

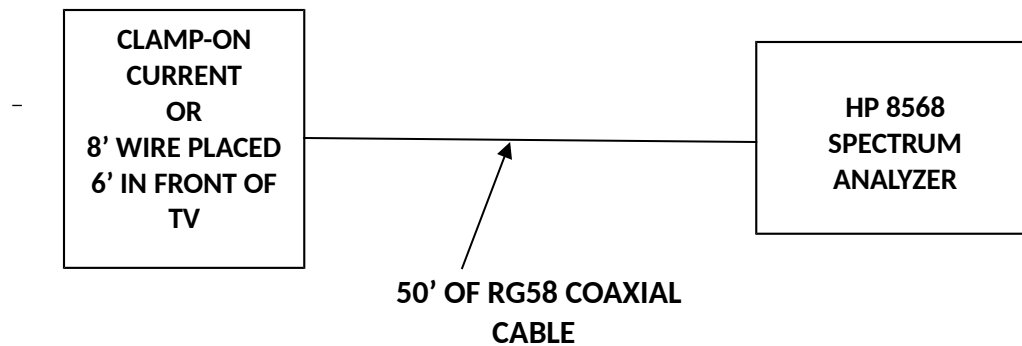
MEASURED INTERFERENCE FROM PANASONIC PLASMA TV

MODEL: TH-42PX50U, SERIAL #: YH5231497

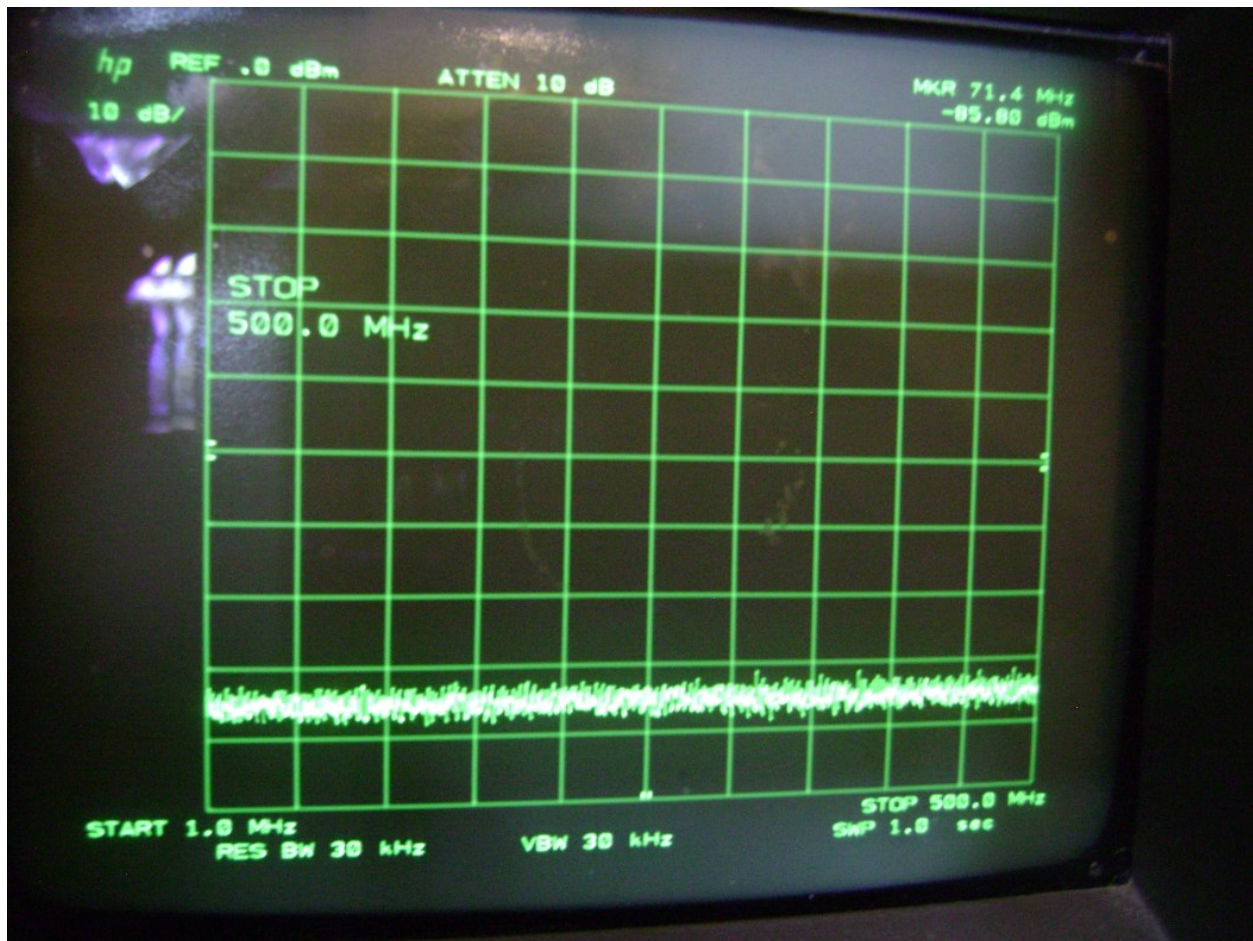
15 JAN, 2009

DATE OF MANUFACTURE OF THIS TV IS NOTED AS MAR 2005 ON THE REGULATORY LABEL.

THE MEASUREMENT SETUP IS AS FOLLOWS:



FIRST A PLOT OF THE NOISE FLOOR OF THE MEASUREMENT SETUP TO GIVE A REFERENCE FOR THE LEVEL OF INTERFERENCE:



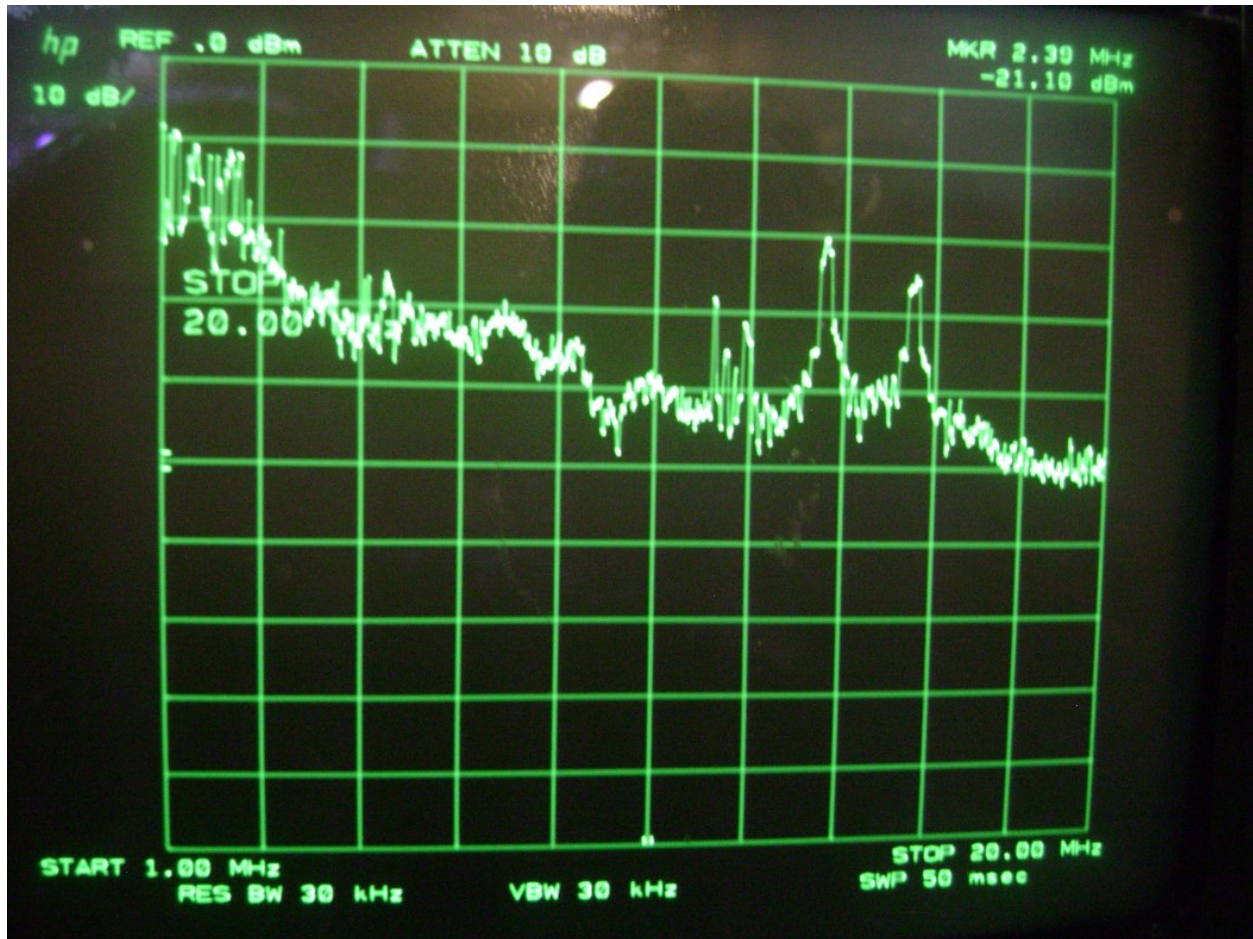
THIS IS A SPECTRUM ANALYZER PLOT SPANNING 1 MHZ TO 500 MHZ WITH NO INPUT ON THE TV END OF THE COAXIAL CABLE. NOTE THE LEVEL OF THE NOISE FLOOR IS ROUGHLY -85 DBM.

I FIRST MADE MEASUREMENTS WITH A CURRENT CLAMP ON THE LINE CORD AFTER THE MOULDED-ON FERRITE BEAD. THE CURRENT PROBE HAS A TRANSFER FUNCTION OF -15 DB FROM THE ACTUAL SIGNAL LEVEL FROM 1 MHZ THROUGH 100 MHZ. THEREFORE, THE INDICATED STRENGTH OF THE MEASURED INTERFERENCE IS 15 DB **STRONGER** THAN THAT SHOWN ON THE FOLLOWING SPECTRUM ANALYZER PLOTS.

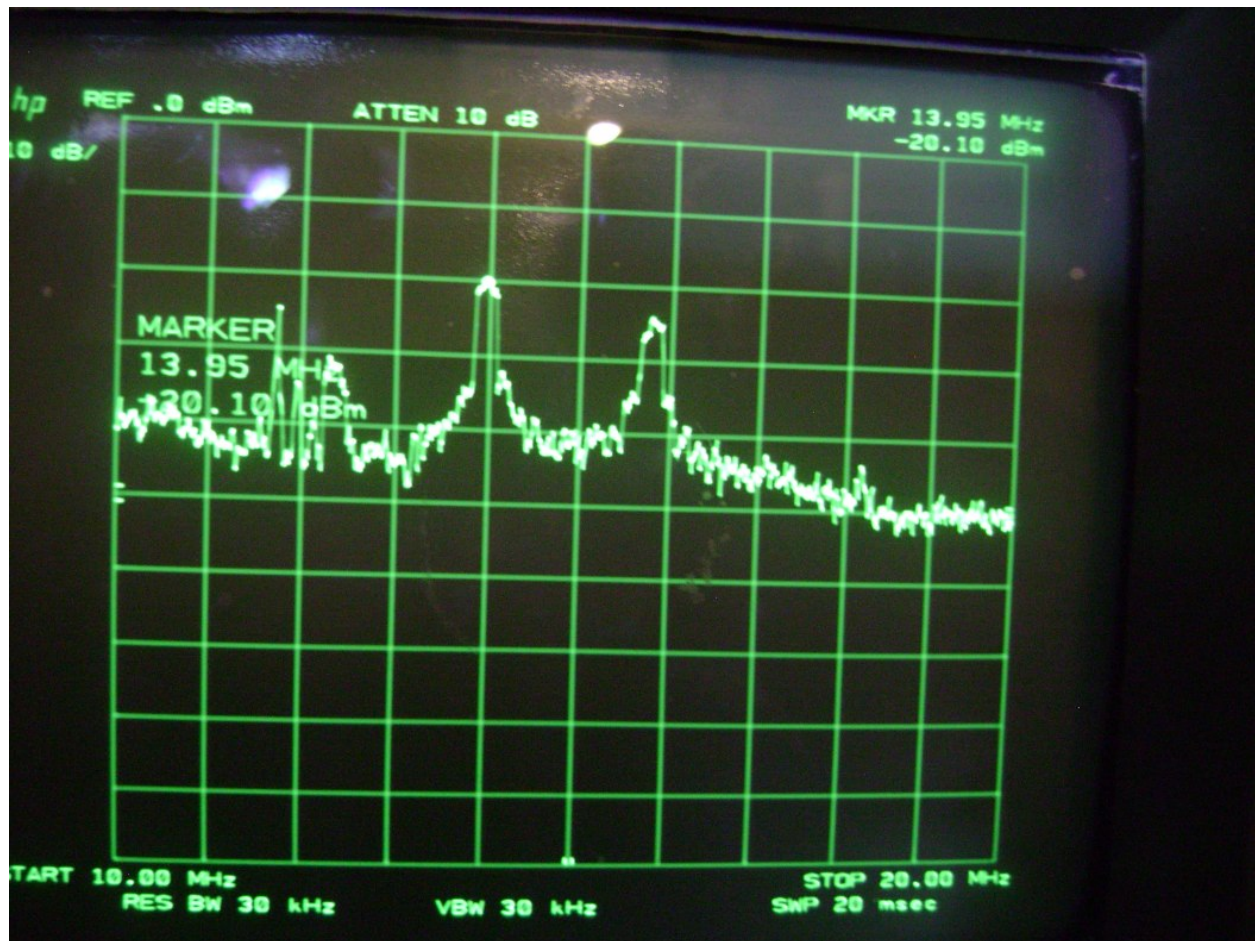
THE FIRST PLOT SHOWS THE CONDUCTED EMISSION ON THE LINE CORD FROM 100 KHZ THROUGH 2 MHZ. ACCOUNTING FOR THE TRANSFER FUNCTION OF THE CURRENT PROBE, THE HIGHEST LEVEL AT ROUGHLY 174 KHZ IS 105 DB ABOVE THE BASELINE. EVERYTHING IS AT LEAST 90 DB ABOVE THE BASELINE LEVEL. THE EMISSIONS WERE HIGHLY UNSTABLE IN FREQUENCY AND ARE **NOT TYPICAL OF A SWITCHING MODE POWER SUPPLY**. THEY ARE CLEARLY RELATED TO THE "TV" END OF THE UNIT.



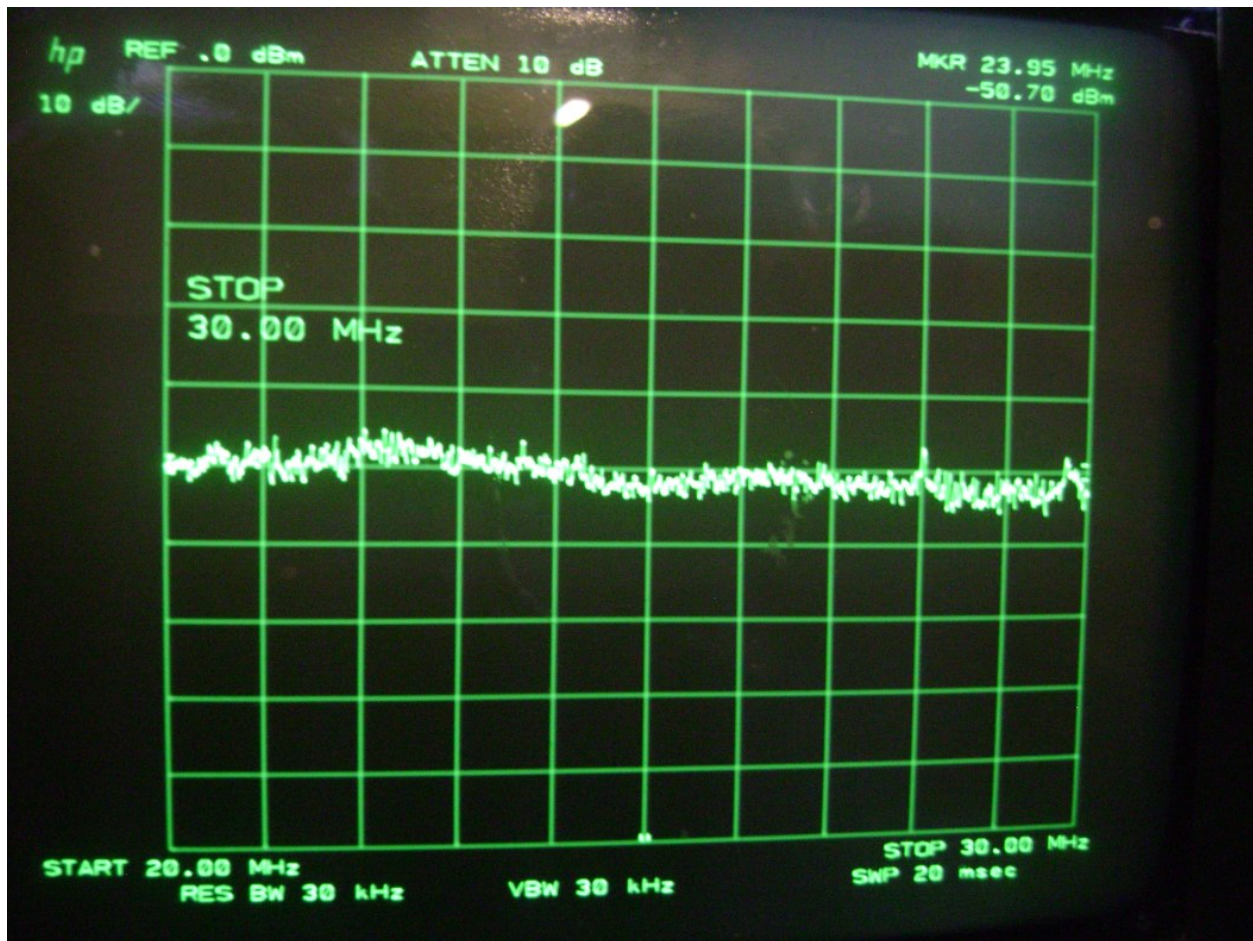
THE NEXT PLOT PRESENTS THE INTERFERENCE FROM 1 MHZ TO 20 MHZ. THE LEFT ROUGHLY 2 MHZ IS 75 DB ABOVE THE BASELINE EVEN WITHOUT ACCOUNTING FOR THE TRANSFER FUNCTION OF THE PROBE. EVERYTHING IS AT LEAST 35 DB ABOVE BASELINE.



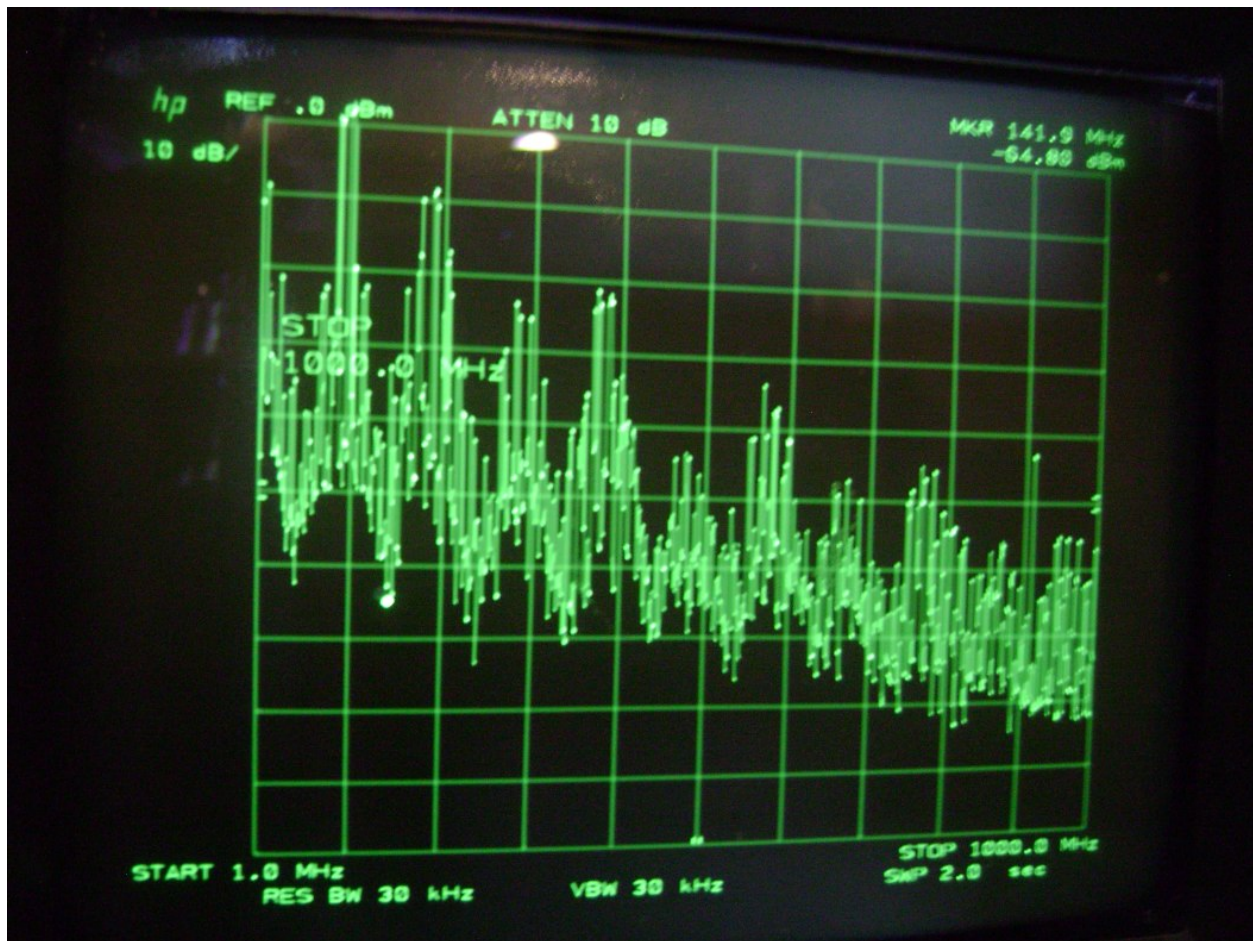
THE NEXT PLOT PRESENTS A MEASUREMENT OF THE INTERFERENCE (CONDUCTED EMISSIONS) FROM 10 MHZ TO 20 MHZ. ACCOUNTING FOR THE TRANSFER FUNCTION OF THE CURRENT PROBE, THE TWO PEAKS AT ROUGHLY CENTER ARE 90 DB **ABOVE** THE BASELINE. EVERYTHING IS AT LEAST 60 DB ABOVE THE BASELINE (WITH THE TRANSFER FUNCTION ACCOUNTED FOR).



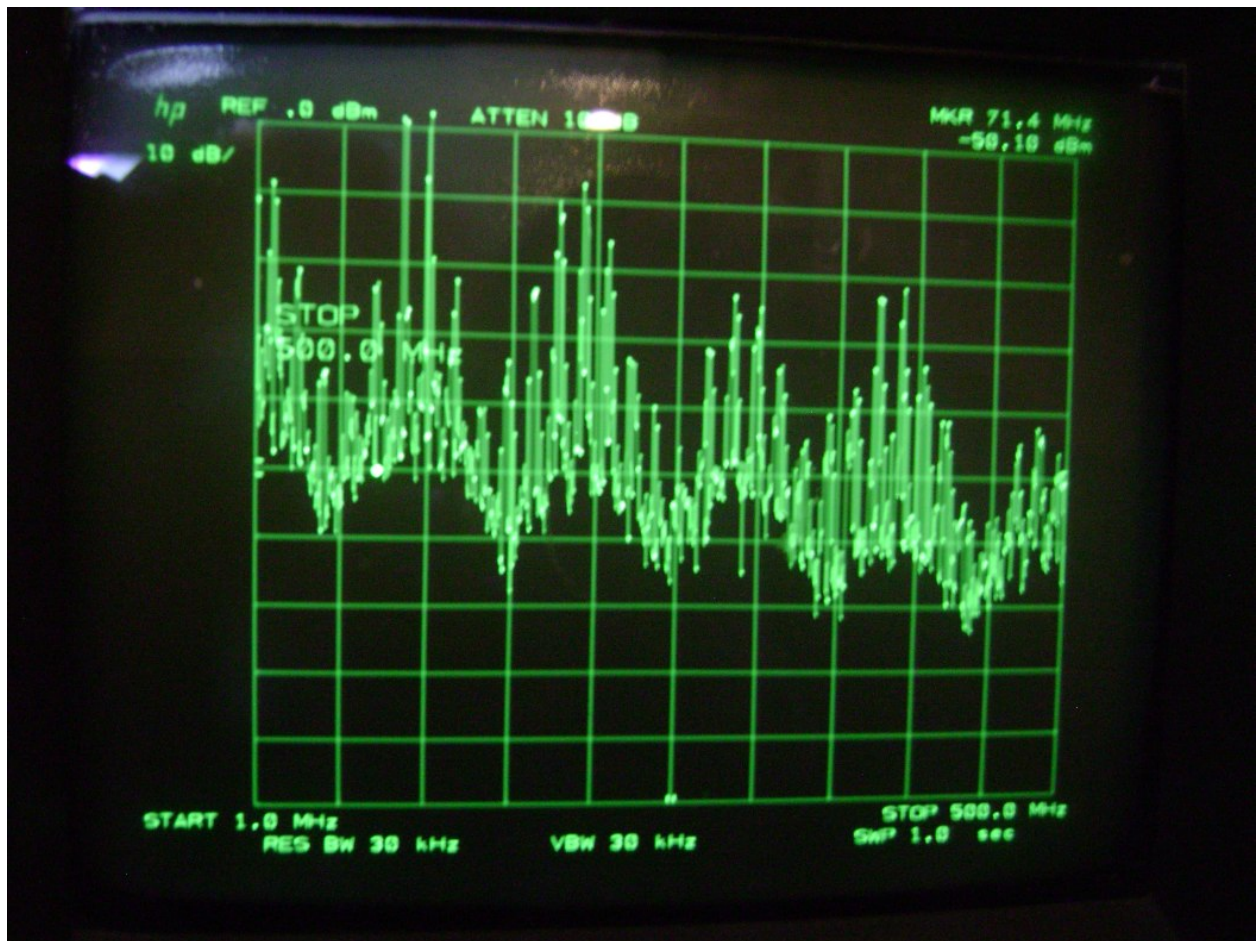
NEXT, A PLOT FROM 20 TO 30 MHZ. THE INTERFERENCE ON THE LINE CORD IS FINALLY BEGINNING TO DIE OUT BUT IS STILL 55 DB ABOVE THE BASELINE (WITH TRANSFER FUNCTION OF PROBE).



THE NEXT SET OF PLOTS PRESENT MEASURED INTERFERENCE LEVELS WITH AN 8' LENGTH OF WIRE LAID 6' IN FRONT OF THE SUBJECT TV AND PARALLEL TO ITS FRONT. THE WIRE IS SIMPLY LAID ON THE WOODEN FLOOR IN THE REFERENCED POSITION. THE FIRST PLOT PRESENTS DATA FOR 1 MHZ THROUGH 1 GHZ. THIS FREQUENCY RANGE INCLUDES AM BROADCAST, FM BROADCAST, ALL PUBLIC SERVICE COMMUNICATIONS (FIRE, AMBULANCE, POLICE, HIGHWAY PATROL,.....), ALL AIRLINE COMMUNICATIONS (FAA), ALL OVER-THE-AIR BROADCAST TV, CELLULAR TELEPHONE, PAGING, AND.... FREQUENCIES. AND YOU SHOULD WONDER WHY I HAVE TROUBLE WITH THIS TV? THE TV OVERPOWERS ANY AND ALL AMBIENTS THAT MIGHT BE IN THE PLOT. ALSO NOTE THE ROUGHLY 100 MHZ PERIODICITY IN PEAK EMISSION "CLUMPS". THE THING IS UGLY!!



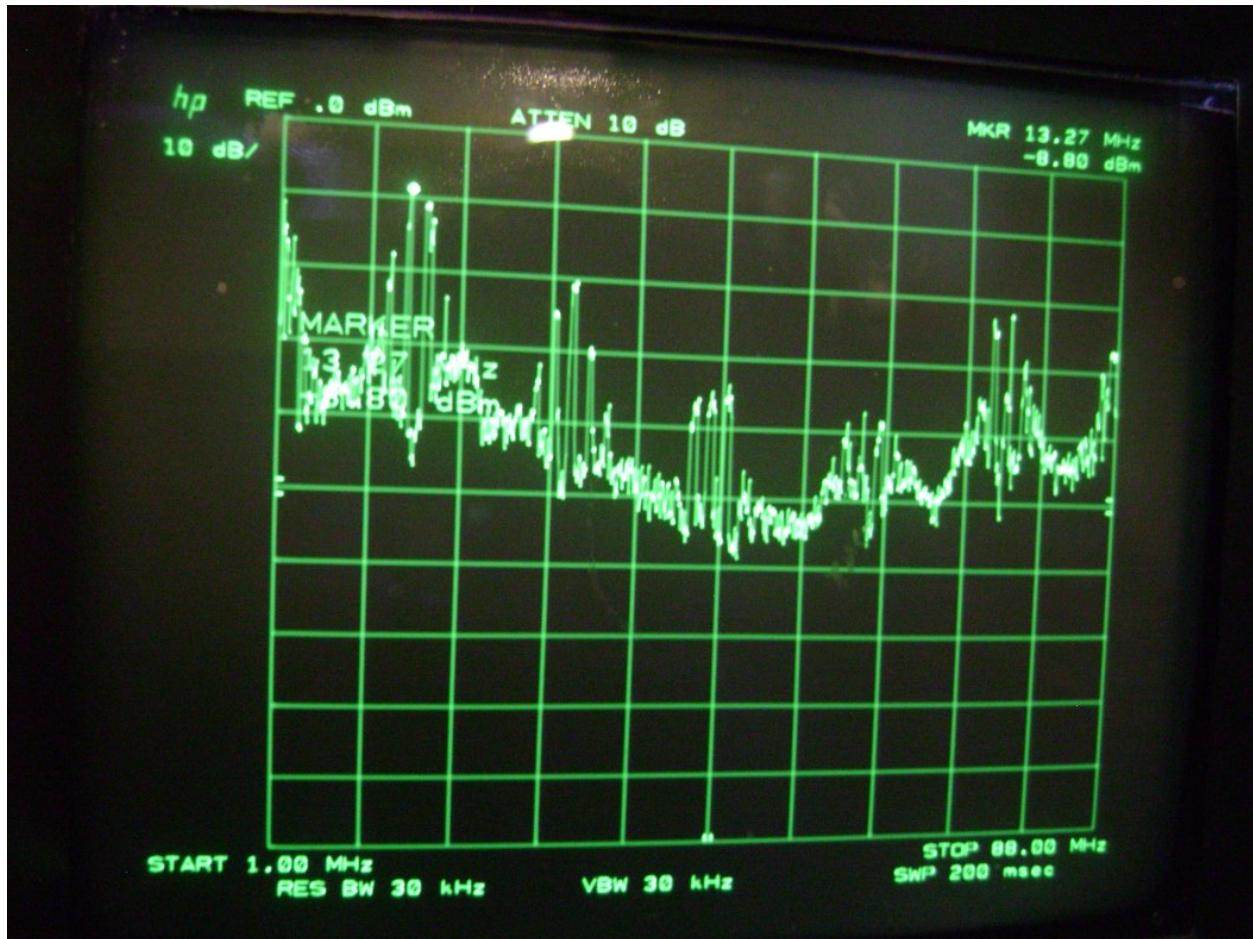
ZEROING IN A LITTLE, I TOOK DATA FROM 1 MHZ THROUGH 500 MHZ. THE FOLLOWING PLOT PRESENTS THAT DATA.



THE FOLLOWING PRESENTS 1 MHZ THROUGH 200 MHZ. THE BASELINE IS PLACED IDENTICALLY AS IN THE CURRENT PROBE MEASUREMENTS, BUT THE “TRANSDUCER” IS THE 8’ PIECE OF WIRE.



NOW TO A PLOT FROM 1 MHZ THROUGH 88 MHZ. THIS COVERS THE AM BROADCAST BAND, ALL OF THE SHORTWAVE BANDS, THE LOWER FIVE TV CHANNELS UP TO THE BOTTOM OF THE FM BAND. NOTE IN THE SHORTWAVE FREQUENCIES, THE INTERFERNECE LEVEL IS SOME 75 TO 80 DB **ABOVE** THE BASELINE. A SIGNAL LEVEL RECEIVED OVER THE AIR OF -10 TO -40 DBM IS AN EXTREMELY STRONG SIGNAL ON ANY RECEIVER. ALL OF THE INTERFERENCE IS WITHIN THESE LEVELS.



THAT'S IT FOR THE PLOTS.

NEEDLESS TO MENTION, THERE IS A GENIUNE PROBLEM WITH THE UNIT. THE INTERFERENCE FINDS ITS WAY ONTO THE POWER WIRING OF THE HOUSE. IT DISTRIBUTES THROUGH THE WIRING EVERYWHERE AND IS RADIATED INTO MY ANTENNAS I USE FOR HAM RADIO AND RADIO ASTRONOMY. I CAN "FRISK" ABOUT ANY OUTLET ON THE FIRST OR SECOND FLOOR OF THE HOUSE WITH A BATTERY OPERATED PORTABLE RADIO ON VARIOUS FREQUENCIES AND DETECT THE INTERFERENCE AT EACH OUTLET. FANKLY, AFTER I MADE THESE MEASUREMENTS IN OUR HOME WHERE THE TV IS INSTALLED, I'M SHOCKED IT EVEN PASSES THE FCC (CFR 47, PART 15) OR THE EUROPEAN (EN55022) STANDARDS FOR RADIATED AND CONDUCTED EMISSIONS (I DO THIS FOR A LIVING).

IT MAY BE ADVISABLE TO FORWARD THESE RESULTS ON TO THE APPROPRIATE PARTIES AT PANASONIC AS I WOULD GUESS THERE MAY BE LEGAL PROBLEMS WITH THESE SETS.

RESPECTIVELY SUBMITTED:

DAVID ECKHARDT