

STATION	W214CF	FM TRANSLATOR
LOCATION	MANSFIELD, PA	
CHANNEL	FMX NCE	

**CALCULATED FOR**  
ERP OF 0.010 KILOWATTS H & V (10 WATTS)

**W214CF**

MANSFIELD, PA  
FMX NCE

**COMPUTED LINE LOSSES - BASED ON MANUFACTURES TABLES AT OPERATING FREQUENCY**

DESCRIPTION AND LENGTH NEAREST FOOT	SIZE/TYPE	LENGTH	EXTRA LOSS (dB) (IF ANY)	SECTION LOSS (dB)	TOTAL (dB)
JUMPER ANT	TRANSMISSION LINE	1/2' SUPERFLEX FOAM	FEET		
VERTICAL RUN	TRANSMISSION LINE	1/2" FOAM	FEET	79.00	
BLD TO TOWER	TRANSMISSION LINE	1/2" FOAM	FEET	13.00	
JUMPER TRANS	TRANSMISSION LINE	1/2" SUPERFLEX FOAM			
MISC ANT/LINE/TERMINATION CONNECTOR LOSSES		QYN	2.00		
			0	0.000	0.000
			0	0.525	0.525
			0	0.086	0.086
			0	0.000	0.000
			0	0.030	0.030

FM	214	CH
FREQ:	90.7	MHz
<b>FREQUENCY SENSITIVE COMPONENTS</b>		
0.9860	DB PER 100 FT	SYSTEM JUMPER AT ANTENNA
0.6650	DB PER 100 FT	VERTICAL RUN ON TOWER
0.6650	DB PER 100 FT	HORIZONTAL RUN TO TX BLD
0.9860	DB PER 100 FT	SYSTEM JUMPER AT TRANSMITTER
0.0151	DB PER PAIR	TERMINATING CONNECTOR LOSSES
<i>Insertion Loss = 0.05 X sqrt (freq GHz)</i>		

TOTAL FEET (MIXED) **92.00**

**COMPUTED SYSTEM LOSSES**  
**SUBTOTAL** **0.642**

**CLIENT PROVIDED LOSSES (IF ANY)**

0.000 dB Line Loss (with jumpers, line, and connector losses) from above  
0.000 dB additional losses (Bandpass filter, if used example Telewave TBPC 1008-2)  
0.000 dB additional losses (Kintronic AM isolation coil, etc.)

**TOTAL** **0.642** Total System Loss in dB

**86.26%** Transmission System Efficiency Factor = Eff (%)

**COMPUTED TPO NEAREST WATT**

**23**

0.010 kW	-20.000 dBk	STATION MAXIMUM ERP
0.500 X (Gain)	-3.010 dBd	ANTENNA GAIN PER ANT SPEC SHEET
0.020 kW	-16.990 dBk	ANTENNA INPUT
0.003 kW	0.642 dB	SYSTEM TOTAL LOSSES
0.023 kW	-16.348 dBk	TRANSMITTER POWER

105%	0.024	TPO HIGH LIMIT
100%	0.023	NOMINAL
90%	0.021	TPO LOW LIMIT

**Math Proof Check**

TPO X EFF X ANT G = ERP  
0.023 86.26% 0.500 0.010

ANTENNA SPECIFIED	
MAKE	SWR
MODEL	FM1-1
BAYS	1
SPACING	1.00
MODE	OMNI
CIRCULAR	H & V
ANT GAIN	0.500

**T Z SAWYER TECHNICAL CONSULTANTS**

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