



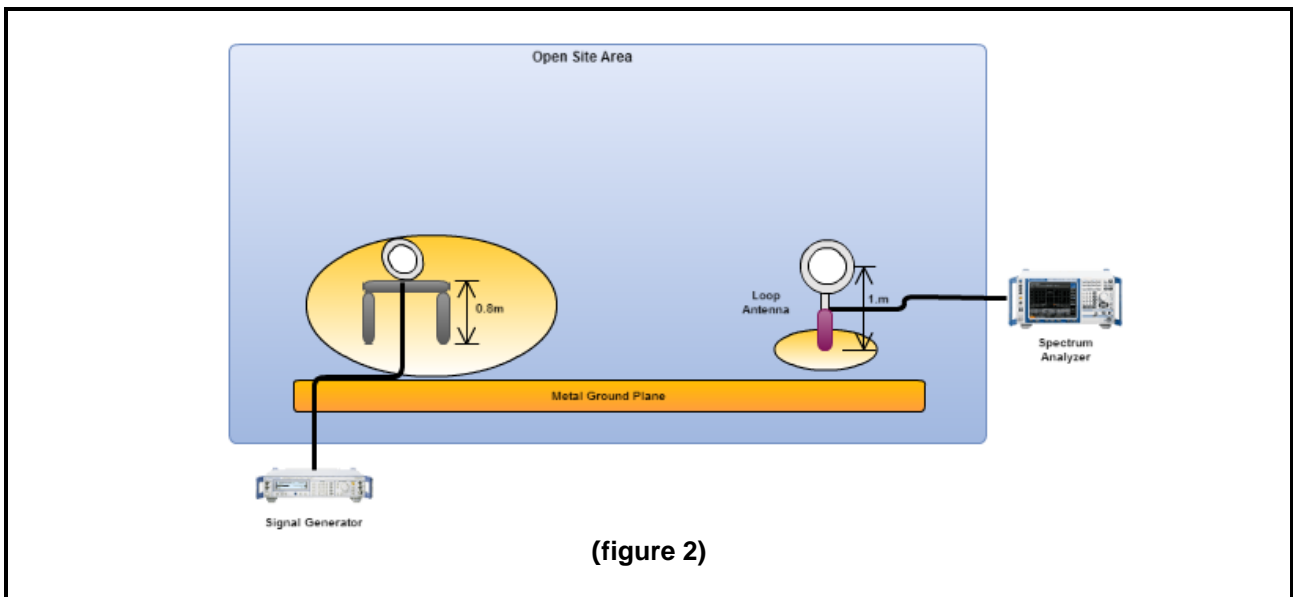
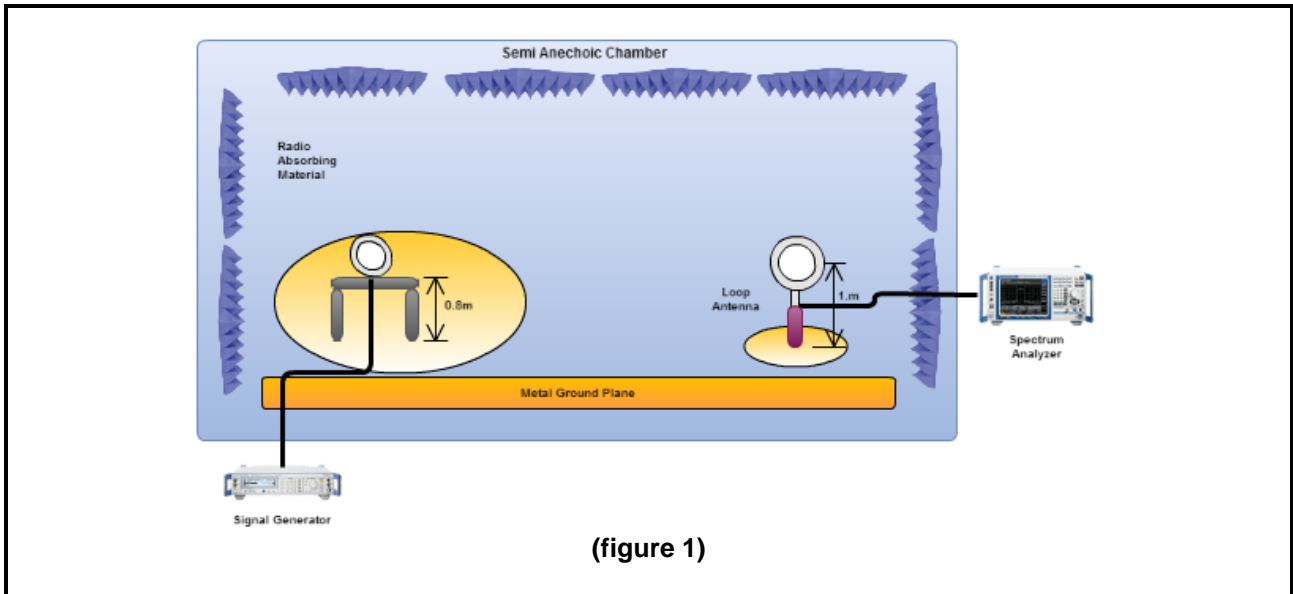
Appendix C. Distance Factor Calculation



1 10m SAC and 10m OATs compare

Procedure
1. Measure frequencies 982kHz, 10MHz , 13.56MHz m 30MHz in 10m SAC(figure 1).
2. Repeat step 1 for five times and average the values
3. Record the values in step 2(X1 , X2 , X3 , X4)
4. Measure the same frequencies in 10m OATs(figure 2).
5. Record the values in step 4(Y1 , Y2 , Y3 , Y4)
6. Minus all of the value in step 5 and step 3(X1-Y1 , X2-Y2..etc)
7. Record the results in step6 (Z1 , Z2 , Z3 , Z4) , and there are the factors between 10m SAC and 10m OATs.

Test Setup
1. Loop antenna1 connect to Signal generator and put on a table which is 80 cm above the ground.
2. Loop antenna 2 connect to spectrum analyzer.
3. The distance between the both center loop antennas are 10m.
4. The spectrum analyzer setting : <ul style="list-style-type: none">i. RBW = 3kHzii. VBW = 10kHziii. Sweep time = Autoiv. Detector / Trace = Peak / Max Hold





2 Result of Distance Factor Calculation

Band	Frequency	3m-Level (dBµV/m)	3m-Level (µV/m)	10m SAC Level(dBµV/m)	10m SAC to OATs Factor	10m OATs Level(dBµV/m)	10m OATs Level(µV/m)	3m to 10m Factor
9k-150 KHz	63 KHz	55.51	596.35	36.63	4.12	40.75	109.02	-28.23
150k-2 MHz	1.575 MHz	46.29	206.30	25.38	4.63	30.01	31.66	-31.14
13.56 MHz	13.56 MHz	62.99	1410.91	42.34	2.25	44.59	169.63	-35.19

$$N = 20 \frac{\log(E_1/E_2)}{\log(d_1/d_2)}$$

E₁ = is the field strength at the measurement closest to the radiating source, expressed in µV/m

E₂ = is the field strength at the measurement distance farthest from the radiating source, expressed in µV/m

d₁ = is the measurement distance closest to the radiating source

d₂ = is the measurement distance farthest from the radiating source

N = is the distance extrapolation factor in db/decade of distance. The field strength at the limit distance shall then be calculated using the methods and described in 6.4.4.7.

Band	Final-Level (dBuV/m)	Final-Level (uV/m)	Limit (uV/m)	Distance
9k-150 KHz	-0.95	0.90	38.10	300m
150k-2 MHz	15.15	5.72	15.24	30m
13.56 MHz	27.80	24.55	30.00	30m

$$FS_{limit} = FS_{max} - N \log \left(\frac{d_{limit}}{d_{measure}} \right)$$

N = is the value in dB/decade of distance determined using 6.4.4.4 or 6.4.4.5

FS_{limit} = is the estimate of field strength at the limit distance, expressed in dBµV/m

FS_{max} = is the maximum value of field strength, expressed in dBµV/m, measured during the measurement of the points used for extrapolation

d_{measure} = is the distance of the measurement points of FS_{max} from the radiating source

d_{limit} = is the limit reference distance