

Appendix B

Peak Output Power

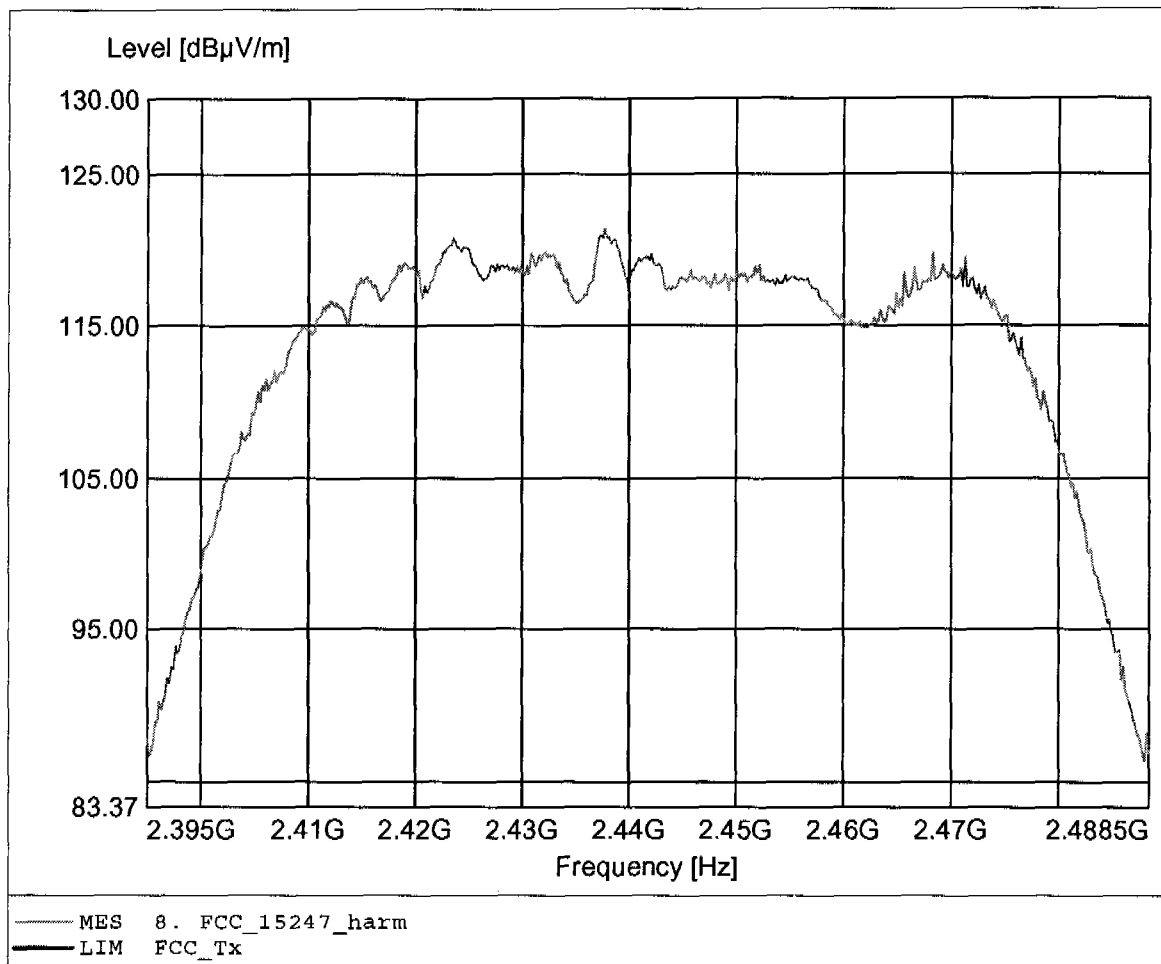
Appendix C

Spurious Emissions radiated - Transmitter operating

Carrier power (Field Strength)

FCC RULES PART 15, SUBPART C

Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: BBHA9120D
Comment 2: Freq: 2.438GHz, Emax: 111.20dBµV/m, RBW: 100kHz



FCC RULES PART 15, SUBPART C

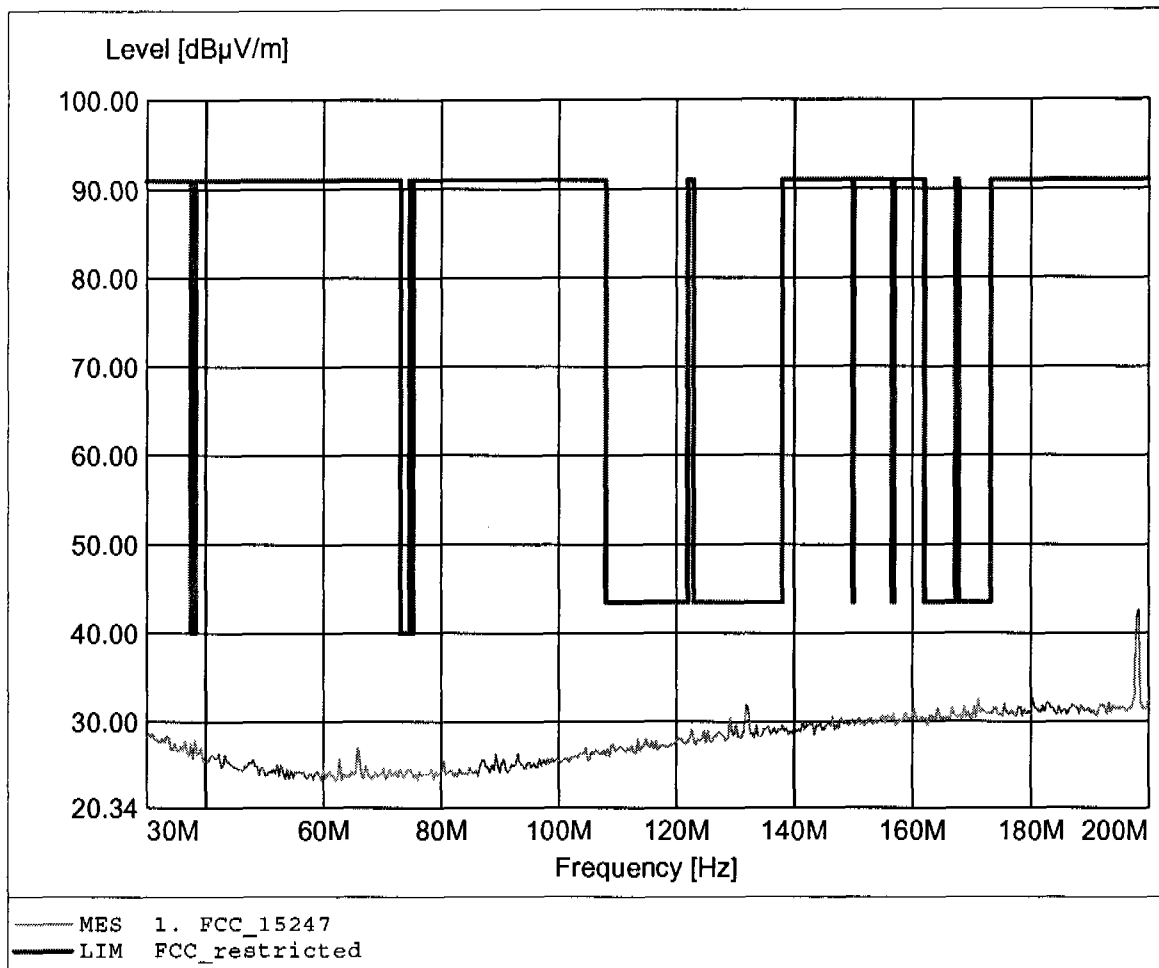
The graph displays the radio frequency interference (RFI) level in dBμV/m across a frequency range from 30 MHz to 200 MHz. The y-axis ranges from 19.85 to 100.00 dBμV/m. The x-axis ranges from 30M to 200M Hz. A thick black line represents the FCC restricted limit (LIM), which is generally at 90 dBμV/m, with a significant dip to 43 dBμV/m between 108 MHz and 136 MHz. A thin black line represents the measured level (MES), which remains consistently below the limit, fluctuating between approximately 25 and 35 dBμV/m, with a small peak near 200 MHz.

Frequency [Hz]	LIM [dBμV/m]	MES [dBμV/m]
30M	90.00	28.00
60M	90.00	25.00
75M	90.00	24.00
108M	43.00	26.00
136M	43.00	28.00
144M	90.00	29.00
150M	90.00	30.00
160M	90.00	31.00
170M	90.00	32.00
180M	90.00	31.00
200M	90.00	33.00

Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

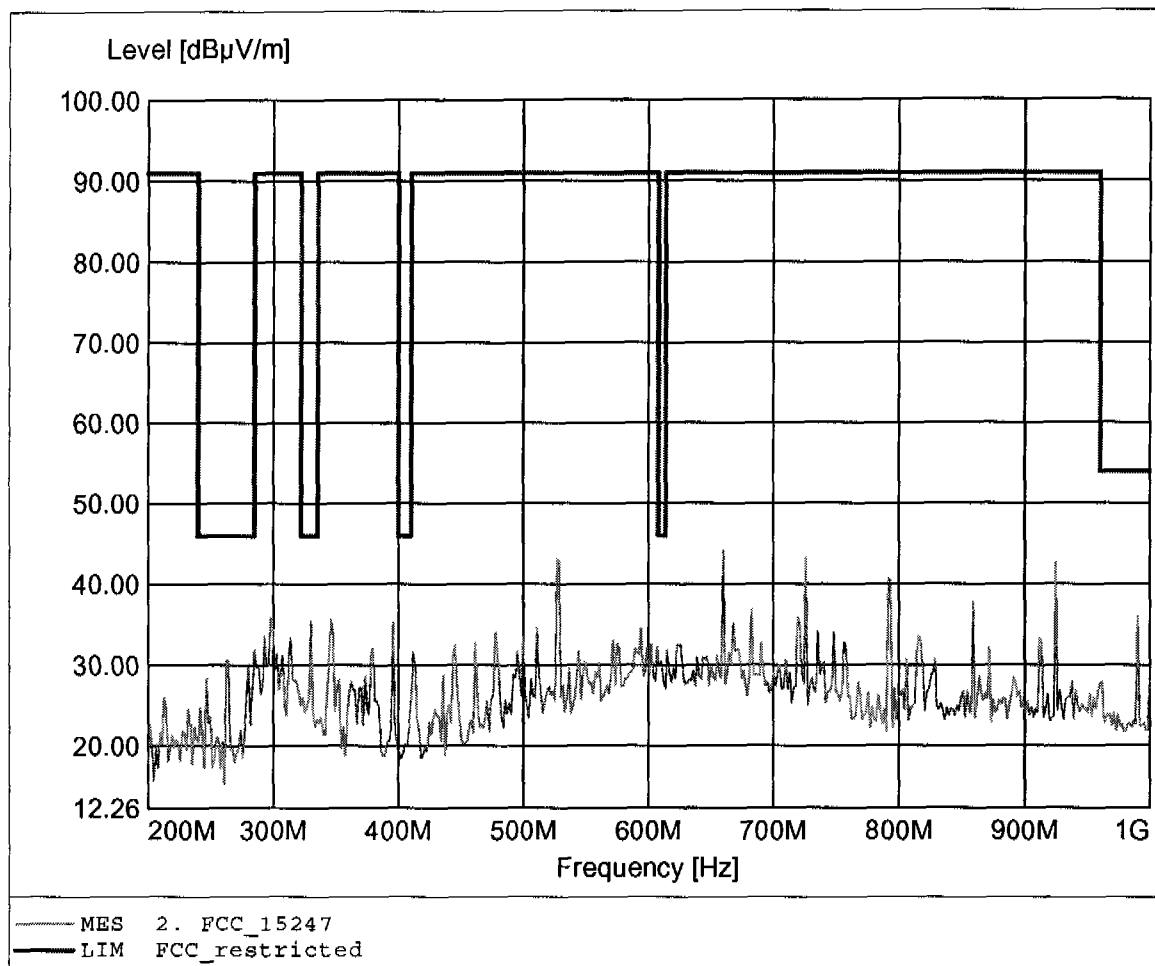
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq: 198.297MHz, Emax: 42.68dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

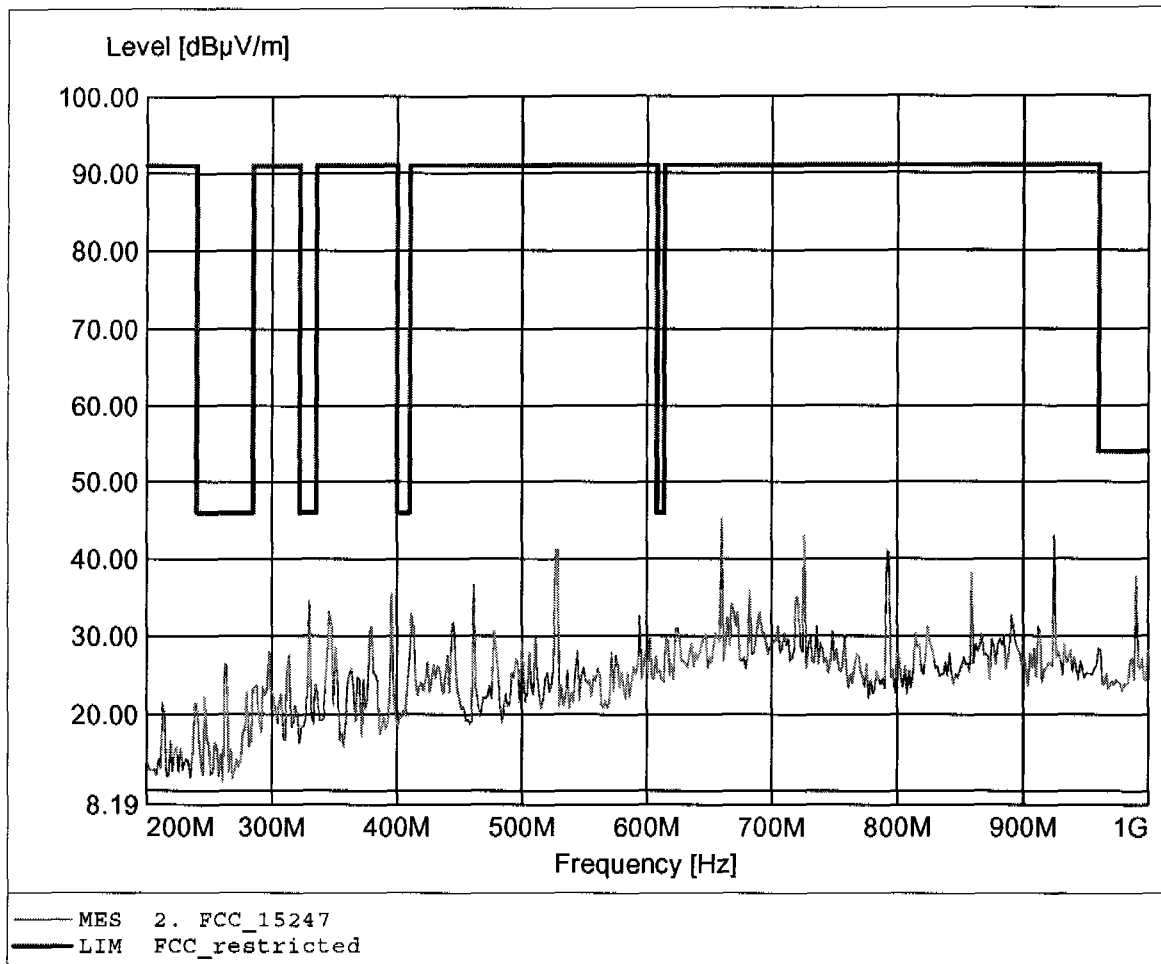
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Comment 2: Freq: 660.120MHz, Emax: 44.11dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

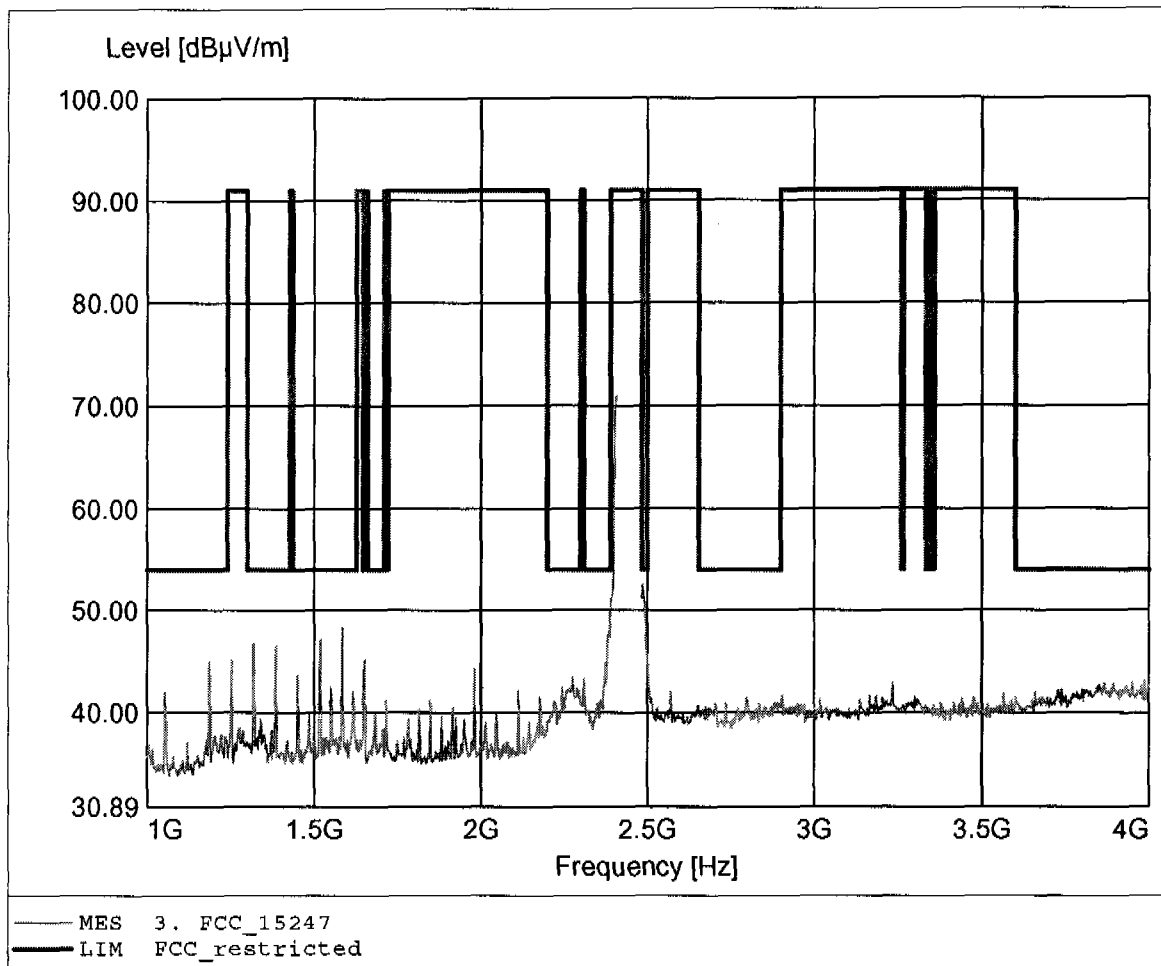
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Comment 2: Freq: 660.120MHz, Emax: 45.26dBuV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

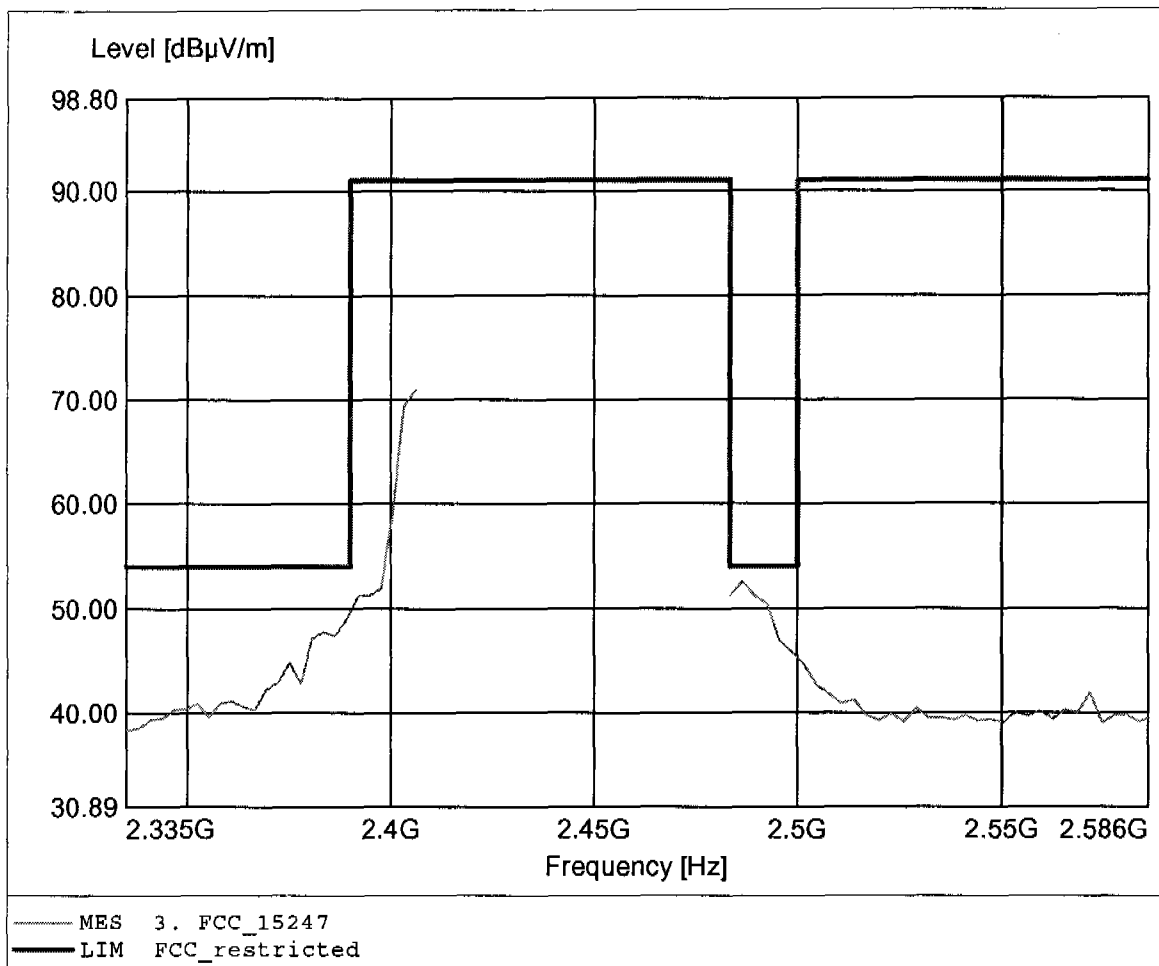
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.406GHz, Emax: 71.00dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

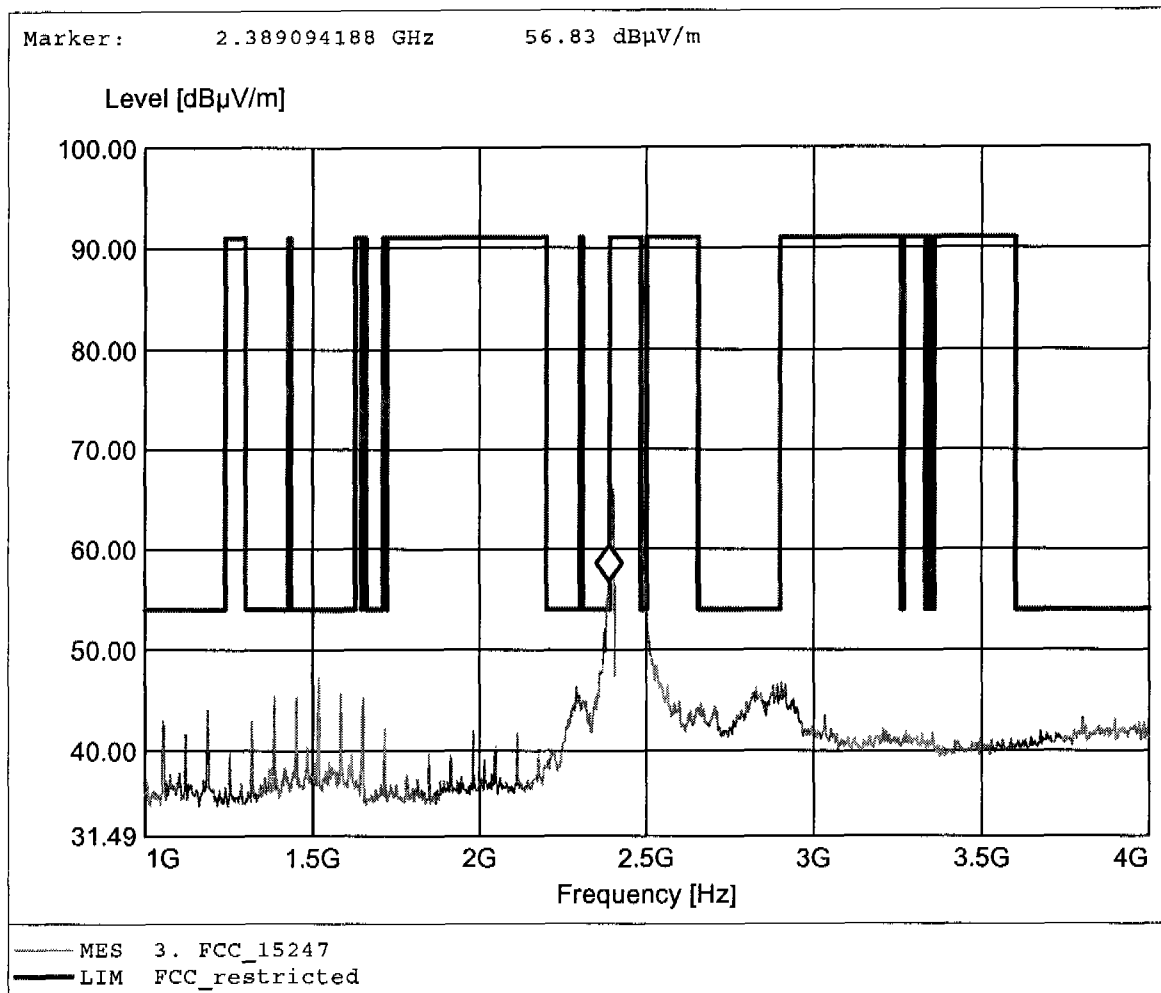
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.406GHz, Emax: 71.00dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

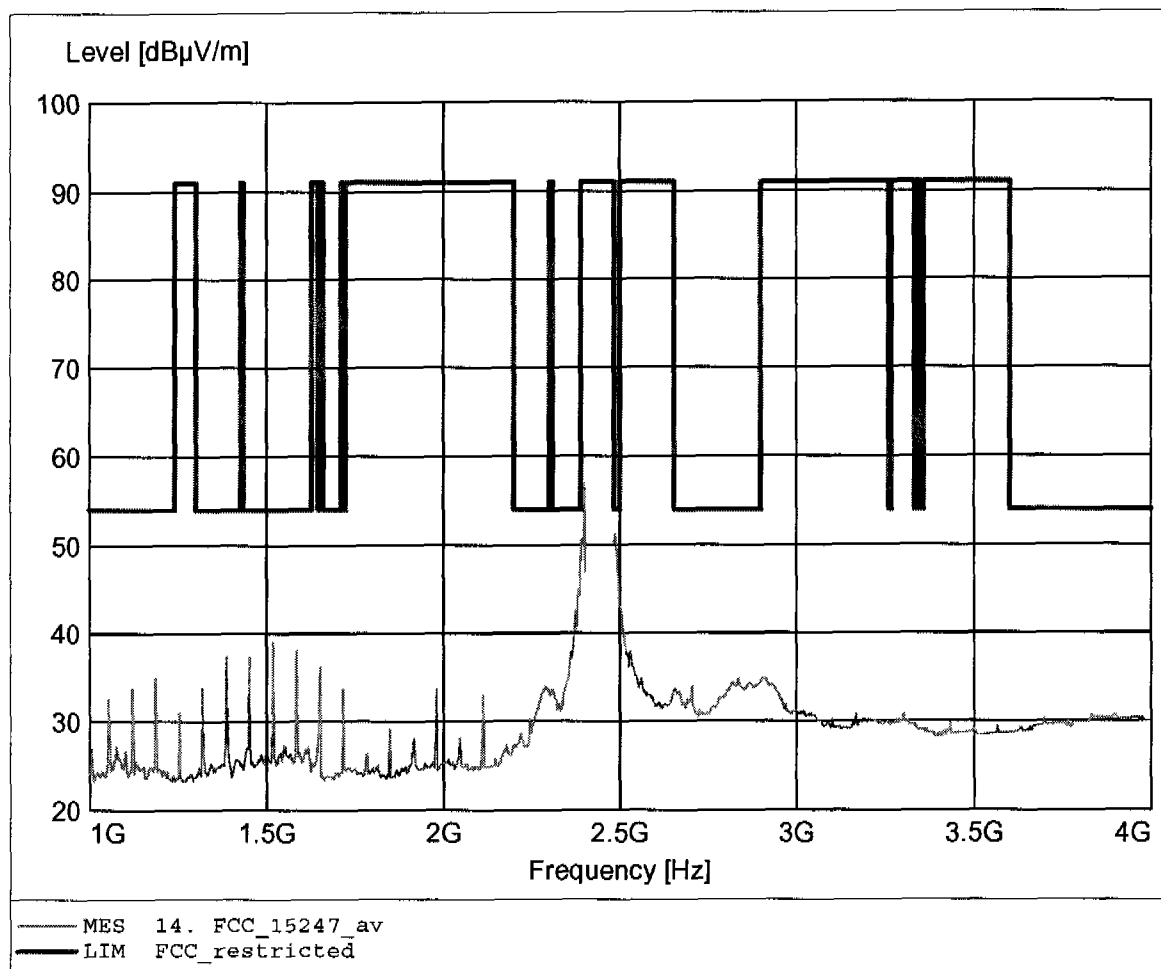
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 65.97dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

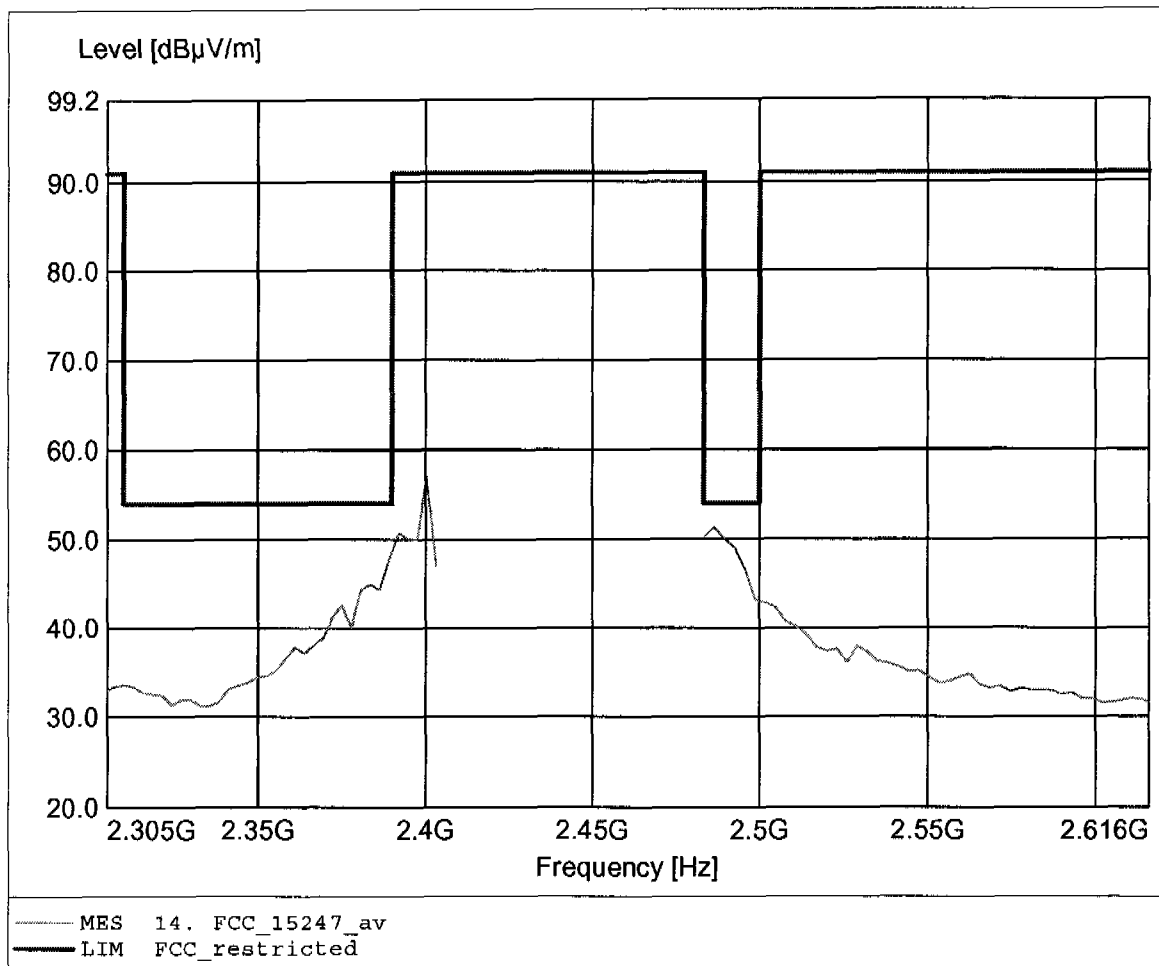
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, average detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 57.03dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

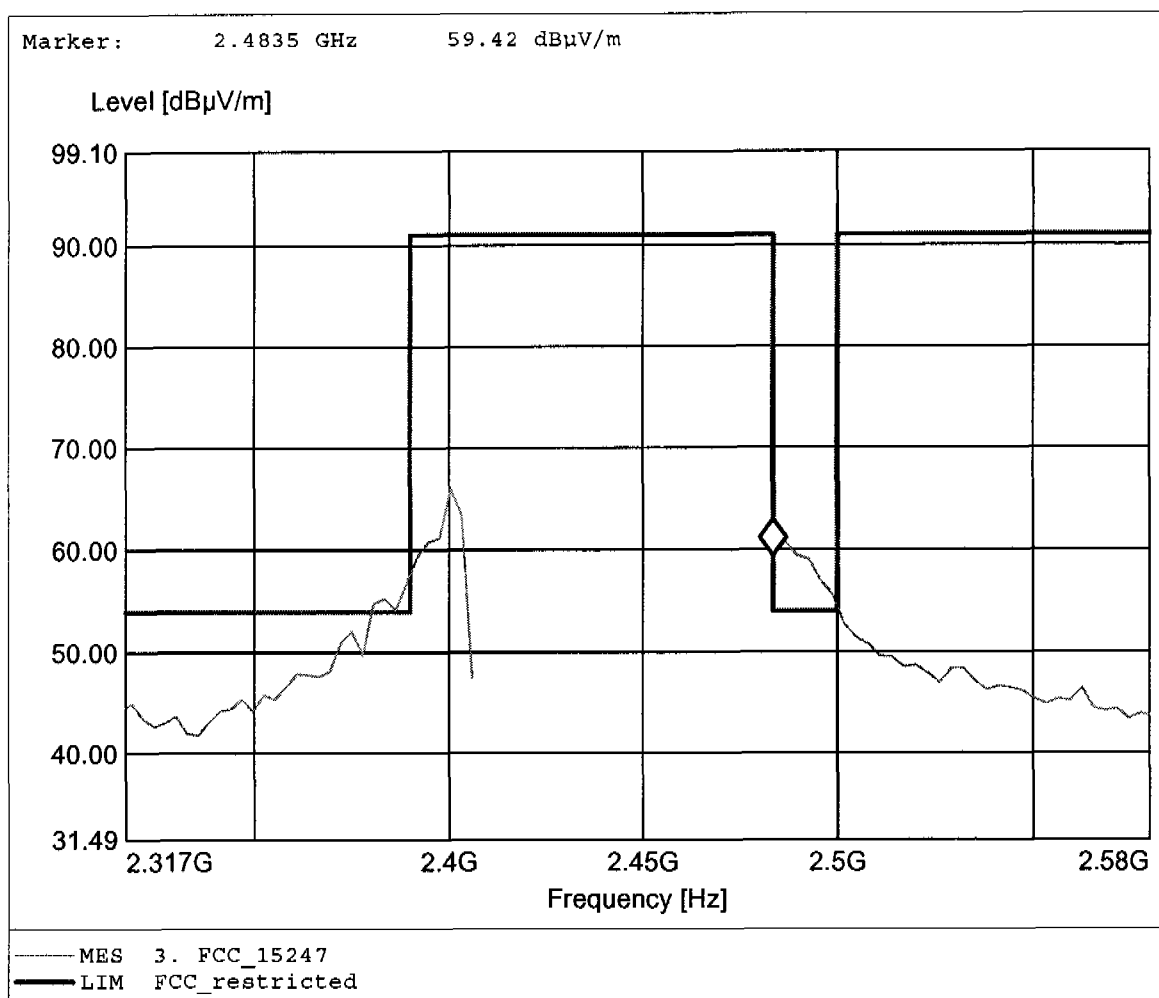
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, average detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 57.03dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

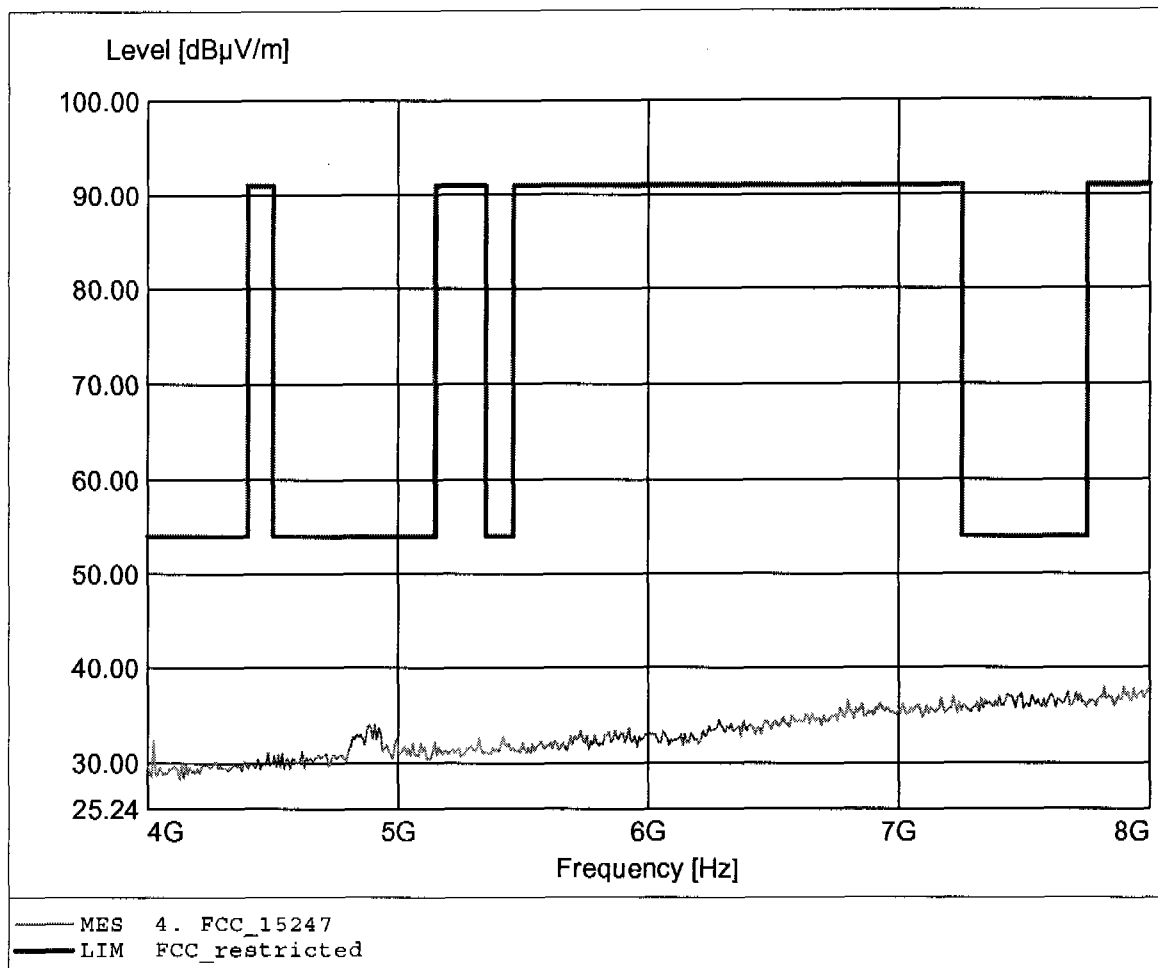
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 65.97dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

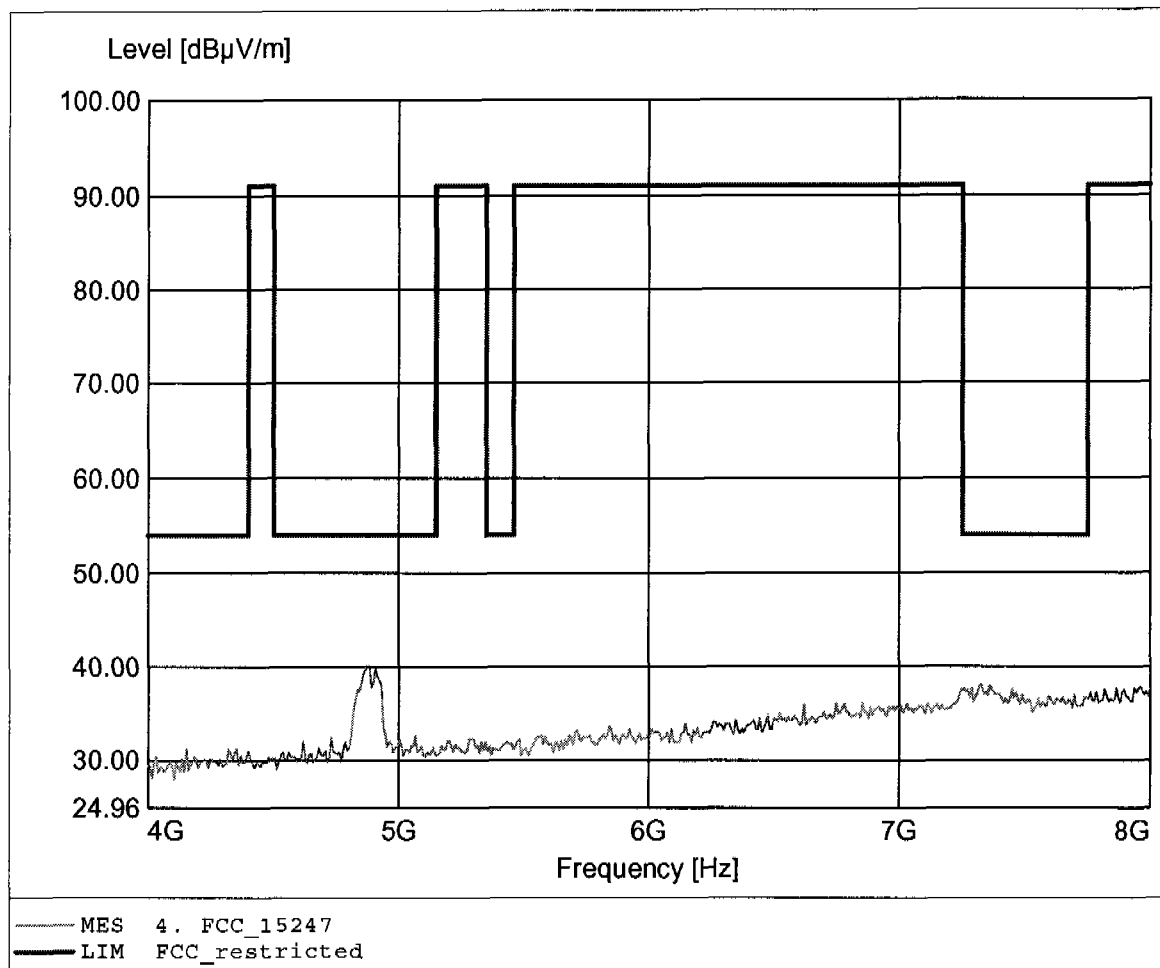
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.816GHz, Emax: 37.96dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

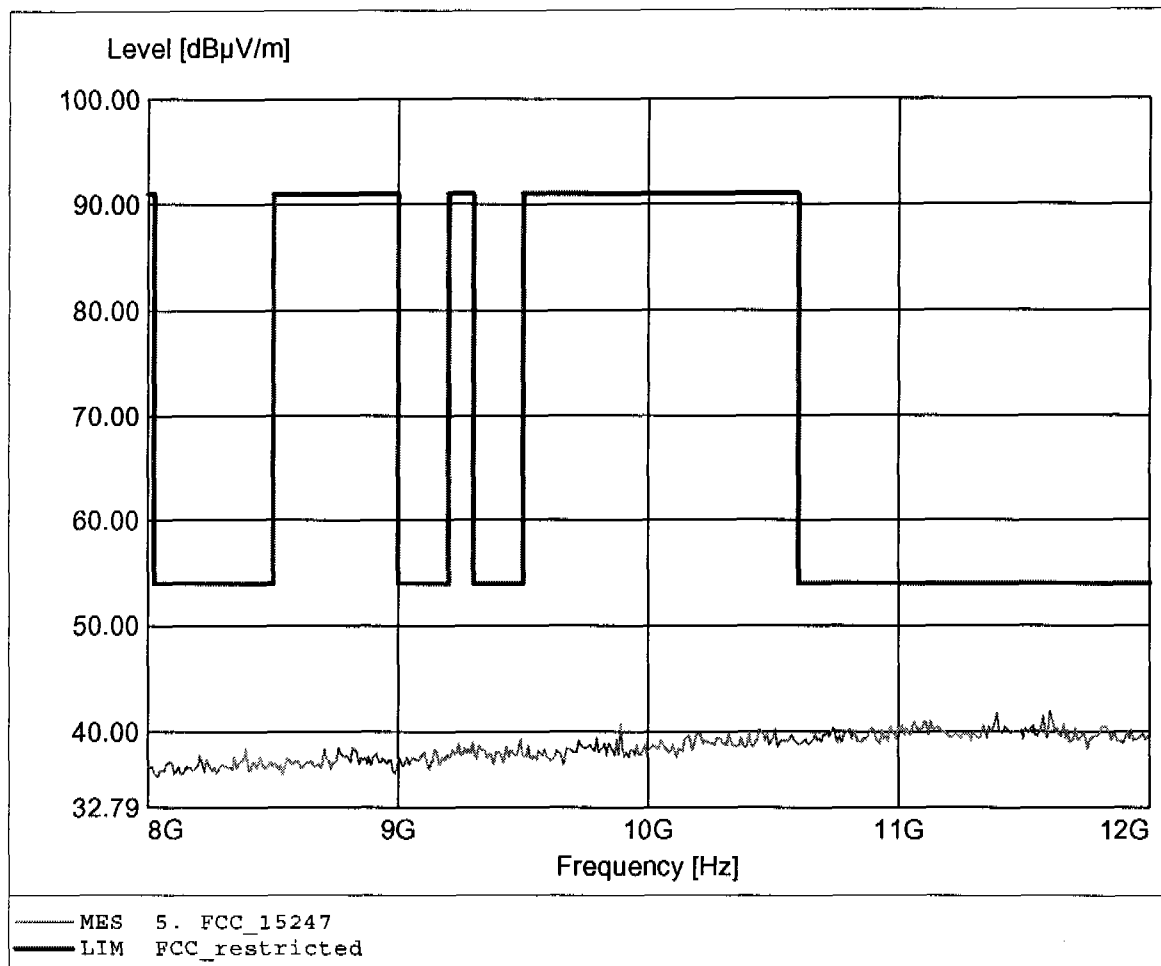
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.882GHz, Emax: 40.14dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

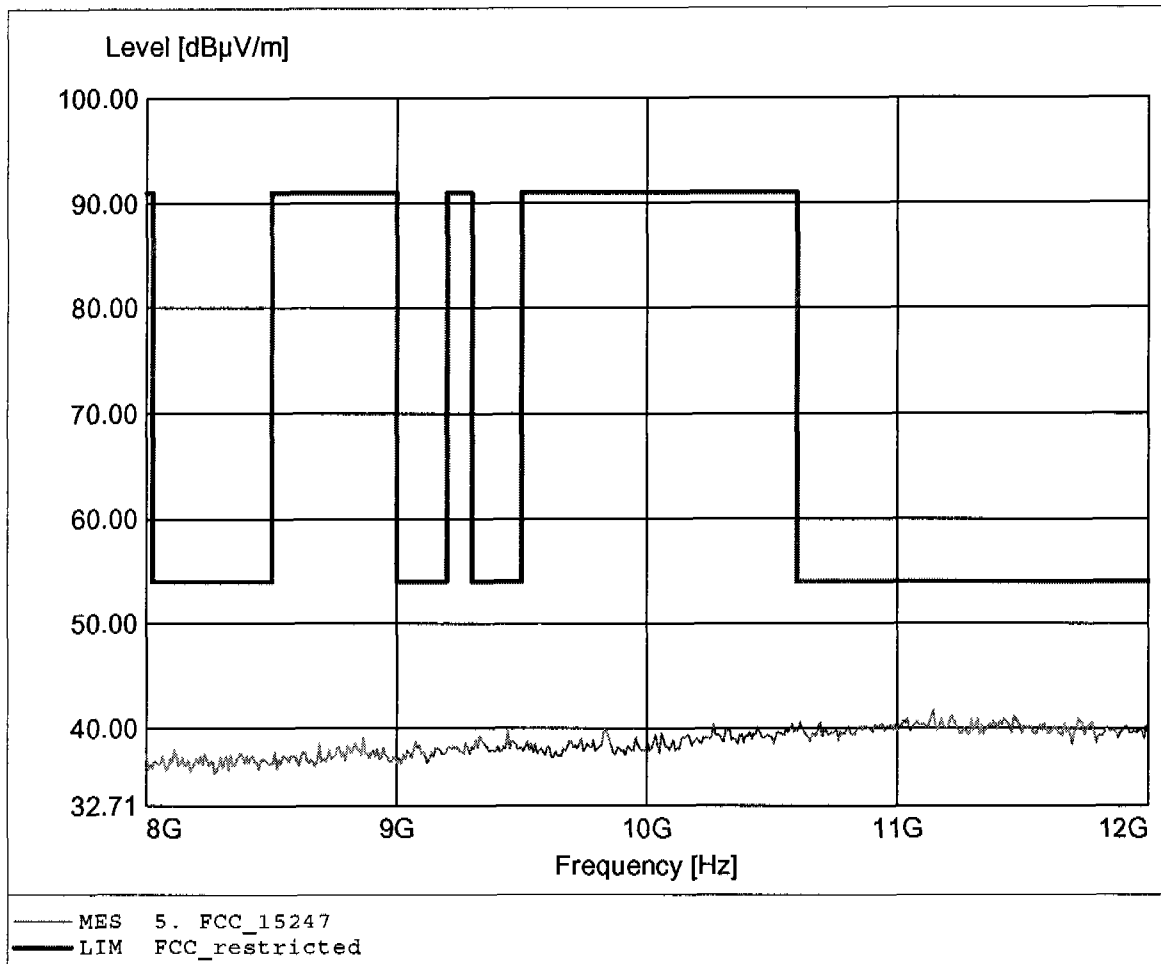
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 11.599GHz, Emax: 41.96dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

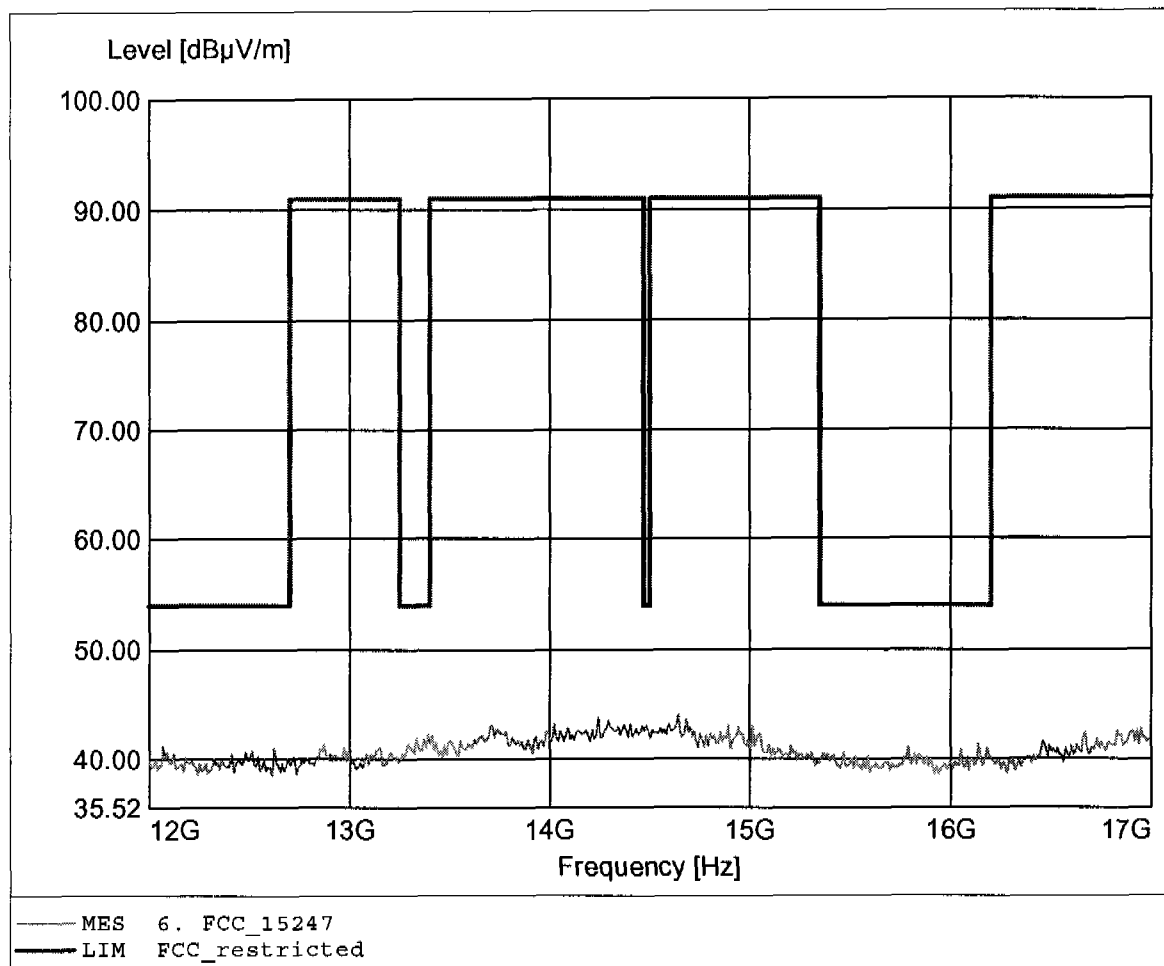
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 11.142GHz, Emax: 41.73dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

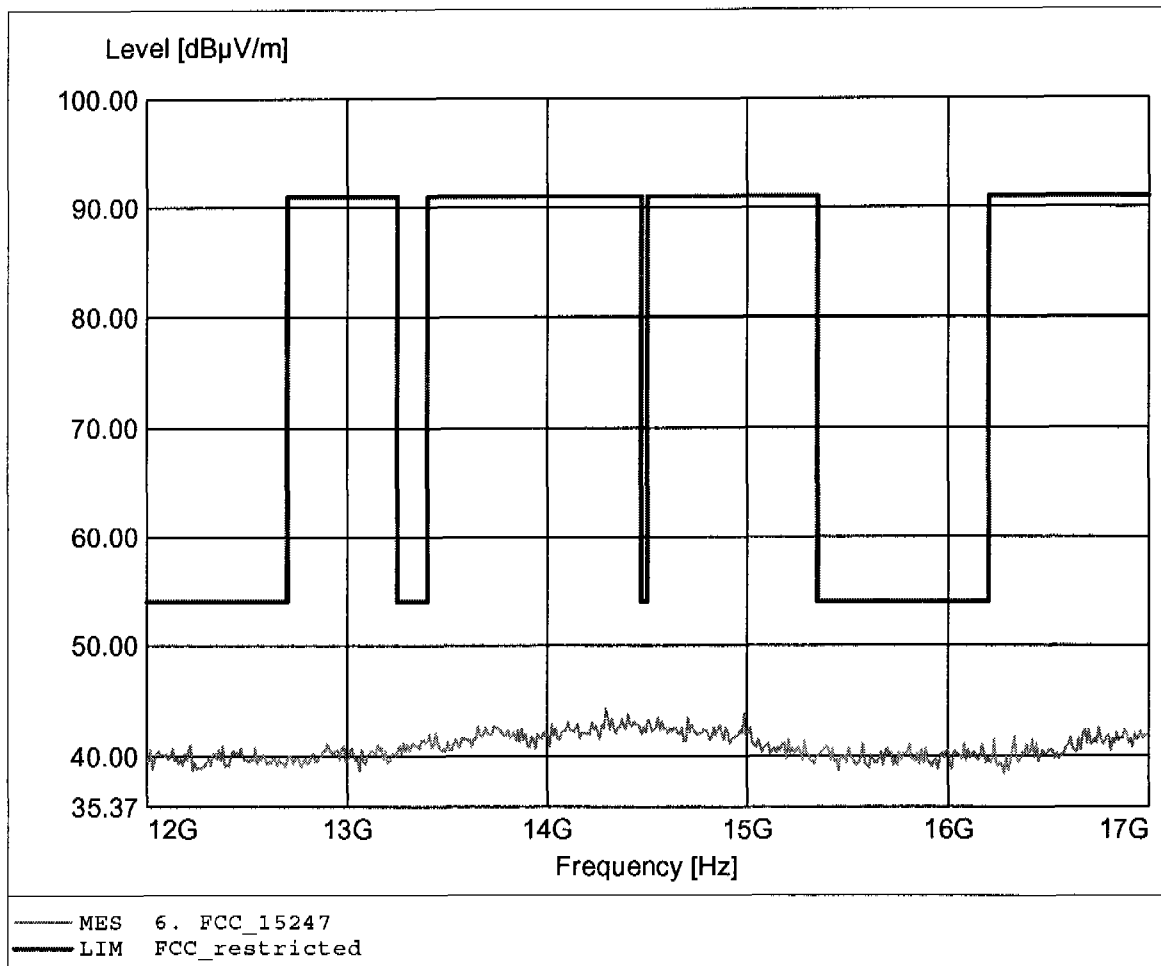
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 14.645GHz, Emax: 44.06dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

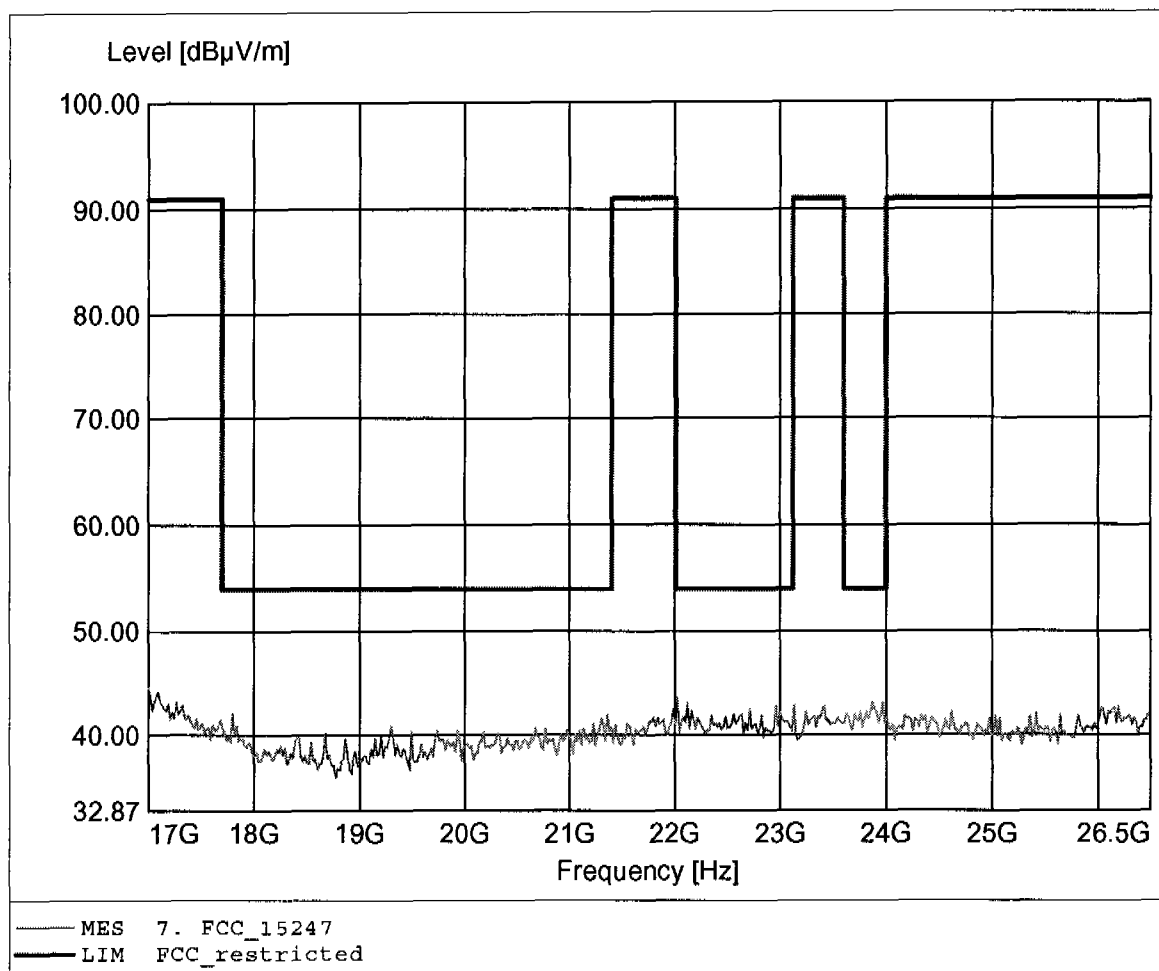
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 14.295GHz, Emax: 44.33dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

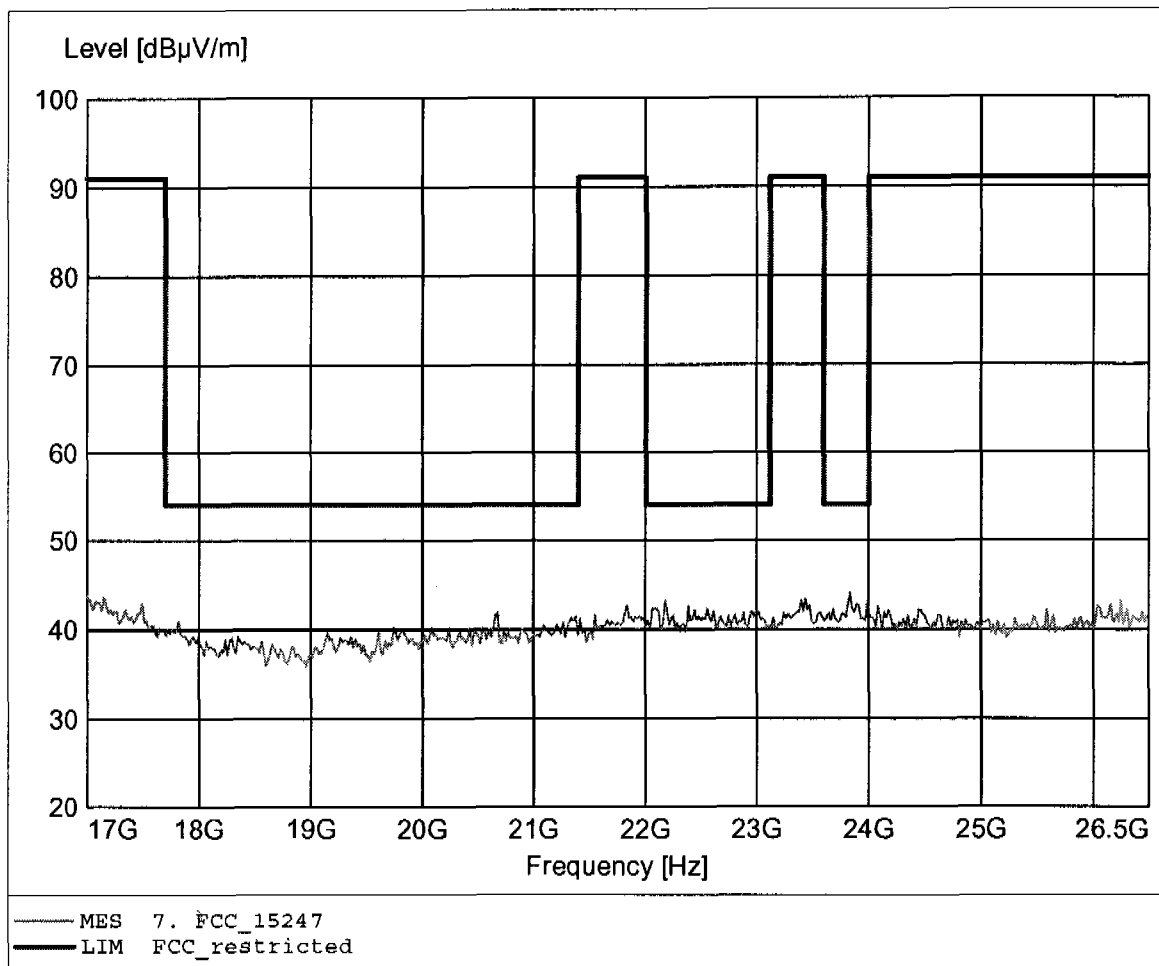
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Comment 2: Freq: 17.000GHz, Emax: 44.69dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#11)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Comment 2: Freq: 23.835GHz, Emax: 44.11dBµV/m, RBW: 1MHz

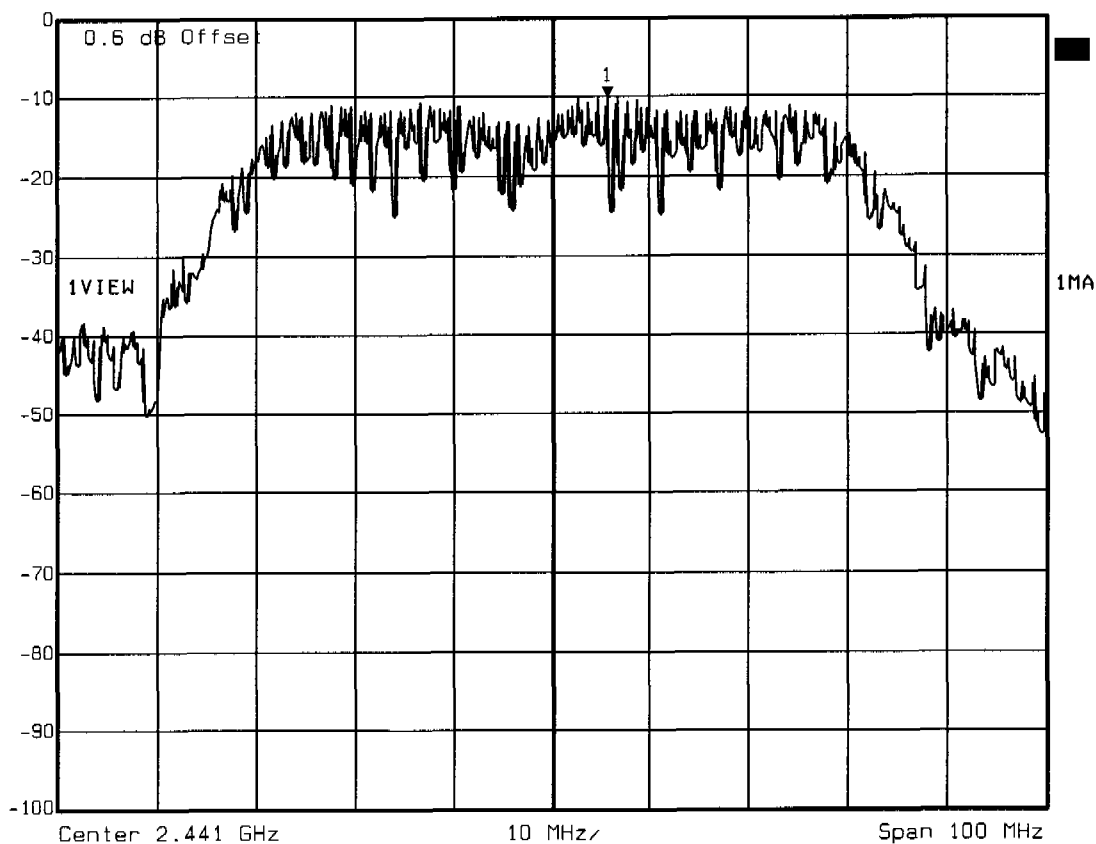


Appendix D

Spurious Emissions conducted - Transmitter operating



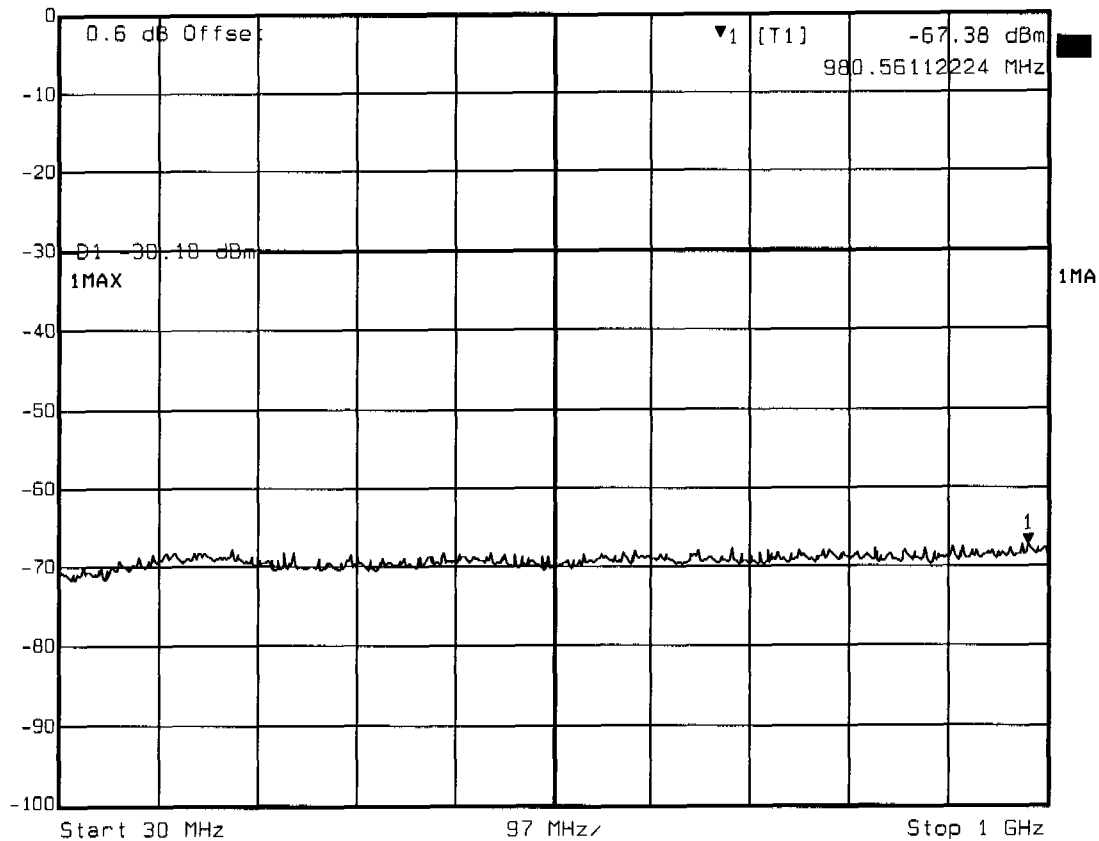
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -10.18 dBm VBW 100 kHz
0 dBm 2.44671142 GHz SWT 25 ms Unit dBm



Title: FCC 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX (power for limit line)
Date: 27.SEP.2004 13:44:20



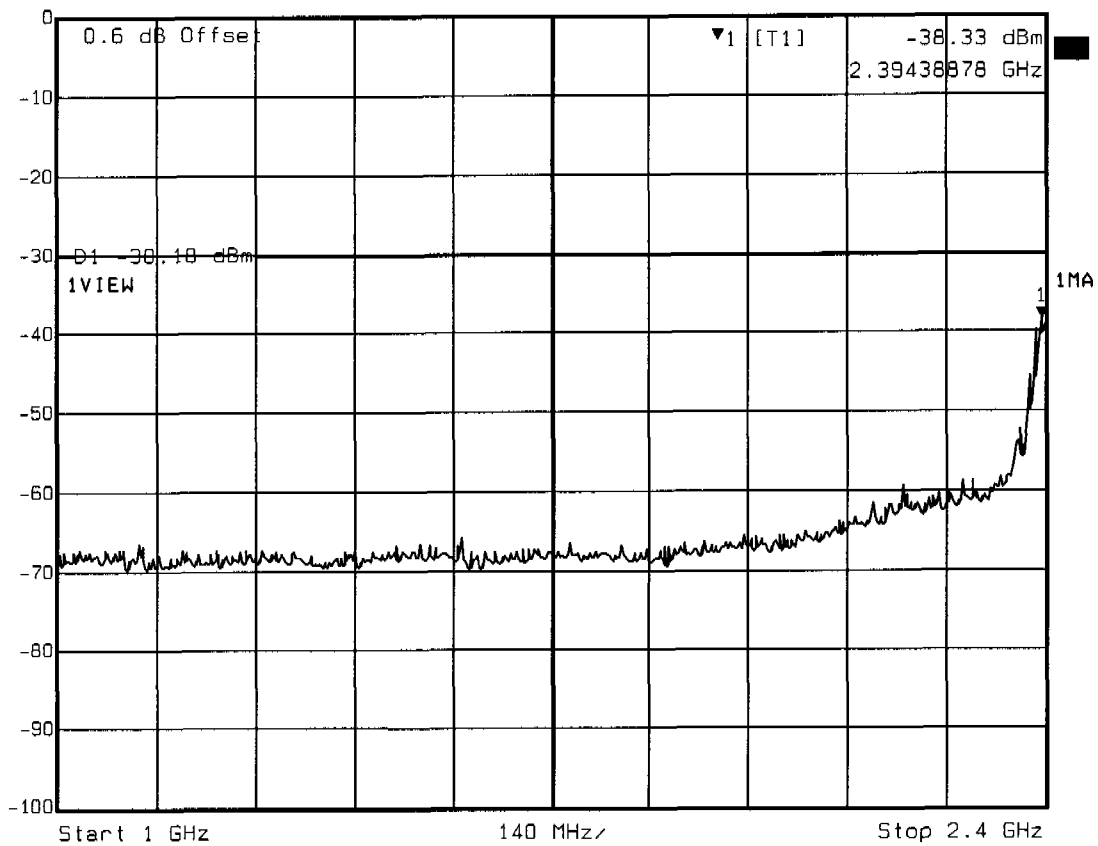
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -67.38 dBm VBW 100 kHz
0 dBm 980.56112224 MHz SWT 245 ms Unit dBm



Title: FCC 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 27.SEP.2004 13:49:19



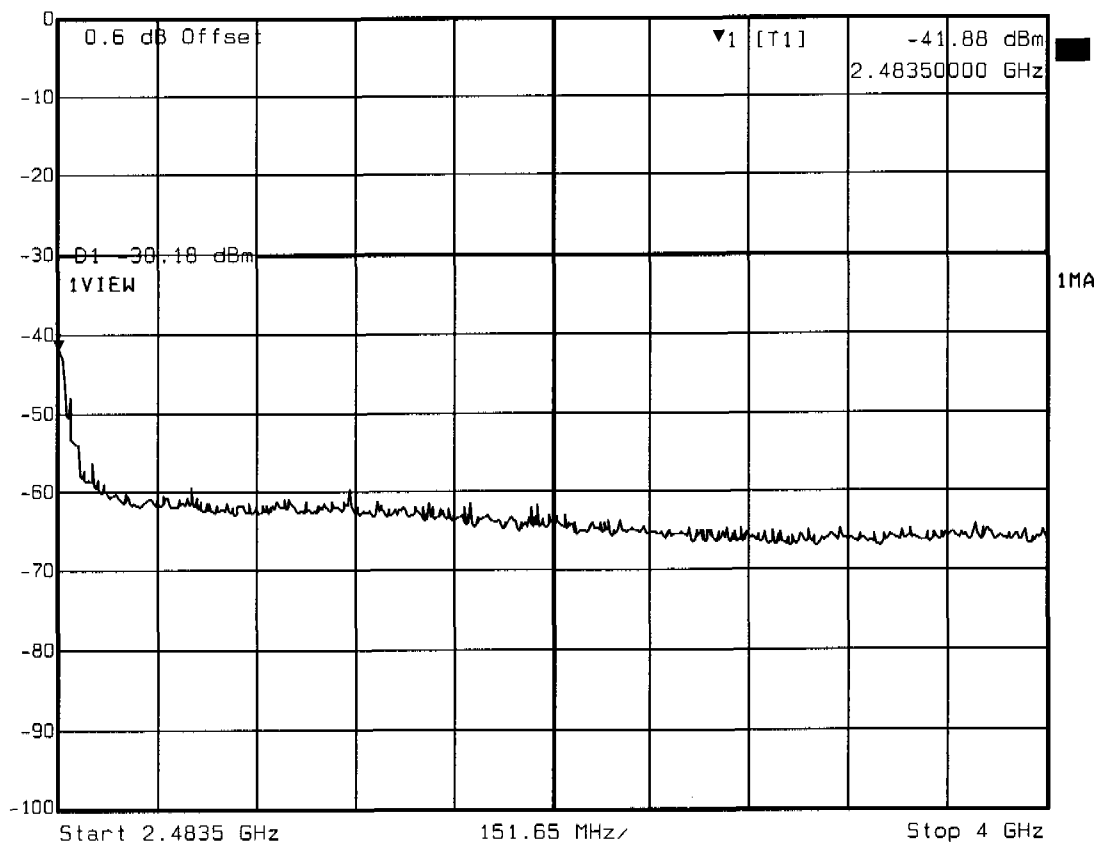
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -38.33 dBm VBW 100 kHz
0 dBm 2.39438878 GHz SWT 350 ms Unit dBm



Title: FCC 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 27.SEP.2004 13:50:39



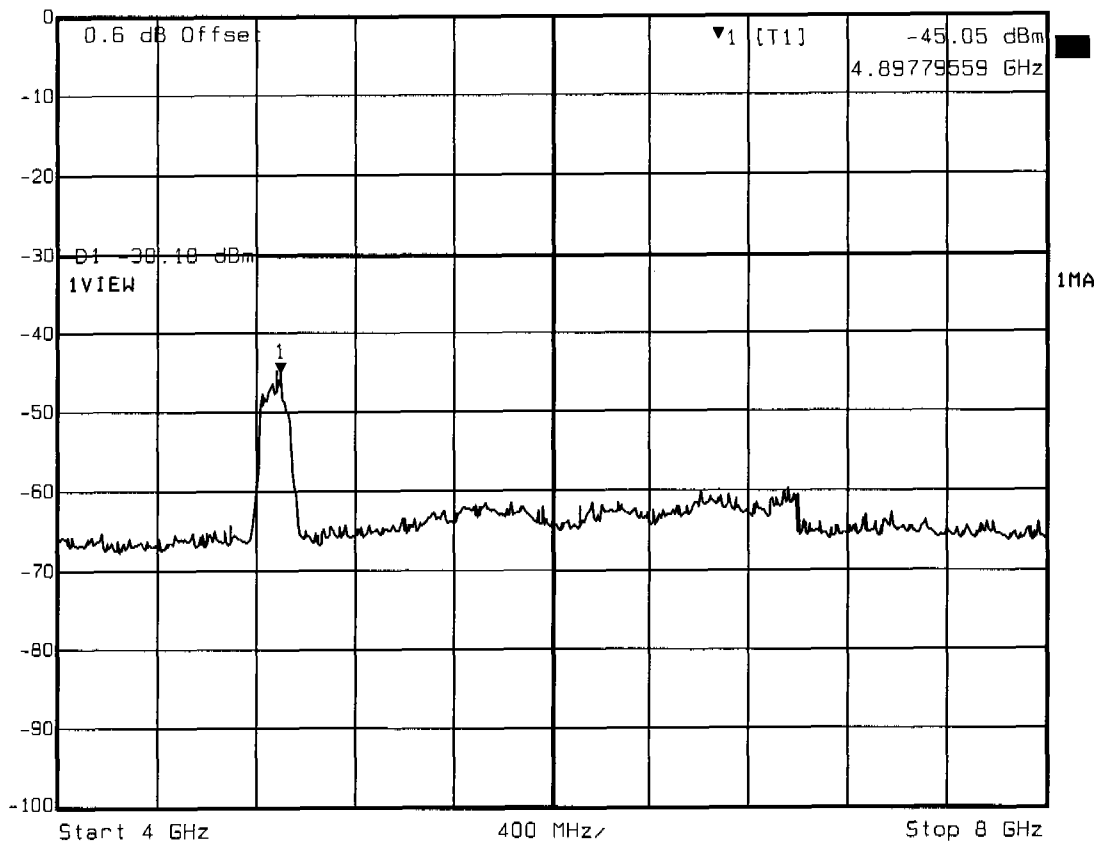
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -41.88 dBm VBW 100 kHz
0 dBm 2.48350000 GHz SWT 380 ms Unit dBm



Title: FCC 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 27.SEP.2004 13:51:55



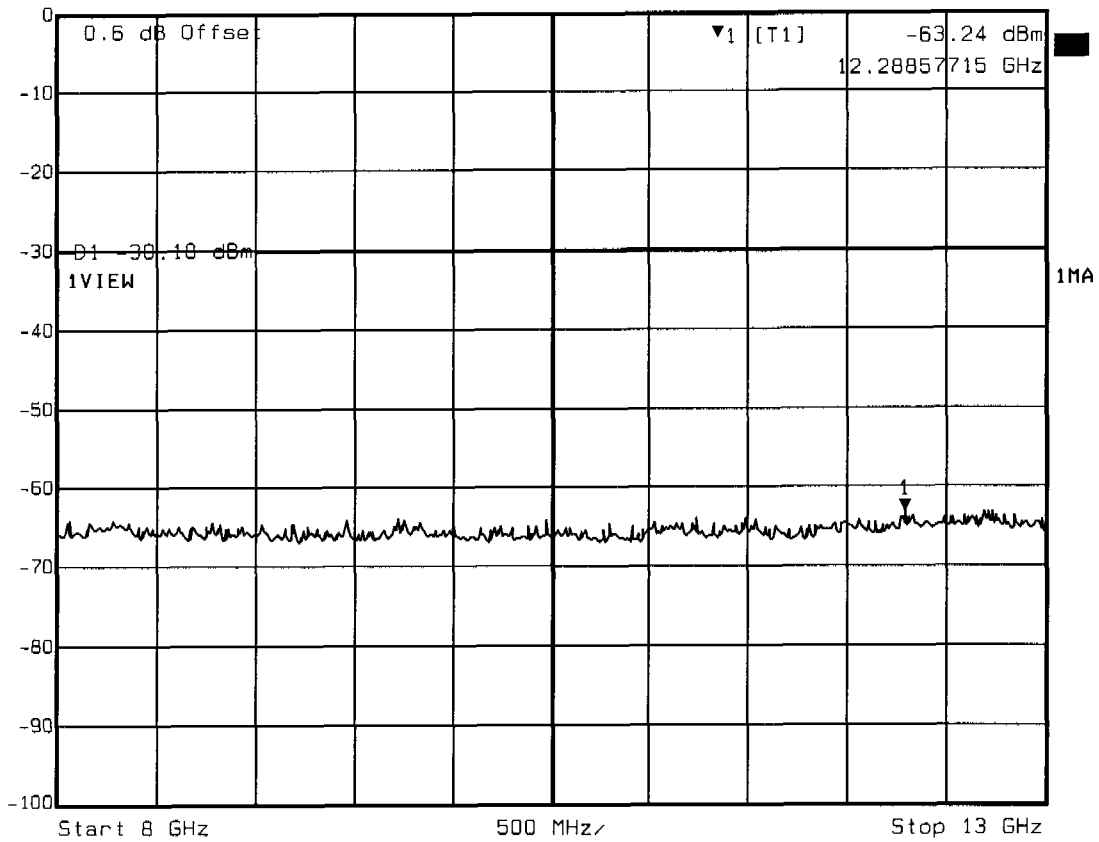
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -45.05 dBm VBW 100 kHz
0 dBm 4.89779559 GHz SWT 1 s Unit dBm



Title: FCC 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 27.SEP.2004 13:54:44



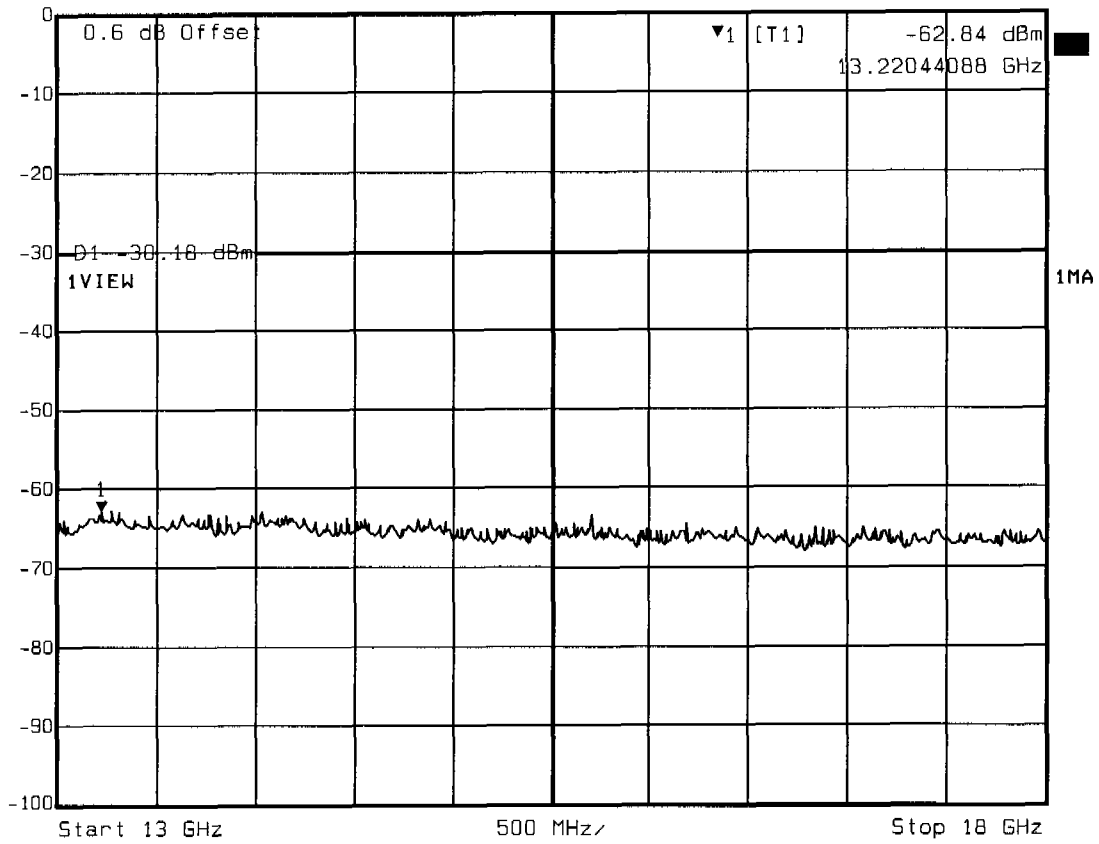
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -63.24 dBm VBW 100 kHz
0 dBm 12.28857715 GHz SWT 1.25 s Unit dBm



Title: FCC 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 27.SEP.2004 13:55:41



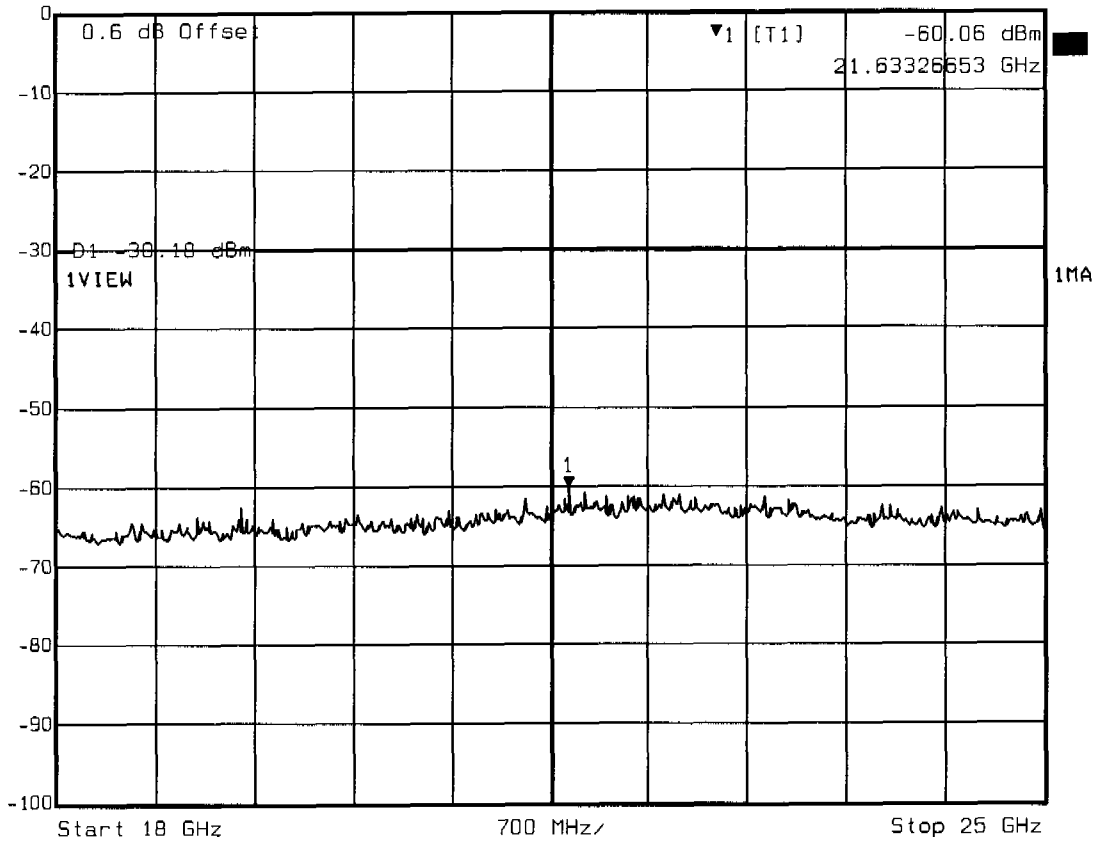
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -62.84 dBm VBW 100 kHz
0 dBm 13.22044088 GHz SWT 1.25 s Unit dBm



Title: FCC 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 27.SEP.2004 13:57:45



Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -60.06 dBm VBW 100 kHz
0 dBm 21.63326653 GHz SWT 1.75 s Unit dBm



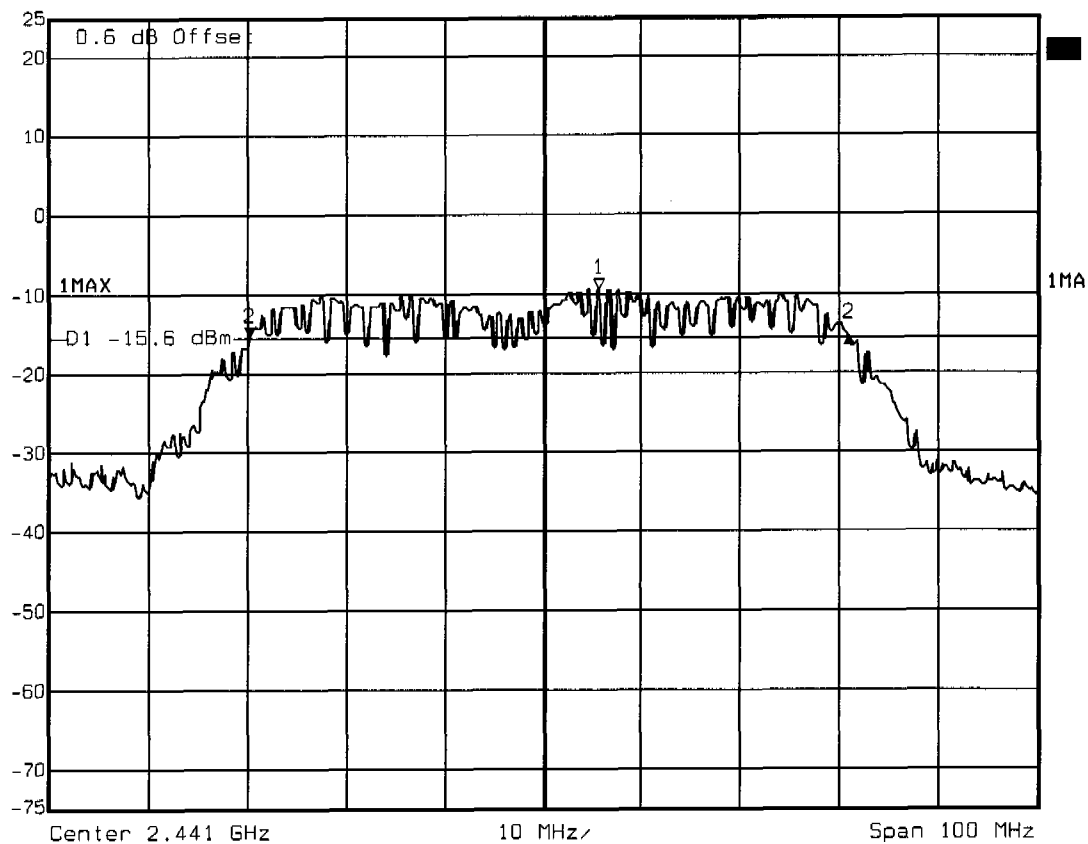
Title: FCC 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 27.SEP.2004 13:56:56

Appendix E

Maximum 6 dB Bandwidth



Delta 2 [T1] RBW 100 kHz RF Att 50 dB
Ref Lvl 0.17 dB VBW 1 MHz
25 dBm 60.72144289 MHz SWT 25 ms Unit dBm



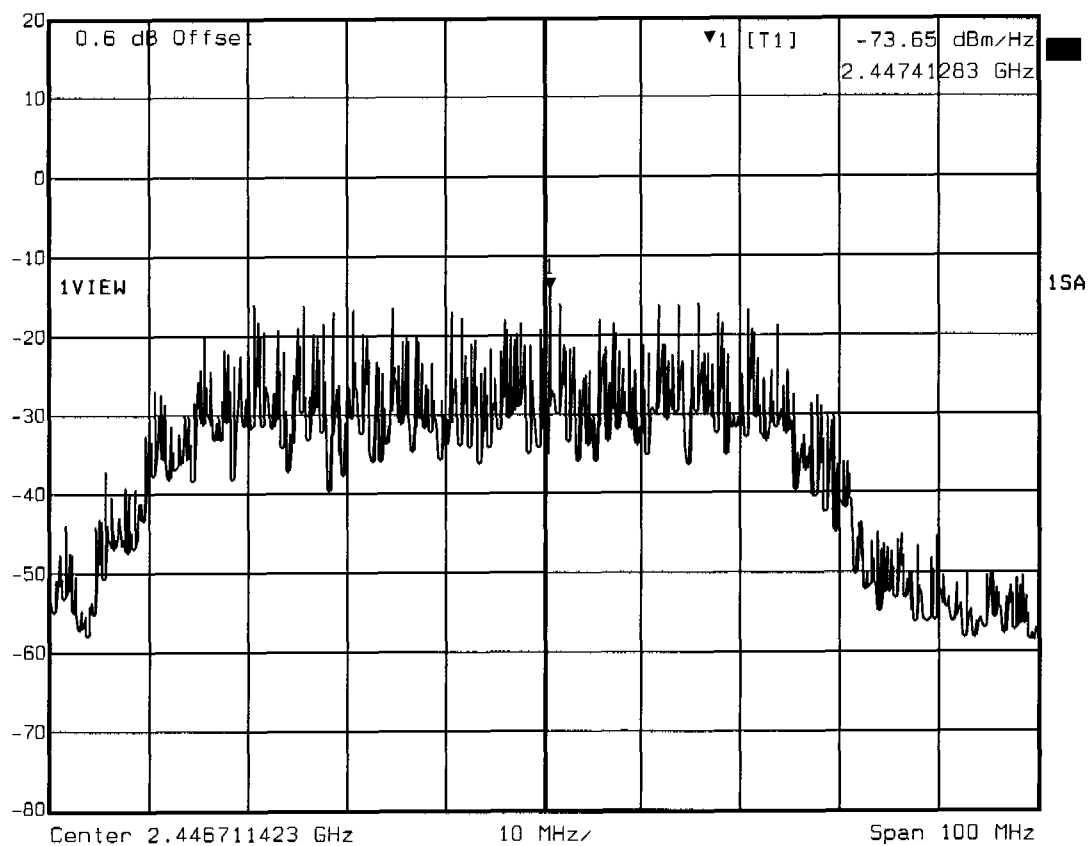
Title: FCC 15.247(a) Bandwidth
Comment A: Nanotron nanoNET TRX (W18)
Date: 27.SEP.2004 12:41:33

Appendix F

Peak Power Spectral Density



Marker 1 [T1: NOI] RBW 100 kHz RF Att 40 dB
Ref Lvl -73.65 dBm/Hz VBW 100 kHz
20 dBm 2.44741283 GHz SWT 25 ms Unit dBm



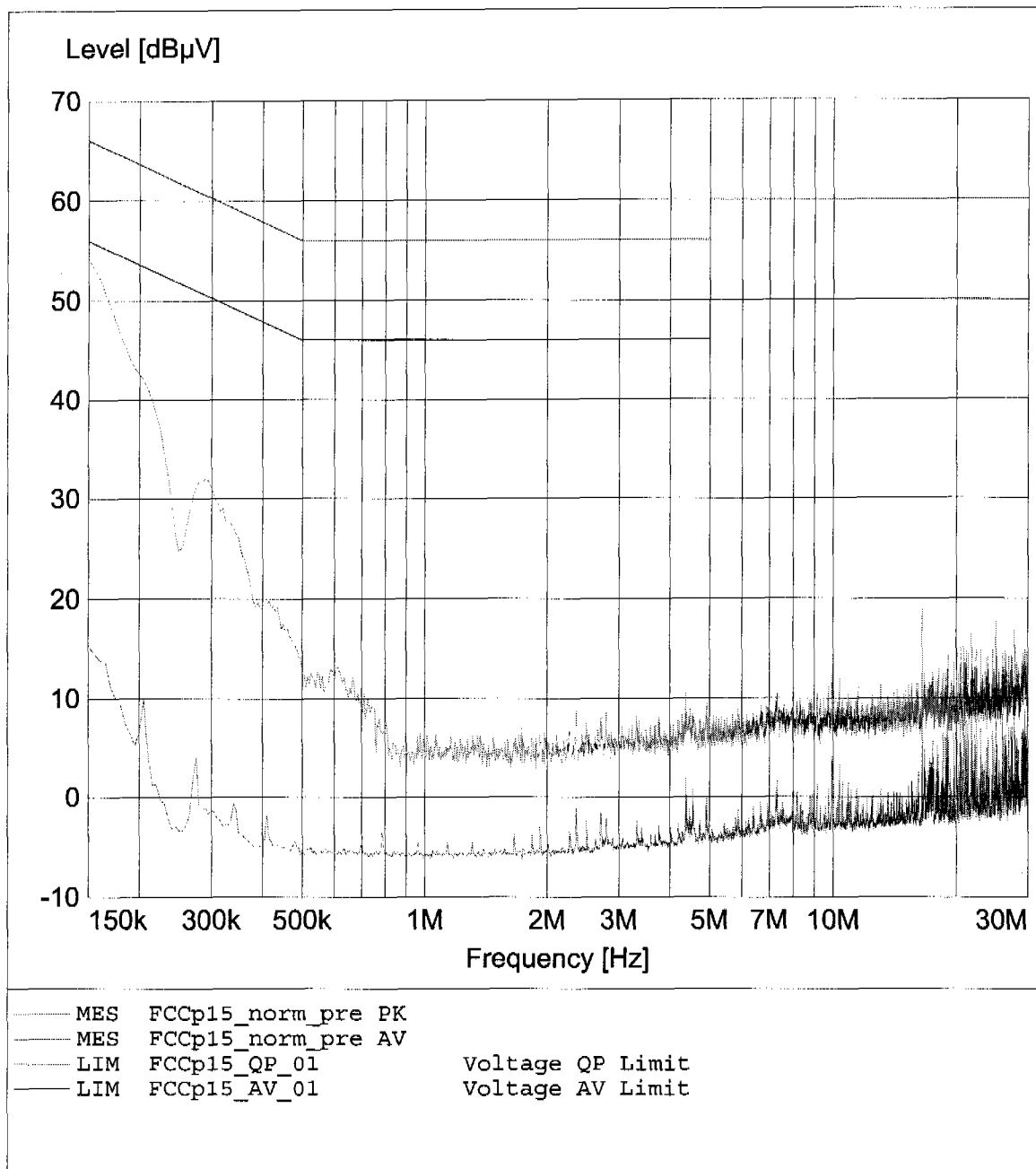
Title: 15.247(d)Power spectr. density (+35dB for 3KHz RBW)=-38.6dBm
Comment A: Nanotron, nanoNET TRX (W18)
Date: 27.SEP.2004 13:28:54

Appendix G

Conducted Emission at (AC) Power Line

EMI voltage test in the ac-mains according to FCC part 15

EUT: 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Manufacturer: Nanotron Technologies GmbH
Operating Condition: Unom: 120VAC(AC/DC-adaptor) , Thom: 23°C
Test Site: ETS
Operator: Mr. Pflug
Test Specification: V-Network: ESH2-Z5 (N)
Comment: model: nanoNET TRX mode: transmitting max power
AC/DC-Adapter: RadioShack 273-1761 Chip: 226W18



EMI voltage test in the ac-mains according to FCC part 15

EUT: 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Manufacturer: Nanotron Technologies GmbH
Operating Condition: Unom: 120VAC(AC/DC-adaptor) , Tnom: 23°C
Test Site: ETS
Operator: Mr. Pflug
Test Specification: V-Network: ESH2-Z5 (L1)
Comment: model: nanoNET TRX mode: transmitting max power
AC/DC-Adapter: RadioShack 273-1761 Chip: 226W18

