



## 9. RF EXPOSURE TEST

### 9.1 APPLIED PROCEDURES / LIMIT

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

#### (A) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|-------------------------------------------------------------------|
| 0.3-3.0               | 614                               | 1.63                              | (100)*                                   | 6                                                                 |
| 3.0-30                | 1842 / f                          | 4.89 / f                          | (900 / f)*                               | 6                                                                 |
| 30-300                | 61.4                              | 0.163                             | 1.0                                      | 6                                                                 |
| 300-1500              |                                   |                                   | F/300                                    | 6                                                                 |
| 1500-100,000          |                                   |                                   | 5                                        | 6                                                                 |

#### (B) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|------------------------------------------|-------------------------------------------------------------------|
| 0.3-1.34              | 614                               | 1.63                              | (100)*                                   | 30                                                                |
| 1.34-30               | 824/f                             | 2.19/f                            | (180/f)*                                 | 30                                                                |
| 30-300                | 27.5                              | 0.073                             | 0.2                                      | 30                                                                |
| 300-1500              |                                   |                                   | F/1500                                   | 30                                                                |
| 1500-100,000          |                                   |                                   | 1.0                                      | 30                                                                |

Note: f = frequency in MHz ; \*Plane-wave equivalent power density

### 9.1.1 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment  | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|--------------------|--------------|----------|------------|------------------|
| 1    | Power Meter        | Anritsu      | ML2487A  | 6K00004714 | Feb. 17, 2012    |
| 2    | Power Meter Sensor | Anritsu      | MA2491A  | 34138      | Feb. 17, 2012    |

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

### 9.1.2 MPE CALCULATION METHOD

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

**E** = Electric field (V/m)

**P** = Peak RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

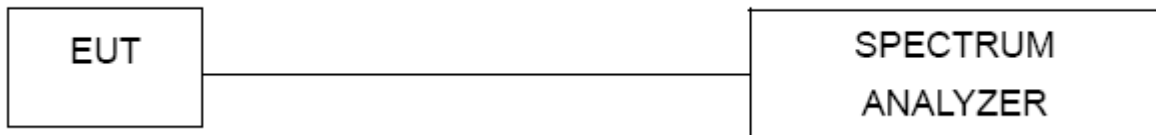
From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained



### **9.1.3 DEVIATION FROM STANDARD**

No deviation.

### **9.1.4 TEST SETUP**



### **9.1.5 EUT OPERATION CONDITIONS**

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

**9.1.6 TEST RESULTS**

|                |                          |                     |              |
|----------------|--------------------------|---------------------|--------------|
| EUT :          | Video T&A Terminal       | Model Name :        | MT650-AYUEAG |
| Temperature :  | 25 ° C                   | Relative Humidity : | 42%          |
| Test Voltage : | AC 120V/60Hz             |                     |              |
| Test Mode :    | 802.11b/CH01, CH06, CH11 |                     |              |

| Frequency (MHz) | Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) |
|-----------------|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|
| 2412            | 0.00               | 1.0000                 | 11.7800                 | 15.0661                | 0.002999                                | 1                                                |
| 2437            | 0.00               | 1.0000                 | 12.6600                 | 18.4502                | 0.003672                                | 1                                                |
| 2462            | 0.00               | 1.0000                 | 13.0400                 | 20.1372                | 0.004008                                | 1                                                |



|                |                          |                     |              |
|----------------|--------------------------|---------------------|--------------|
| EUT :          | Video T&A Terminal       | Model Name :        | MT650-AYUEAG |
| Temperature :  | 25 ° C                   | Relative Humidity : | 42%          |
| Test Voltage : | AC 120V/60Hz             |                     |              |
| Test Mode :    | 802.11g/CH01, CH06, CH11 |                     |              |

| Frequency (MHz) | Antenna Gain (dBi) | Antenna Gain (numeric) | Peak Output Power (dBm) | Peak Output Power (mW) | Power Density (S) (mW/cm <sup>2</sup> ) | Limit of Power Density (S) (mW/cm <sup>2</sup> ) |
|-----------------|--------------------|------------------------|-------------------------|------------------------|-----------------------------------------|--------------------------------------------------|
| 2412            | 0.00               | 1.0000                 | 21.3700                 | 137.0882               | 0.027287                                | 1                                                |
| 2437            | 0.00               | 1.0000                 | 21.6000                 | 144.5440               | 0.028771                                | 1                                                |
| 2462            | 0.00               | 1.0000                 | 21.4800                 | 140.6048               | 0.027987                                | 1                                                |