

[redacted]

FAS-2000 "e Series"
2 GHz Analog Radio

SPECIFICATIONS

SYSTEM CHARACTERISTICS

Frequency	
Range	1,700 to 2,300 MHz
Plans	
U.S. Operational Fixed FCC Part	94
U.S. Common Carrier FCC Part	21
CCIR Rec. 283-4	
T-R Spacing	49 MHz, minimum
T-T Or R-R Spacing	
Single Polarized Antenna	28 MHz, minimum
Dual Polarized Antenna	14 MHz, minimum
CCIR Rec. 382-3	
T-R Spacing	68 MHz, minimum
T-T Or R-R Spacing	
Single Polarized Antenna	58 MHz, minimum
Dual Polarized Antenna	29 MHz, minimum
Canada DOC SRSP 303, 301.9 Issue 2	
Emphasis	CCIR Rec. 275-3 Or Flat
Altitude	4,572 m/15,000 feet AMSL
Humidity	95% at +40°C
Temperature Range	
Full Performance	0° to +50°C
Operation	−30° to +55°C
Storage	−40° to +65°C

BASEBAND CHARACTERISTICS
(Excluding BB Treatment Components)

Test Tone Levels & Impedance	
Transmitter Input Levels	
Baseband (3 Ports, 75 ohms, Unbalanced)	
Main Port (Switch Selectable)	−25, −35, or −45 dBm
Aux Port 1	−25 dBm
Aux Port 2	−25 dBm
O.W./Alarm	
(2 Port, 600 ohms, Balanced)	−20 dBm
or	
(1 Port, 75 ohms, Unbalanced)	−20 or −25 dBm
Receiver Output Levels	
Baseband (3 Ports, 75 ohms, Unbalanced)	
Main Port (Switch Selectable)	−15 or −25 dBm
Aux Port 1	−25 dBm
Aux Port 2	−25 dBm
O.W./Alarm	
(2 Port, 600 ohms, Balanced)	0 dBm
or	
(1 Port, 75 ohms, Unbalanced)	0 or −25 dBm
Return Loss	
0.3 kHz To Top BB Frequency	26 dB
Frequency Responses	
0.3 To 0.5 kHz	+0 to −1.0 dB
0.5 To 12 kHz	±0.5 dB
12 kHz To Top BB Frequency	±0.25 dB
Spurious Tones	
12 kHz To Top BB Frequency	−70 dBm0, maximum
When 600 ohms O.W. Equipped	
12 To 30 kHz	−60 dBm0, maximum
30 kHz To Top BB Frequency	−70 dBm0, maximum
Isolation Between Main & Aux Baseband Ports	
4 kHz To Top BB Frequency	70 dB, minimum

Specifications

	MDR-5102	MDR-5202	MDR-5302
Frequency band (GHz)	1.7-2.3	1.7-2.3	1.7-2.3
Emission designator	3M50D7W	3M20D7W	1M60D7W
RF channel bandwidth (MHz)	3.5	3.2	1.6
Capacity/RF channel (DS1s)	12	8	4
Modulation (QAM)	256	64	64
Data rate (Mb/s)	18.528	12.352	6.176
Data efficiency (b/s per Hz)	5.29	3.86	3.86
FCC identifier	JF6-8804	JF6-8903	JF6-8904
FCC internal identifier	27RA-01	27J7-01	27JF-01
System gain (BER = 10^{-3})[1]			
Without APC (dB)	102.5	112	115
With APC (dB)	104.5	113	116
Transmit frequency stability	0.001%	0.001%	0.001%
Transmitter power output			
Maximum transmit power (with APC) (dBm)	30	31	31
Maximum transmit power (without APC) (dBm)	28	30	30
Nominal transmit power (with APC) (dBm)	17	18	18
Receiver threshold (BER = 10^{-3})[1]			
Guaranteed (dBm)	–71.5	–80.0	–83.0
Typical (dBm)	–74.5	–82.0	–85.0
Receiver threshold (BER = 10^{-6})[1]			
Guaranteed (dBm)	–70.0	–78.5	–81.5
Typical (dBm)	–72.5	–80.0	–83.0
Maximum RSL for 10^{-3} BER (dBm)	–20	–17	–17
Dispersive fade margin (BER = 10^{-6}) (dB)	51	56	72
Threshold/Interference			
Cochannel (dB)	38.8	33	33
Adjacent channel (dB)	–10	–10	–10

Power Requirements

Input Voltage	–21 to –28 or –42 to –56 V dc
Typical Power Consumption Per T/R	112 watts
With APC	94 watts

Mechanical Dimensions and Interfaces

Size (H x W x D)	40.25 x 19.0 x 13.0 in
Weight	85 pounds
RF In/Out	Type-N female
DS1 In/Out	Two 36-pin Amp-Champ (one xmtr, one rcvr) or wire wrap
Orderwire Handset	Standard telephone handset jack
Service Channel	BNC 75Ω female

Excerpt from Alcatel Network Systems Product Brochure:
"Multipurpose 2-GHz Radio; Collins MDR-5X02"

CERTIFICATE OF SERVICE

I, Jaime Y.W. Bierds, a secretary for the law firm Verner, Liipfert, Bernhard, McPherson and Hand, Chartered, do hereby certify that a true and correct copy of the foregoing "Comments of Large Public Power Council" was delivered by hand, this 8th day of June, 1992, to the following:

Chairman Alfred C. Sikes
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, D.C. 20554

Commissioner James H. Quello
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, D.C. 20554

Commissioner Sherrie P. Marshall
Federal Communications Commission
1919 M Street, N.W., Room 826
Washington, D.C. 20554

Commissioner Andrew D. Barrett
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, D.C. 20554

Commissioner Ervin S. Duggan
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, D.C. 20554

Thomas J. Sugrue
Acting Assistant Secretary
National Telecommunications
and Information Administration
Herbert C. Hoover Building
14th Street & Constitution Avenue, N.W.
Washington, D.C. 20230

Ralph Haller, Chief
Private Radio Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5002
Washington, D.C. 20554

Dr. Thomas P. Stanley, Chief
Office of Engineering and Technology
Federal Communications Commission
2025 M Street, N.W., Room 7002
Washington, D.C. 20554

Robert L. Pettit
General Counsel
Federal Communications Commission
1919 M Street, N.W.
Room 614
Washington, D.C. 20554

Dr. Robert M. Pepper, Chief
Office of Plans and Policy
Federal Communications Commission
1919 M Street, N.W.
Room 812
Washington, D.C. 20554

Jamie Y.W. Bierds