FCC ID: JCQMK-5036 Duty cycle data amended 5/3/02

Testing of the 5036 transmitter was performed using what was considered to be a worst case mode at the time. However, the product manual, which was received after testing was complete, specifies that the pulse train used by the transmitter to talk to the appropriate receiver varies by dip switch settings. It was determined from this information that the configuration tested was in fact NOT the worst case. Presented below is the original data and a calculation of the actual worst case duty cycle averaging factor. It is shown that the EUT meets the requirements in the worst case as well.

Here is the original data from testing of the 5036 transmitter. Note that the duty cycle correction factor is determined to be 12.4 dB. Also note that the highest emission, the fundamental, has a 7.6 dB margin.

Intertek Testing Services

Radiated Emissions / Interference

Table: 1

Company: Mantec Access Products
Model: 5036
Job No.: J20048167
Date: 05/10/01
Standard: FCC15.231

Tested by: Nicholas Abbondante
Location: Site 2C
Detector: HP 8542E, Agilent E7405A
Antenna: LOG4, HORN3
PreAmp: None
Cable(s): 2C, 3 METER, PRIMAR
Distance: 3 meters

Notes: Average values for comparison to limits were obtained by applying a duty cycle average factor to peak readings.

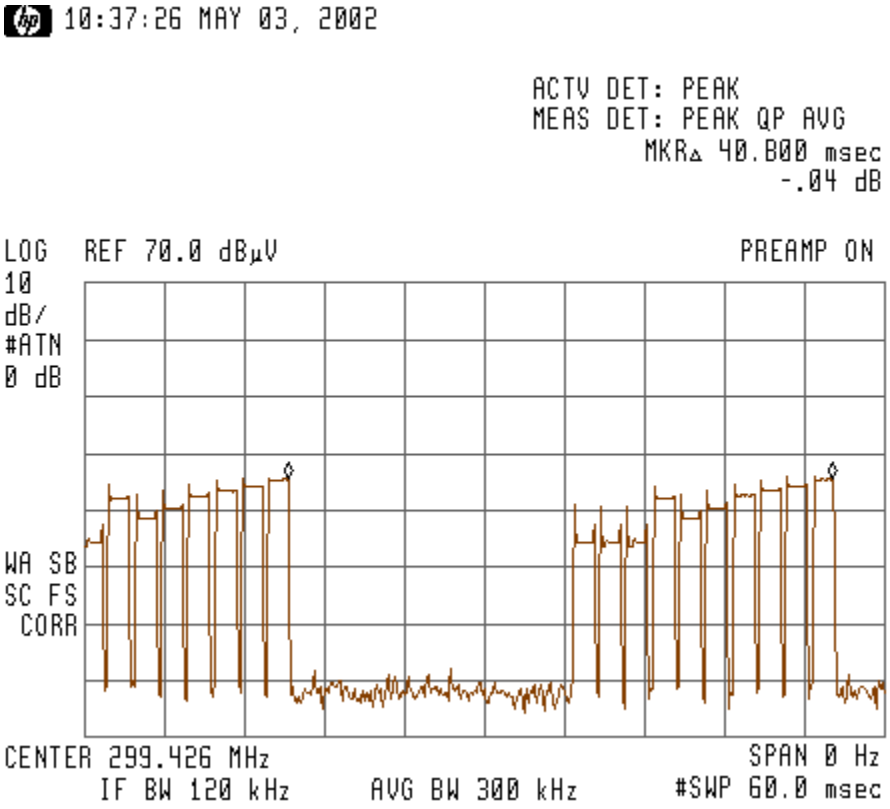
Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Duty Cycle Average Factor, dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	
H	299.000	64.1	13.2	2.1	12.4	0.0	67.0	74.6	-7.6	Peak
H	598.000	18.4	20.3	3.3	12.4	0.0	29.6	54.6	-25.0	Peak
H	897.000	16.0	24.0	4.3	12.4	0.0	31.9	54.6	-22.7	Peak
H	1196.000	16.9	25.9	5.2	12.4	0.0	35.6	54.6	-19.0	Peak
H	1495.000	16.2	26.7	6.4	12.4	0.0	36.8	54.6	-17.8	Peak
H	1794.000	16.8	27.9	7.2	12.4	0.0	39.5	54.6	-15.1	Peak

Worst Case Duty Cycle (Average Factor)

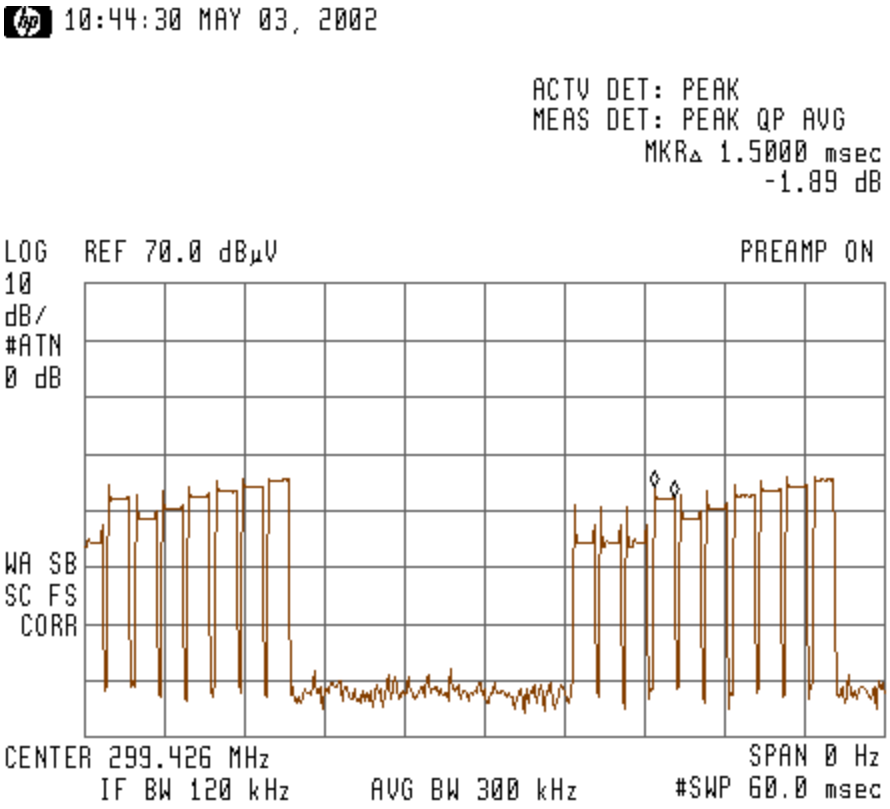
The average factor is subtracted from peak readings to compare emissions readings to average limits. The average factor is calculated from duty cycle measurements from the following plots. The average factor is 20 Log (ON-TIME/PERIOD) of the emission. If the period is longer than 100 milliseconds, then 100 milliseconds is used for the period. Average factor is determined using the worst-case duty cycle.

Model 5036 Duty Cycle Derivation

The Model 5036 2-button Remote Transmitter generates a pulse of fixed duration and period. The transmit pulse waveform is shown below. The period betwen pulses is 40.79ms. There are 10 wide peaks.



The next plot shows the width of the peaks. The wide peaks are 1.5ms.



Given 10 wide peaks of 1.5ms, and a transmission length of 40.8ms, we can perform the average factor calculation.

20 Log((1.5ms*10) /40.8ms) = -12.4 dB

Maximum duty cycle over a 40.8ms period is 36.8% resulting in an averaging factor of –8.7 dB. The original calculated duty cycle was 23.9% resulting in an averaging factor of –12.4 dB. The difference is 3.7 dB. Since the closest the EUT comes to the limits is 7.6 dB, the new duty cycle data shows that the EUT still has a margin of 3.9 dB in the worst case duty cycle configuration.