Description of Instrumentation and calculation

(1) Measurement equipment

a. Field Strength Meter : Electro-Metrics Model EMC-50

Bandwidth Setting : 1 MHz

Detector Function : Linear Average Detection

b. Receiving Antenna : Electro-Metrics Model RGA-180

Frequency Range : 1 - 18 GHz

c. Microwave Survey Meter : Narda Model 8110B

(2) Test Condition

a. Antenna Height Variation : 1.0 - 1.5 m

b. Distance of Antenna to Test unit : 3.0 m

c. Test Unit Height : 1.0 m

(3) Calculation Formula

Field Strength at 3 m (dBuV/m)

= Receiver Reading + Antenna Factor + Cable Loss
(dBuV) (dB/m) (dB)

Field Strength at 300m (uV/m)

$$= K * 10^{\frac{\text{Field Strength at 3 m (dBuV/m)}}{20}}$$

K : Conversion Factor for 3 m to 300 m

Frequency	Antenna Factor	Cable Loss	Conv. Factor
(MHz)	(dB/m)	(dB)	K
2400	29	0.7	0.0061
Fundamental	29.3	0.7	0.0062
2500	29.5	0.7	0.0063
4900	33.4	0.9	0.01
7350	36.5	1.2	0.01
9800	38.2	1.4	0.01

Example : 2nd Harmonics

Receiver Reading = 20 dB @ 3 m

$$\text{FIS} = 0.01 * 10^{\frac{20 + 33.4 + 0.9}{20}} = 5.19 \text{ (uV/m)}$$

@300 m