

ANNEX D MEAUREMENT RESULTS WLAN / BLUETOOTH COLOCATION

1 Test results (radiated emissions) with internal antenna

1.1 Preliminary radiated emission measurement (9 kHz to 1 GHz)

Ambient temperature	20 °C	Relative humidity	40 %
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Position of EUT: The EUT was set-up on a non-conducting table of a height of 0.8 m. The distance between EUT and antenna was 3 m.

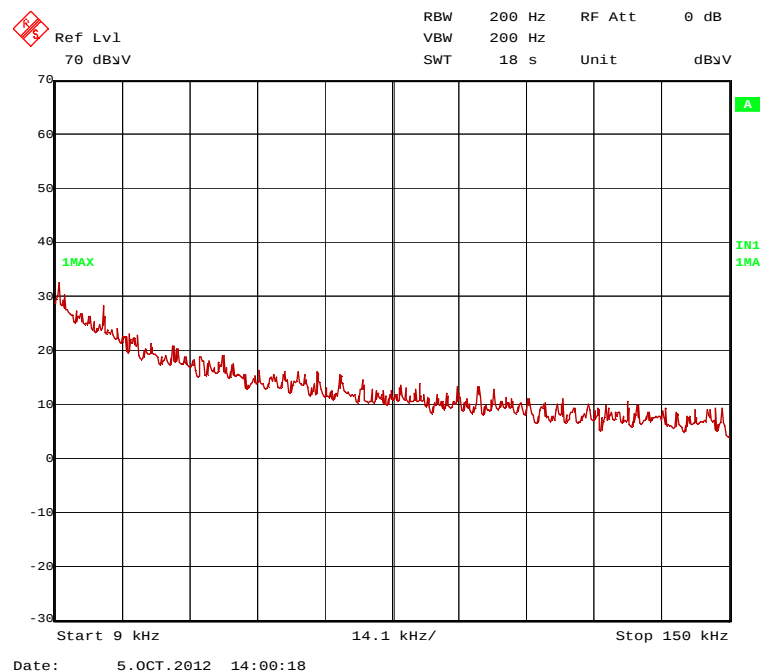
Cable guide: The cable of the EUT is running vertically to the false floor. For detail information of test set-up and the cable guide refer to the pictures in annex A of this test report.

Test record: All results are shown in the following.

Supply voltage: During all measurements the EUT was battery supplied with 12 V_{DC}.

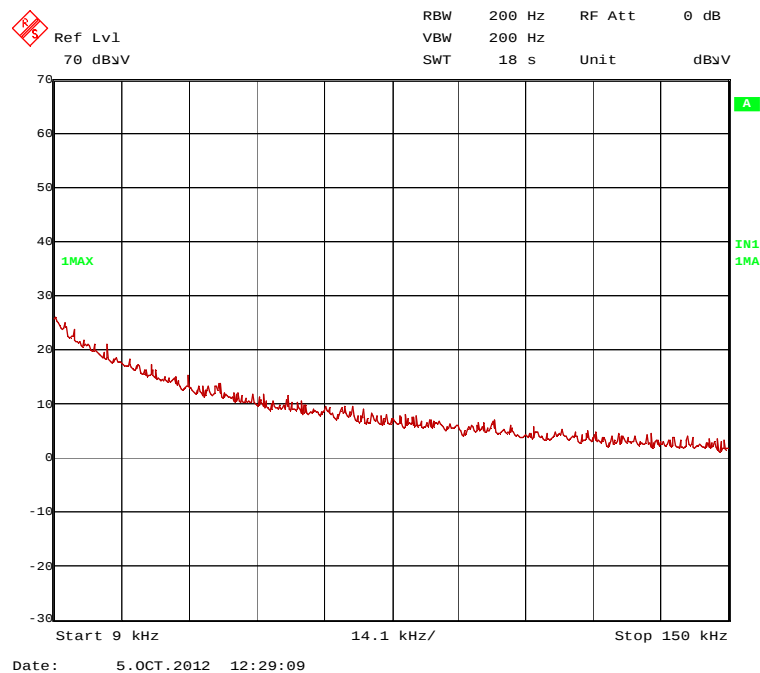
Operation mode: *WLAN:* Continuous modulated transmission at Ch. 1 (2412 MHz) with power setting 15 in 802.11b-mode.
Bluetooth: Continuous modulated transmission at Ch. 78 (2480 MHz) with packet type DH5.

123736_CO1.wmf: Spurious emissions from 9 kHz to 150 kHz:

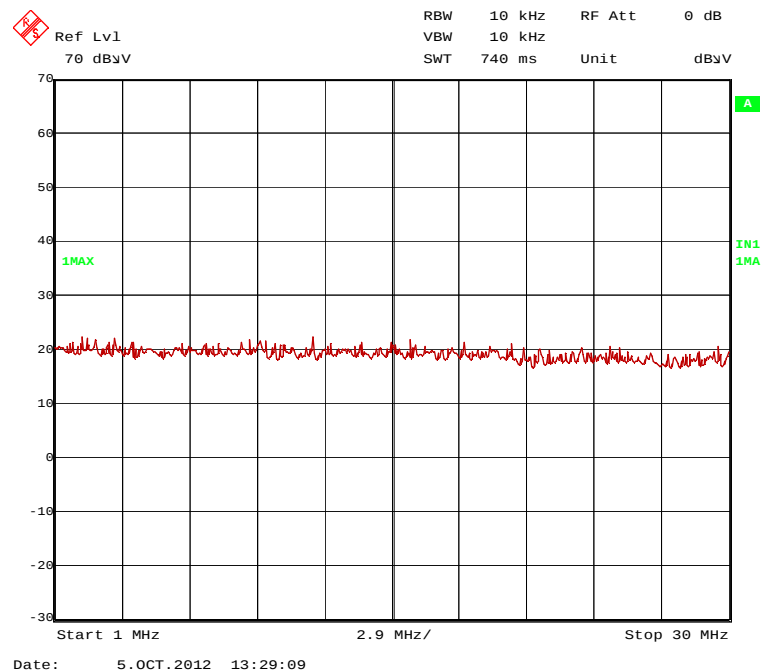


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123736_CO2.wmf: Spurious emissions from 150 kHz to 1 MHz:



123736_CO3.wmf: Spurious emissions from 1 MHz to 30 MHz:



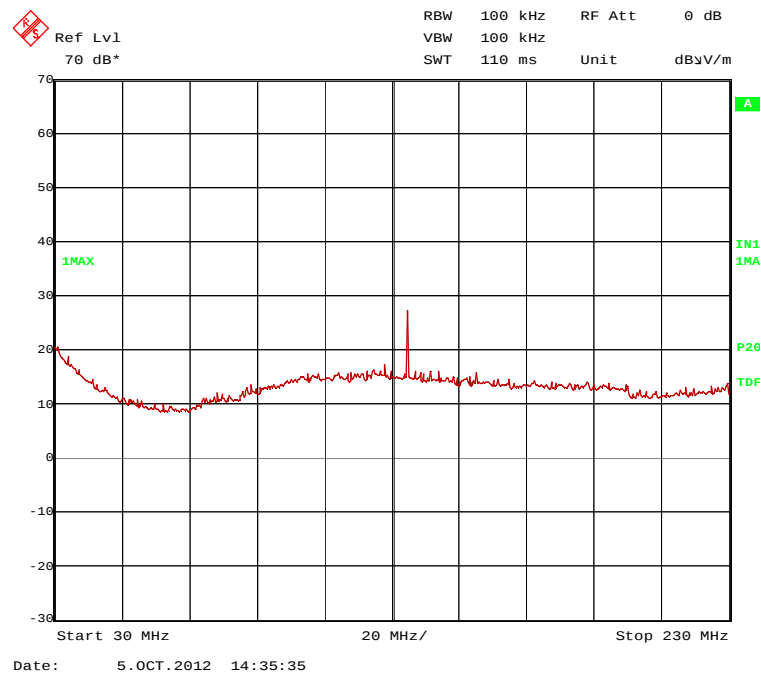
No significant frequencies above the noise floor of the system were found during the preliminary radiated emission test inside this frequency range, so no measurements were carried out on the outdoor test site.

Test equipment used:

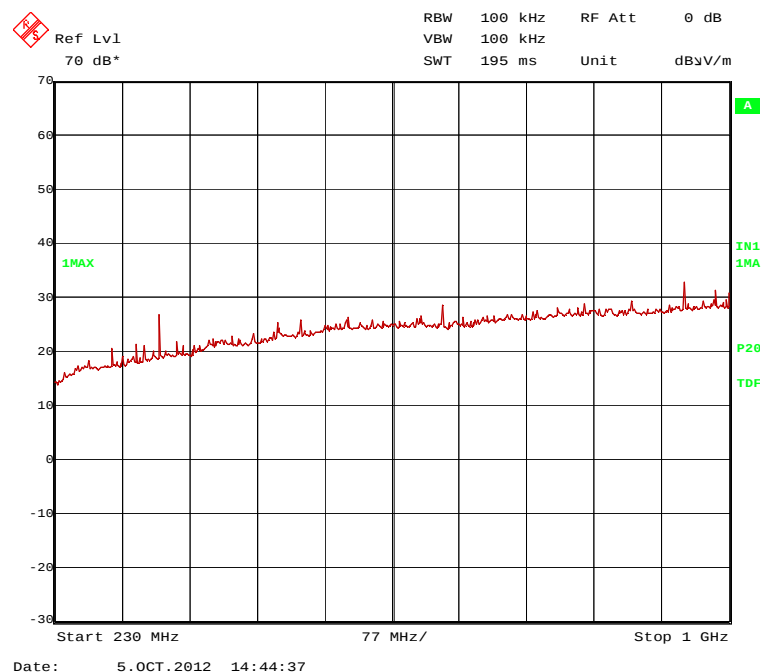
29, 31 – 34, 55

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123376_CO4.wmf: Spurious emissions from 30 MHz to 230 MHz :



123376_CO5.wmf: Spurious emissions from 230 MHz to 1000 MHz :



The same frequencies as in clause 5.5.2.1 were found. Please refer to clause 5.5.2.2 for the result of the final measurement.

Test equipment used:

29, 31 - 35, 47

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1.2 Preliminary radiated emission measurement (1 GHz to 25 GHz)

Ambient temperature	21 °C	Relative humidity	38 %
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Position of EUT: The EUT was set-up on a non-conducting table of a height of 0.8 m. The distance between EUT and antenna was 3 m.

Cable guide: The cable of the EUT is running vertically to the false floor. For detail information of test set-up and the cable guide refer to the pictures in annex A of this test report.

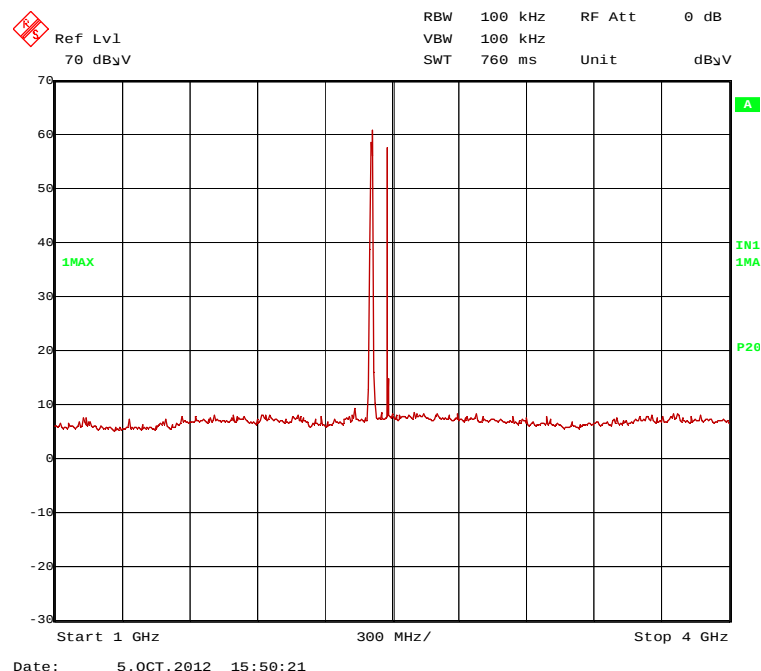
Test record: All results are shown in the following.

Supply voltage: During all measurements the EUT was battery supplied with 12 V_{DC}.

Resolution bandwidth: For all measurements a resolution bandwidth of 1 MHz was used.

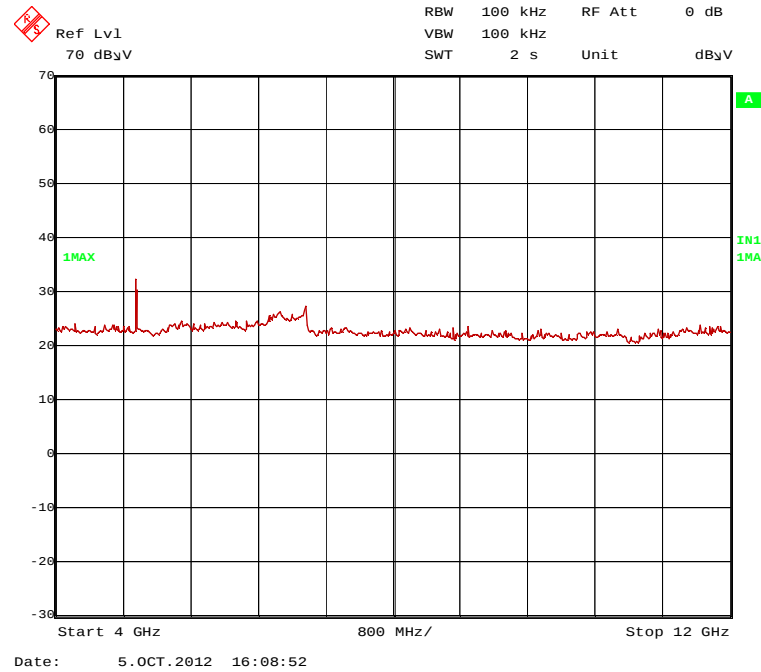
Operation mode: *WLAN*: Continuous modulated transmission at Ch. 1 (2412 MHz) with power setting 15 in 802.11b-mode.
Bluetooth: Continuous modulated transmission at Ch. 78 (2480 MHz) with packet type DH5.

123736_CO6.wmf: Spurious emissions from 1 GHz to 4 GHz:

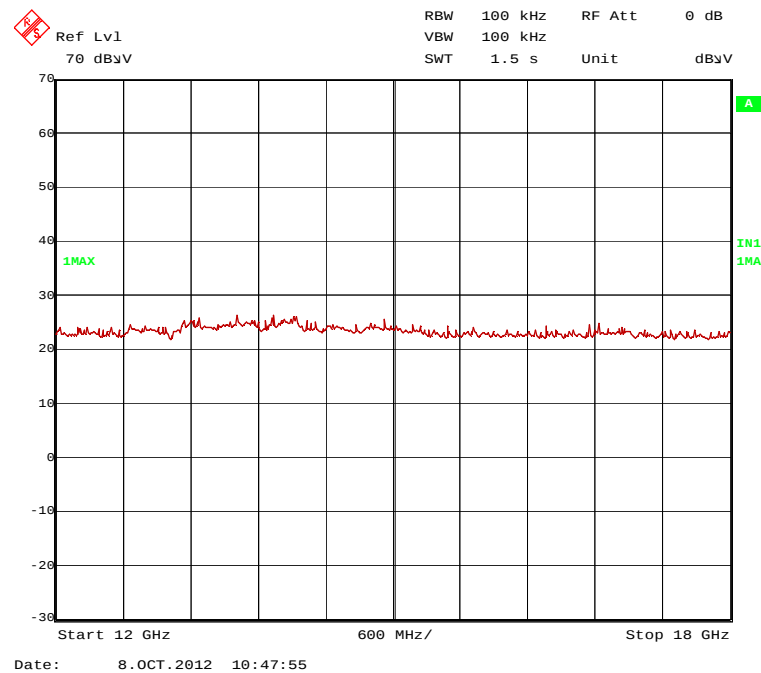


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123736_CO7.wmf: Spurious emissions from 4 GHz to 12 GHz:

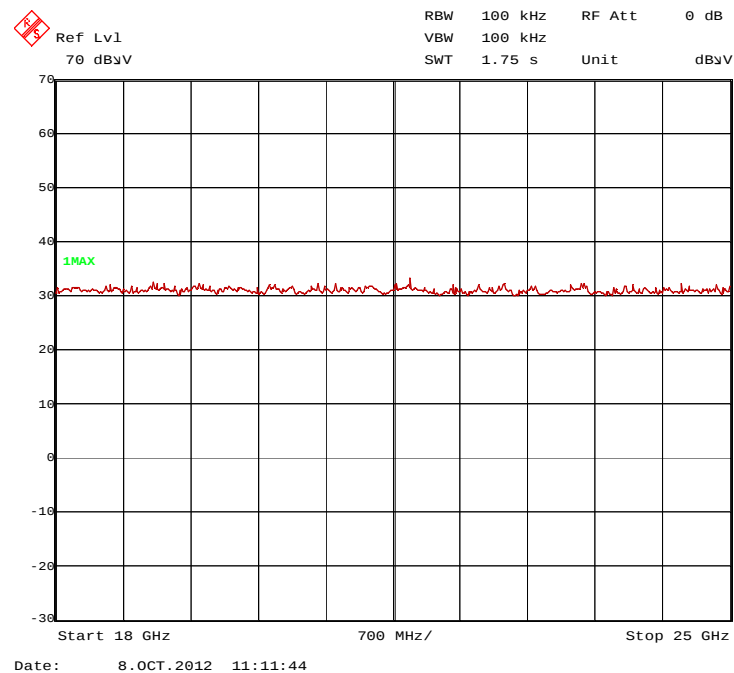


123736_CO8.wmf: Spurious emissions from 12 GHz to 18 GHz:



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123736_CO9.wmf: Spurious emissions from 18 GHz to 25 GHz:



The following frequency was found inside the restricted bands during the preliminary radiated emission test:

- 4.804 GHz.

The following frequency was found outside the restricted bands during the preliminary radiated emission test:

- 2.402 GHz.

These frequencies have to be measured in a final measurement. The results were presented in the following.

Test equipment used:

29, 31 – 34, 36, 37, 39, 41, 42, 46, 49 – 51, 72

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1.3 Final radiated emission measurement (1 GHz to 25 GHz)

Ambient temperature	21 °C	Relative humidity	38 %
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Position of EUT: The EUT was set-up on a non-conducting table of a height of 0.8 m. The distance between EUT and antenna was 3 m.

Cable guide: The cable of the EUT is running vertically to the false floor. For detail information of test set-up and the cable guide refer to the pictures in annex A of this test report.

Test record: All results are shown in the following.

Supply voltage: During all measurements the EUT was battery supplied with 12 V_{DC}.

Resolution bandwidth: For all measurements a resolution bandwidth of 1 MHz was used.

Result measured with the peak detector:

Frequency GHz	Corr. value dBμV/m	Limit dBμV/m	Margin dB	Readings dBμV	Antenna factor 1/m	Preamp dB	Cable loss dB	Height cm	Pol.	Restr. Band
2.402	87.7	-	-	55.7	28.3	0.0	3.7	150	Vert.	-
4.804	55.2	74.0	18.8	43.0	32.6	25.7	5.3	150	Vert.	Yes
Measurement uncertainty						+2.2 dB / -3.6 dB				

Result measured with the average detector:

Frequency GHz	Corr. value dBμV/m	Limit dBμV/m	Margin dB	Readings dBμV	Antenna factor 1/m	Preamp dB	Cable loss dB	Height cm	Pol.	Restr. Band
2.402	77.1	-	-	45.1	28.3	0.0	3.7	150	Vert.	-
4.804	42.2	54.0	11.8	30.0	32.6	25.7	5.3	150	Hor.	Yes
Measurement uncertainty						+2.2 dB / -3.6 dB				

Test result: Passed

Test equipment used:

29, 31 – 34, 36, 37, 39, 41, 42, 46, 49 – 51, 72