

Measurement of the radiated power of 0.8 / 1.8 GHz hand held PMSE

1. Purpose of measurement
 - a. Expanding of measurement of ECC Rep 42 (650 MHz) to the 1,8 GHz band
 - b. Frequency depended effect of body absorption
2. Measurement setup

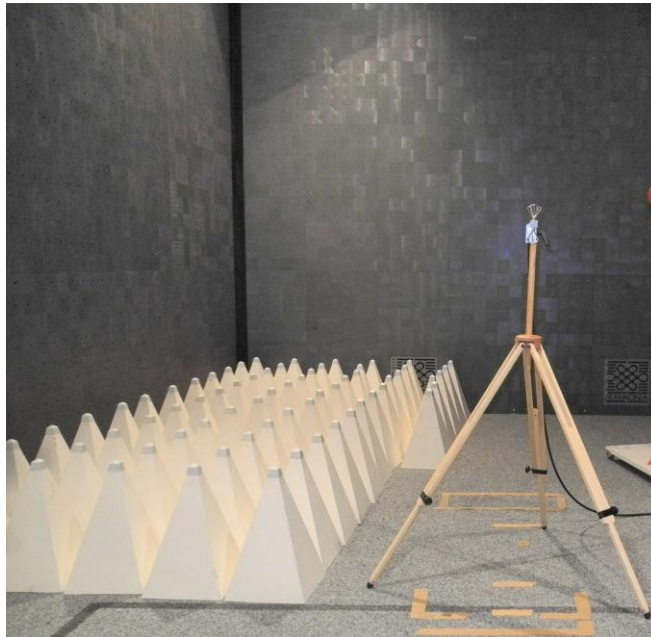


Figure 1: View into the EMC test hall and the measurement antenna



Figure 2: Calibration setup using a 2nd antenna (on left side)

3. Unmounted hand held transmitter 822 MHz (P=30mW/14,7dBm)



Fig 3: device under test at Styrofoam block

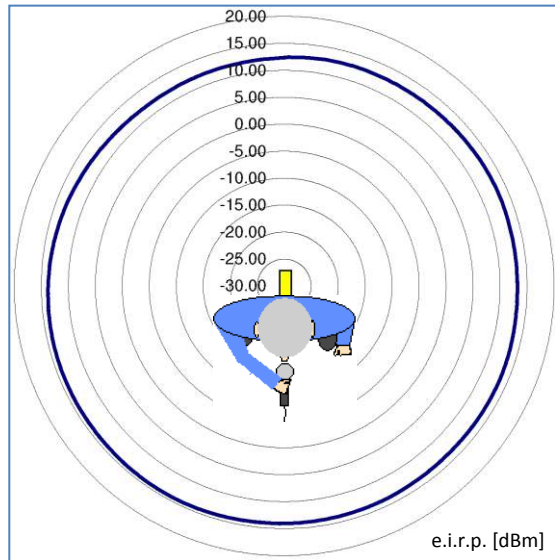


Fig 4: polar pattern of radiated device power

4. Unmounted hand held transmitter 1800 MHz (P=10mW)



Fig 5: device under test at Styrofoam block

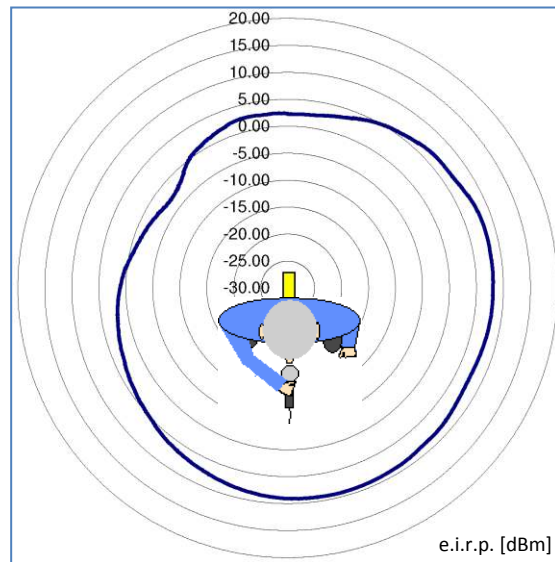


Fig 6: polar pattern of radiated device power

5. Tripod mounted hand held transmitter 822 MHz (P=30mW)



Fig 7: device under test at tripod

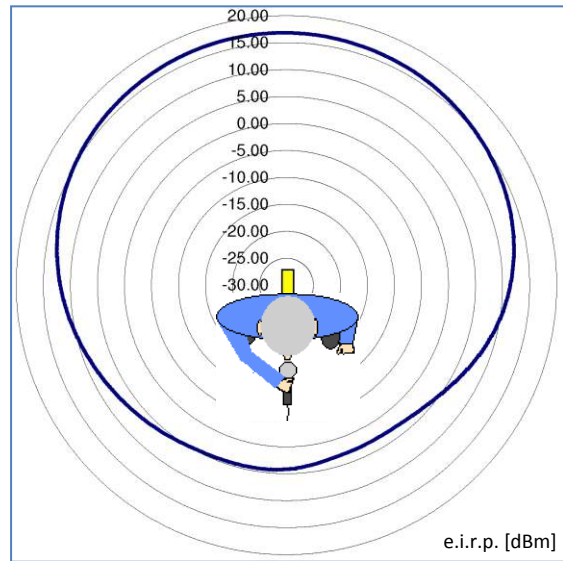


Fig 8: polar pattern of radiated device power

Note: Tripod effect -12 to 3 dB

6. Tripod mounted hand held transmitter 1800 MHz (P=10mW)



Fig 9: device under test at tripod

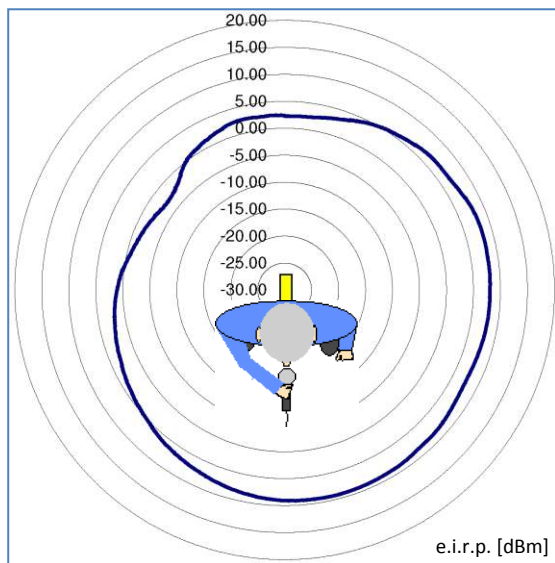


Fig 10: polar pattern of radiated device power

Note: Tripod effect ~ 0dB

7. Hand held transmitter 822 MHz (P=30mW)



Fig 11: hand held device under test

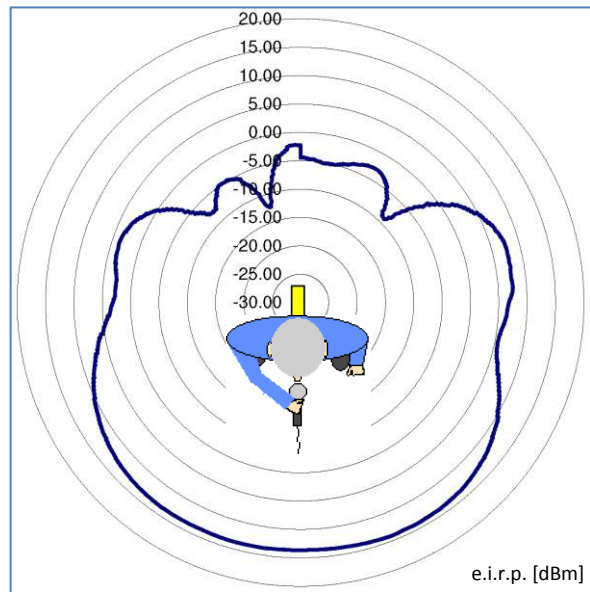


Fig 12: polar pattern of radiated device power

Note: Body effect 27 to -1 dB

8. Hand held transmitter 1800 MHz (P=10mW)



Fig 13: hand held device under test

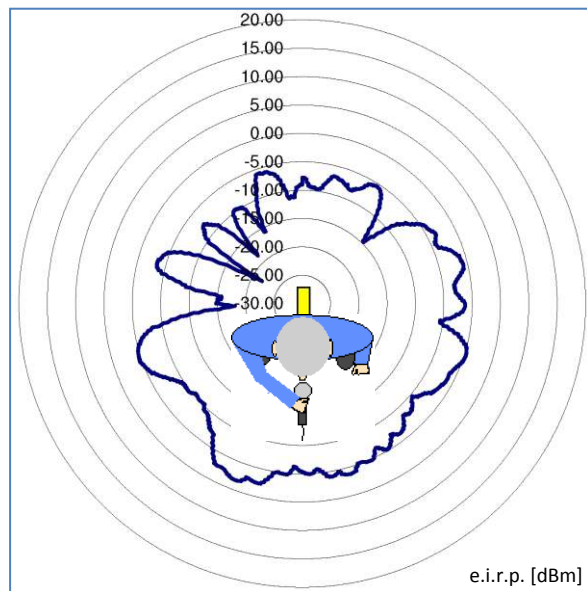


Fig 14: polar pattern of radiated device power

Note: Body effect -25 to -12 dB

Measurement of the maximum radiated power of body pack PMSE

1. Unmounted body worn transmitter 1800 MHz (P=10mW)

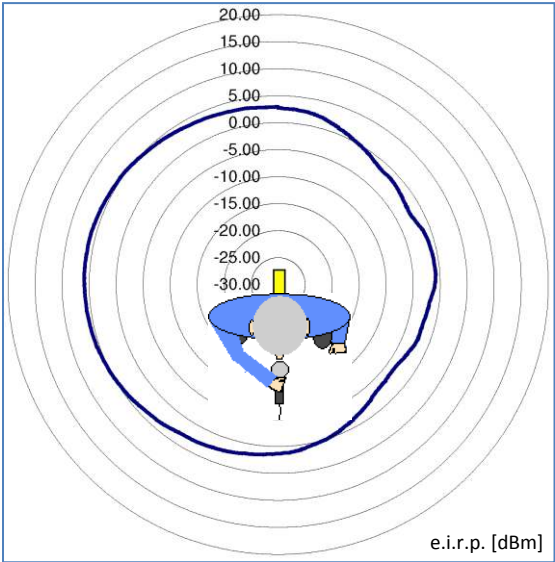
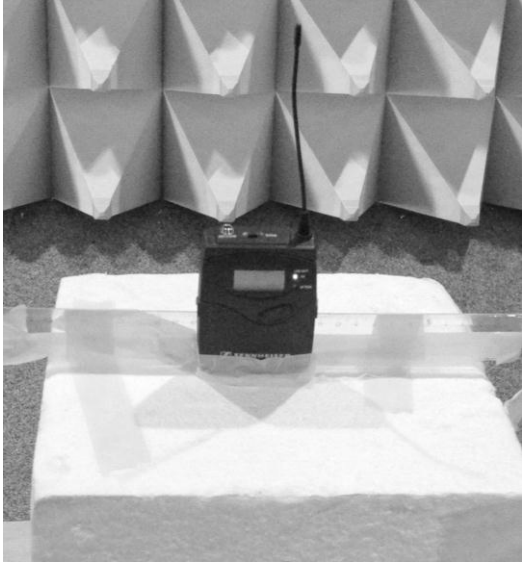


Fig 15: device under test at Styrofoam block Fig 16: polar pattern of radiated device power

2. Body worn transmitter 1800 MHz (P=10mW)

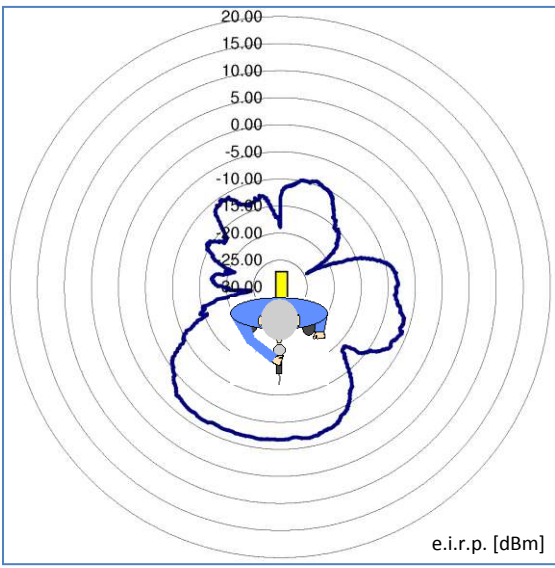
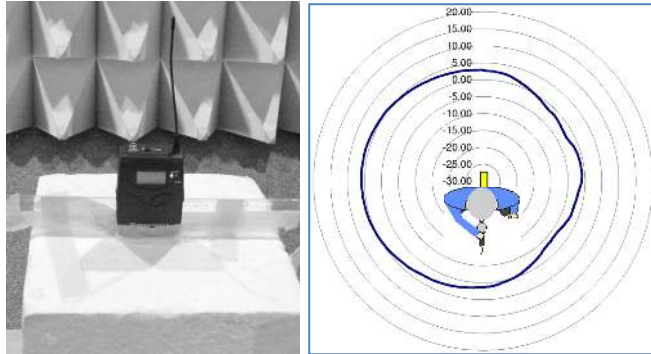


Fig 17: device under test at human body Fig 19: polar pattern of radiated device power

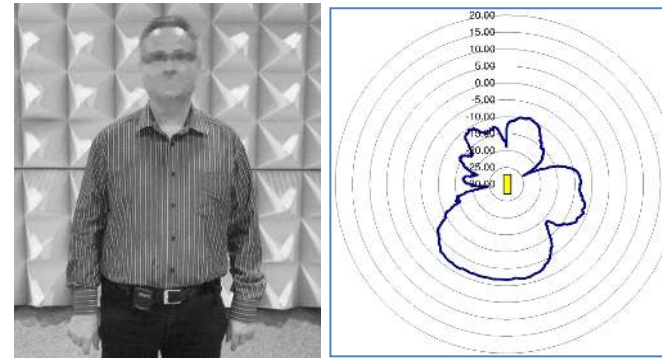
Note: Body effect -27 to -10 dB

Description of the body effect of a 1.8 GHz body pack (BP) at 10mW power at a distance to measurement antenna of 3m

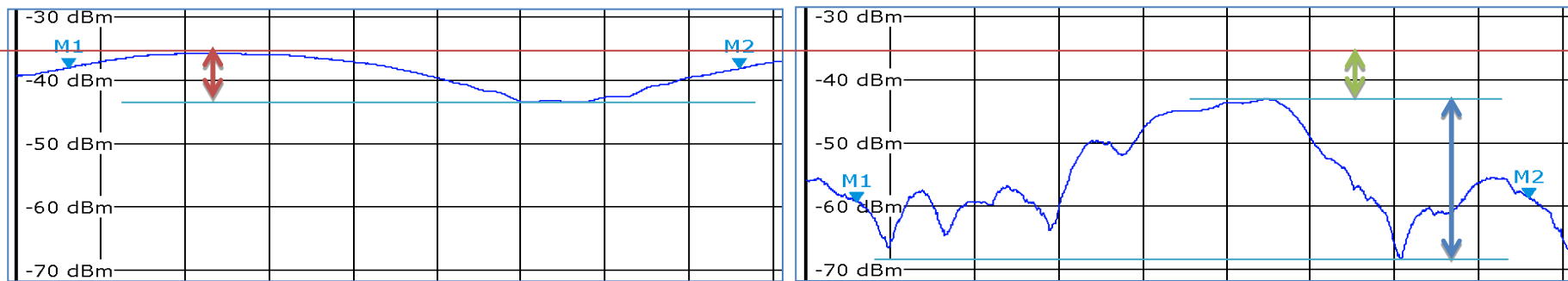
1) BP-unit is fixed on a Styrofoam block



2) BP-unit fixed at the belt in front of a user



The following graphics show the difference in level (not the radiated power) at the measurement receiver



Remark: between the two markers (M1 and M2) the rotary plate makes a 360 degree turn

3) Interpretation

a) The unit radiates non symmetrical with a difference of 8dB (**red arrow**)

b) 8dB are absorbed in front of the body (**green arrow**)

c) The additional body effect is 25 dB (**blue arrow**)

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