

Appendix B

Peak Output Power

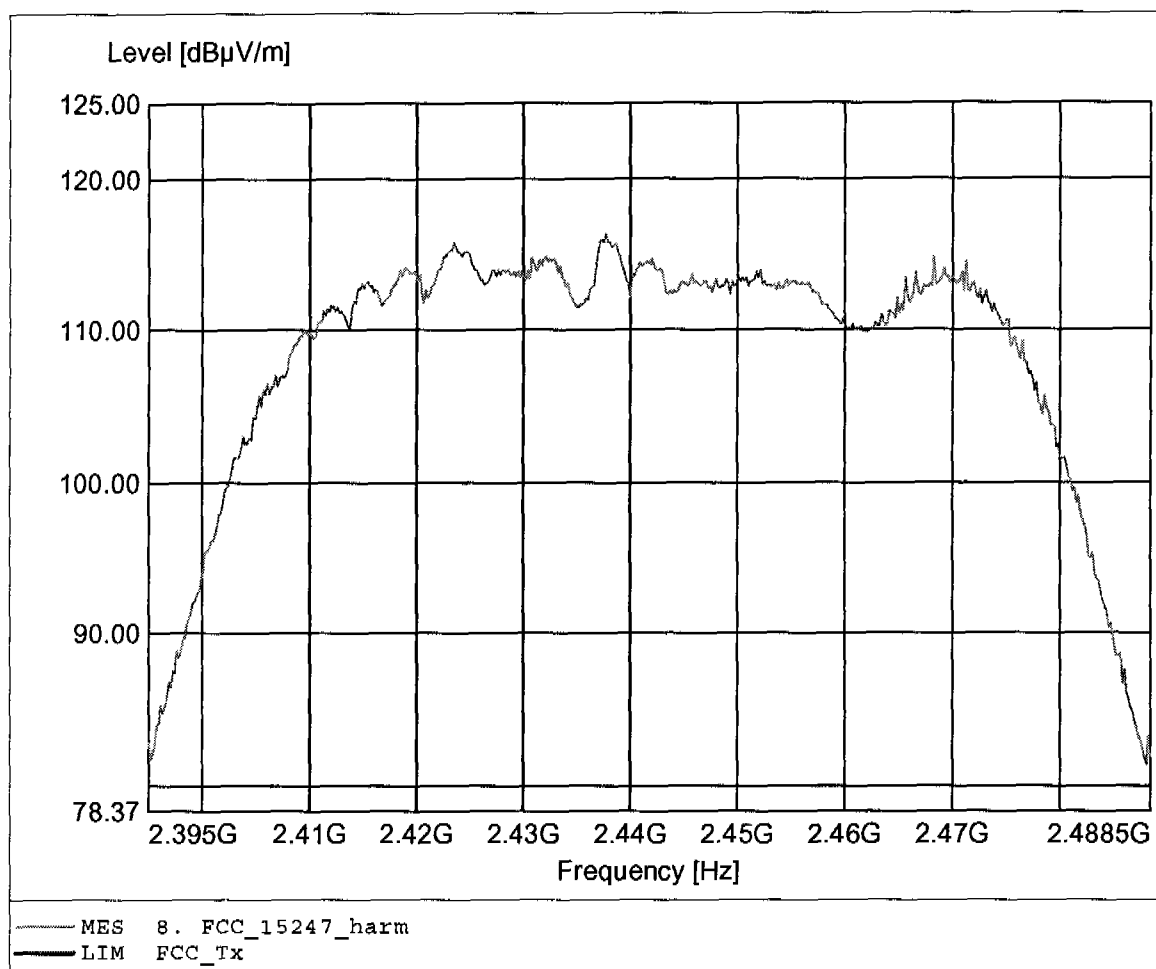
Appendix C

Spurious Emissions radiated - Transmitter operating

Carrier power (Field Strength)

FCC RULES PART 15, SUBPART C

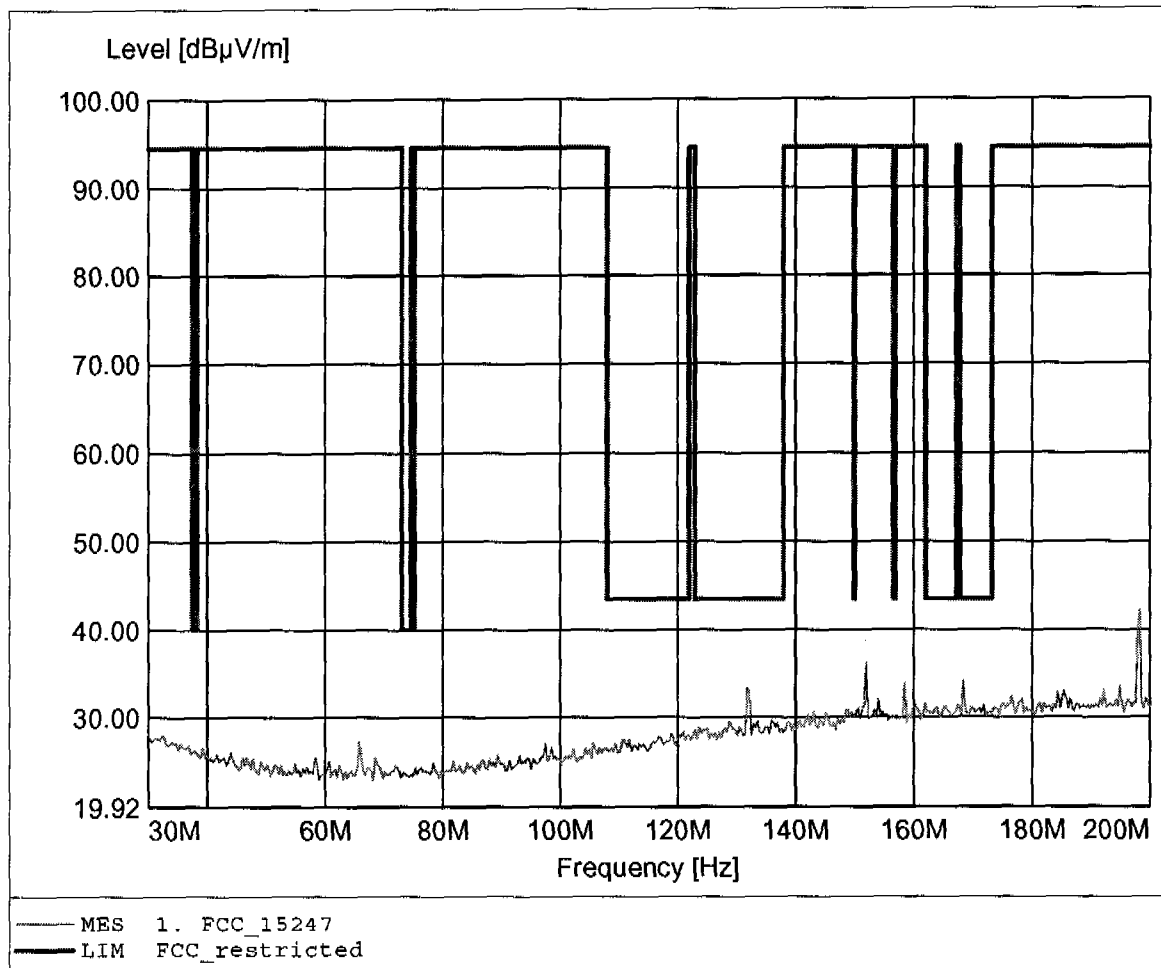
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: BBHA9120D
Comment 2: Freq: 2.438GHz, Emax: 114.30dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

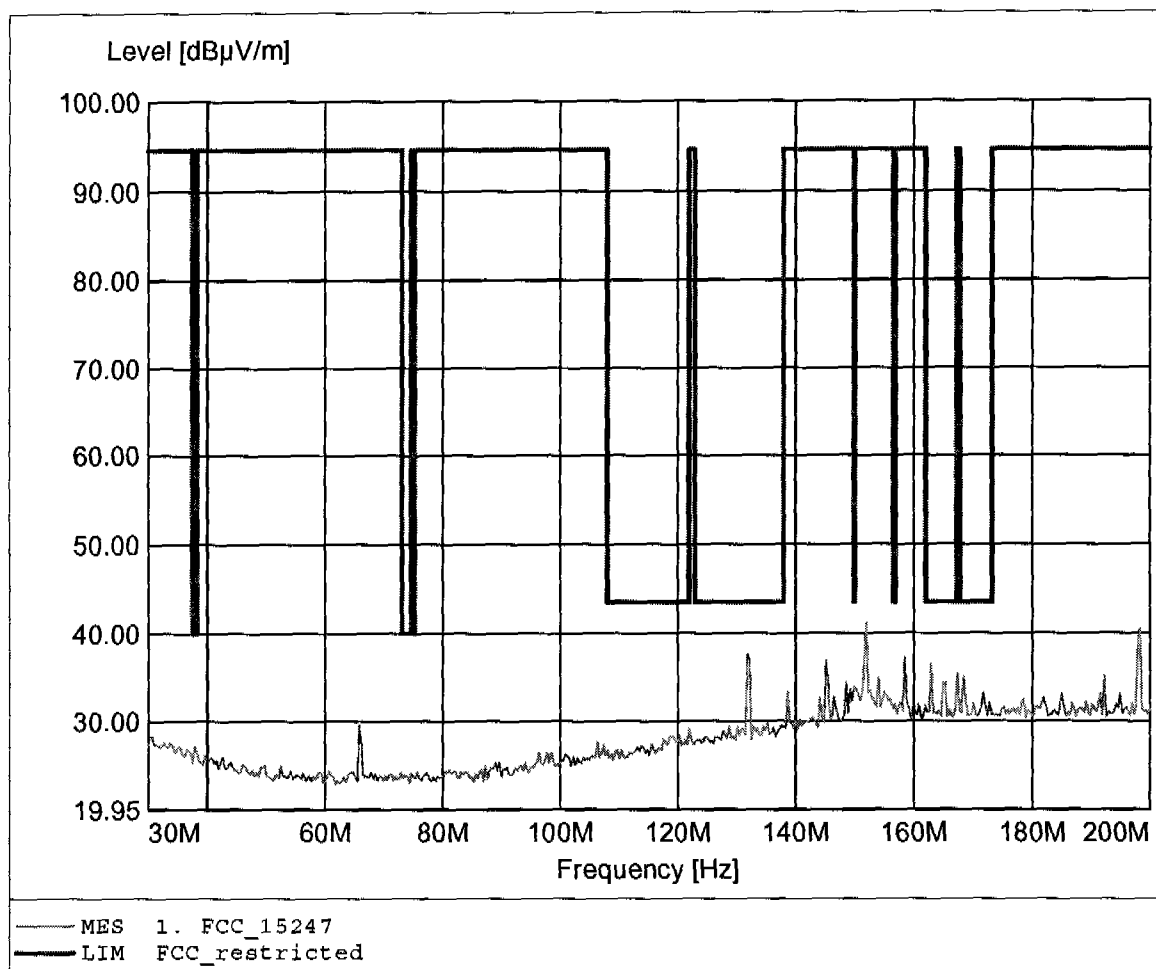
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq: 198.297MHz, Emax: 42.24dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

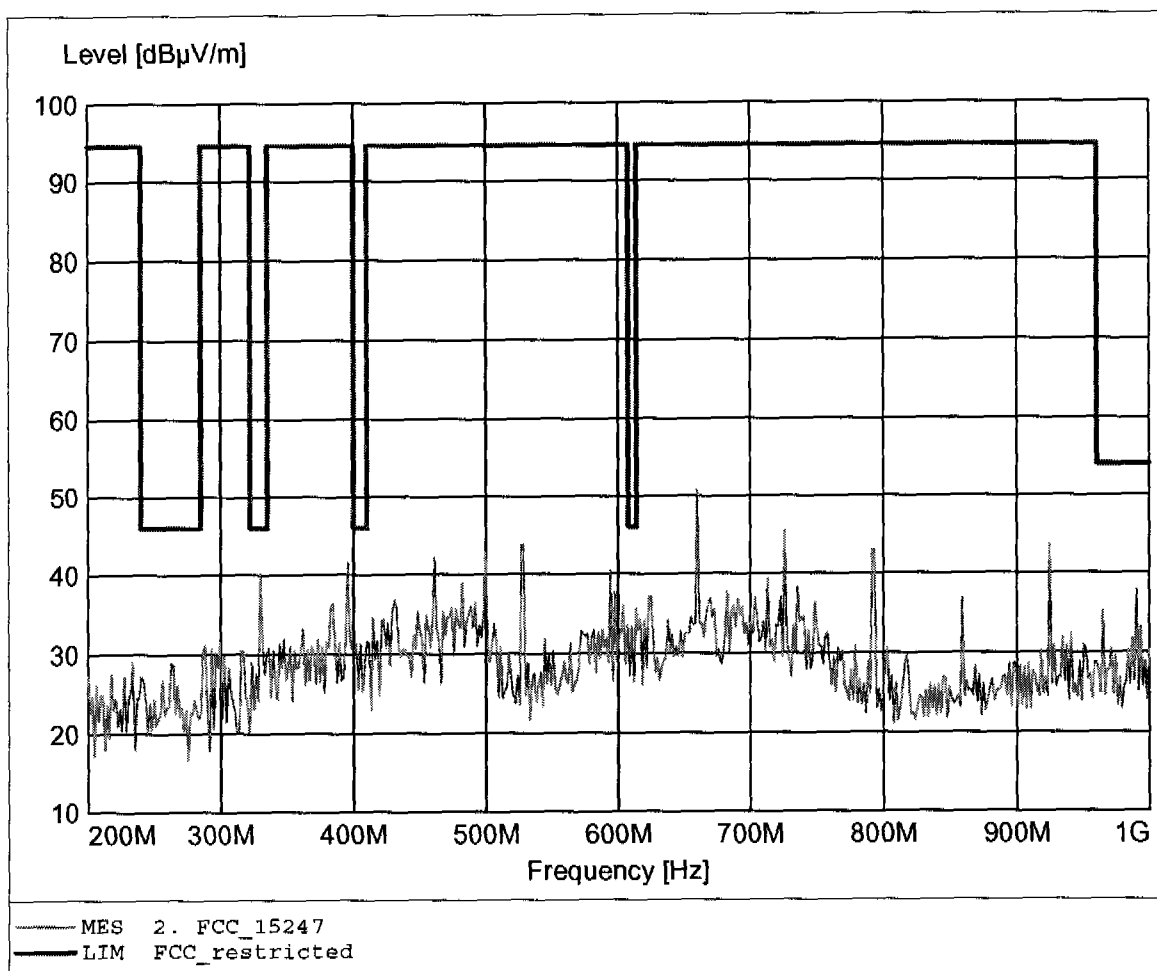
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq: 151.964MHz, Emax: 41.22dBuV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

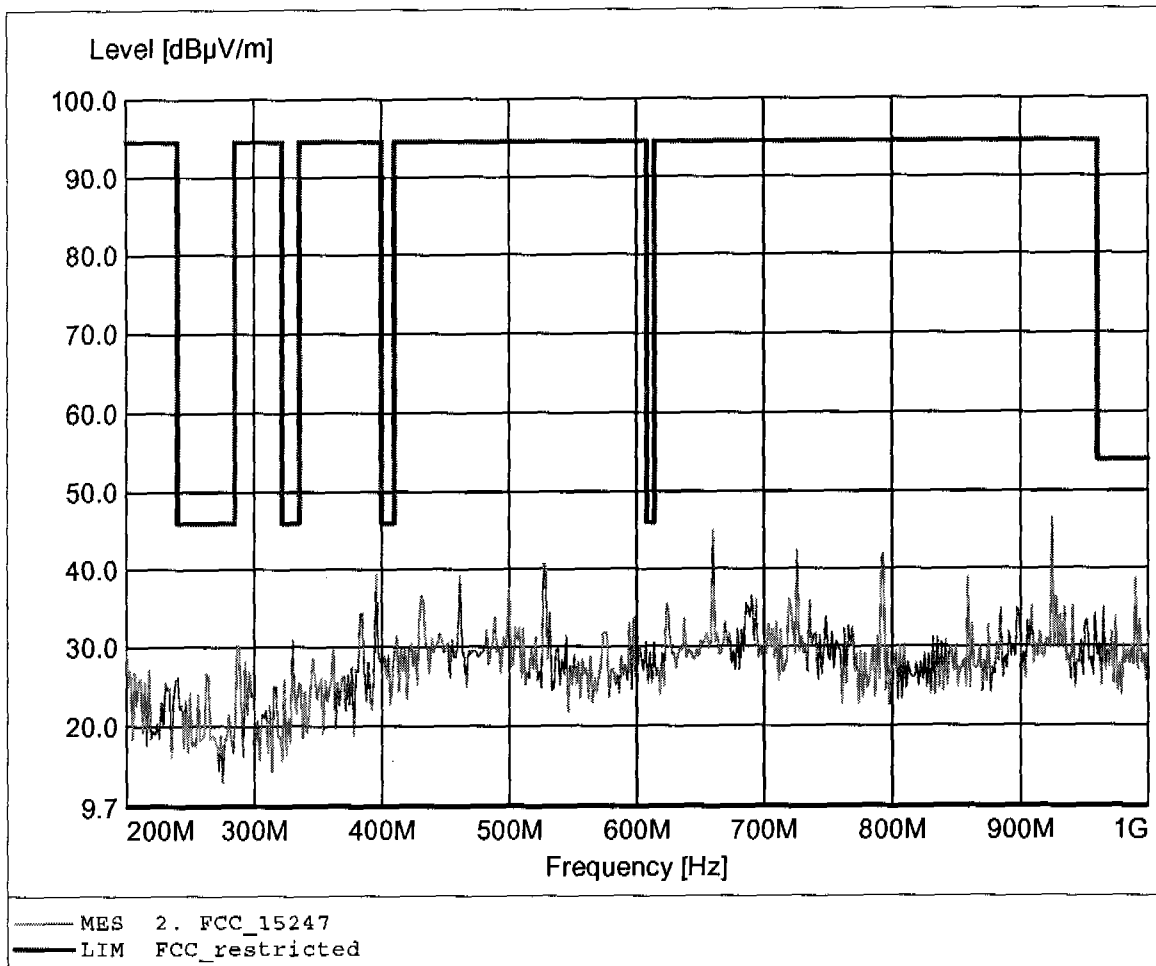
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Comment 2: Freq: 660.120MHz, Emax: 50.79dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

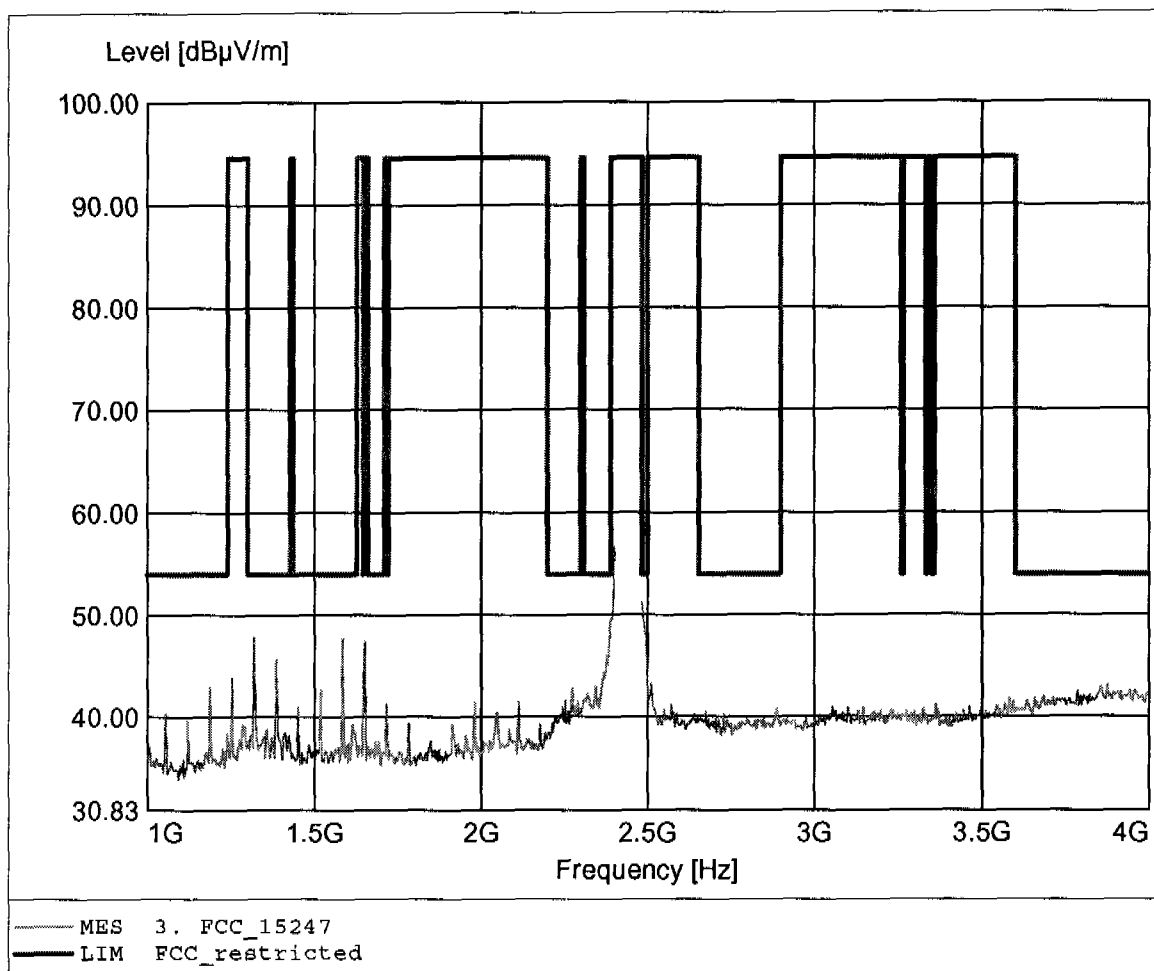
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Comment 2: Freq: 924.649MHz, Emax: 46.54dBuV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

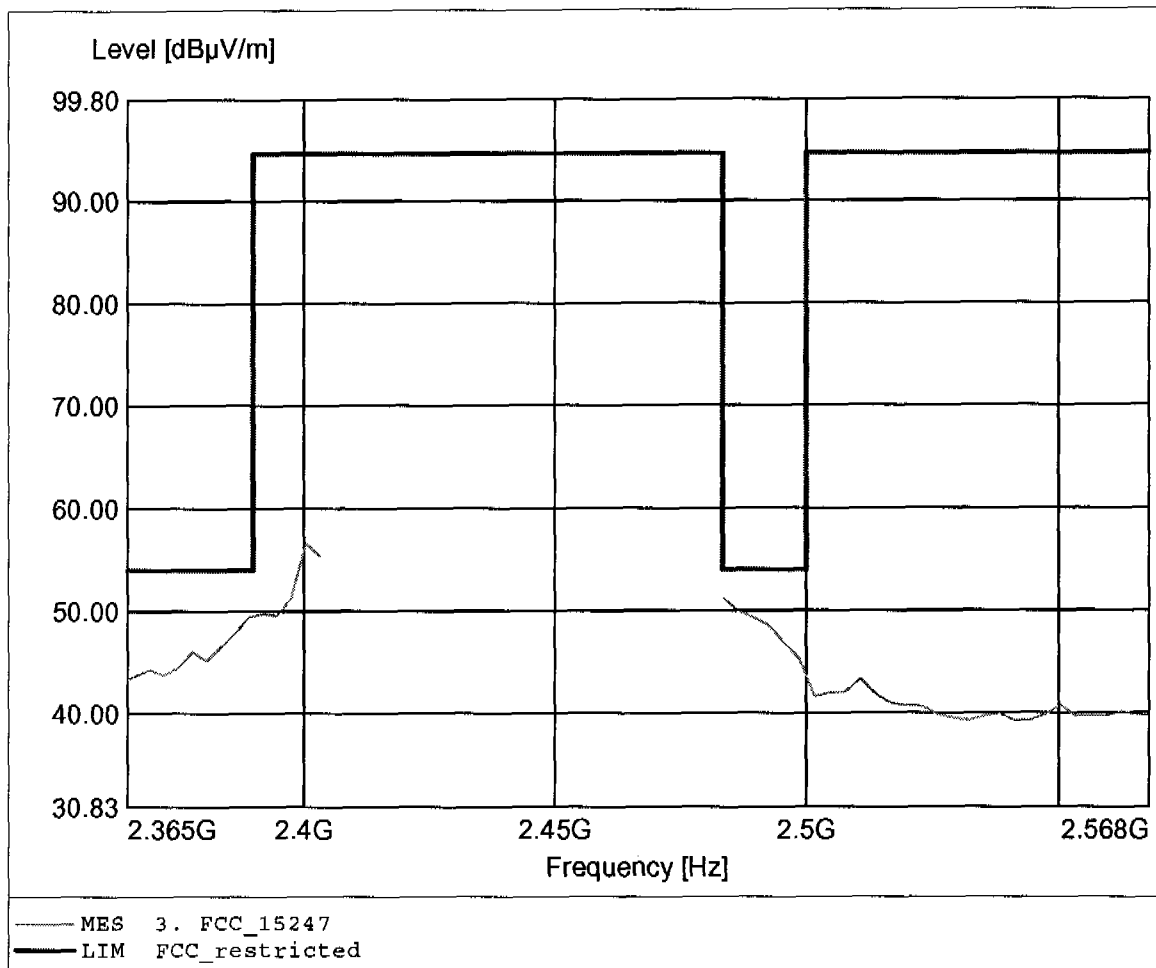
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 56.63dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

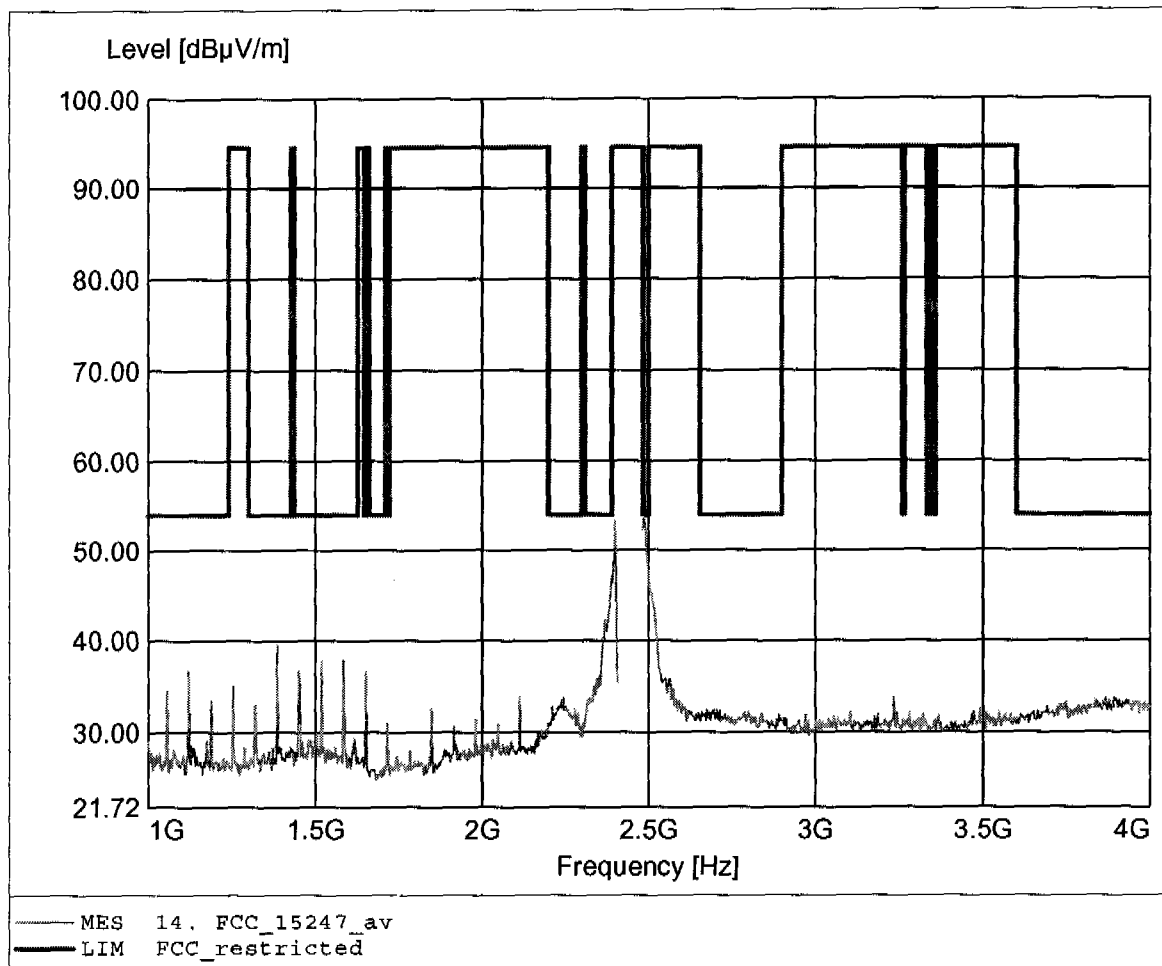
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 56.63dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

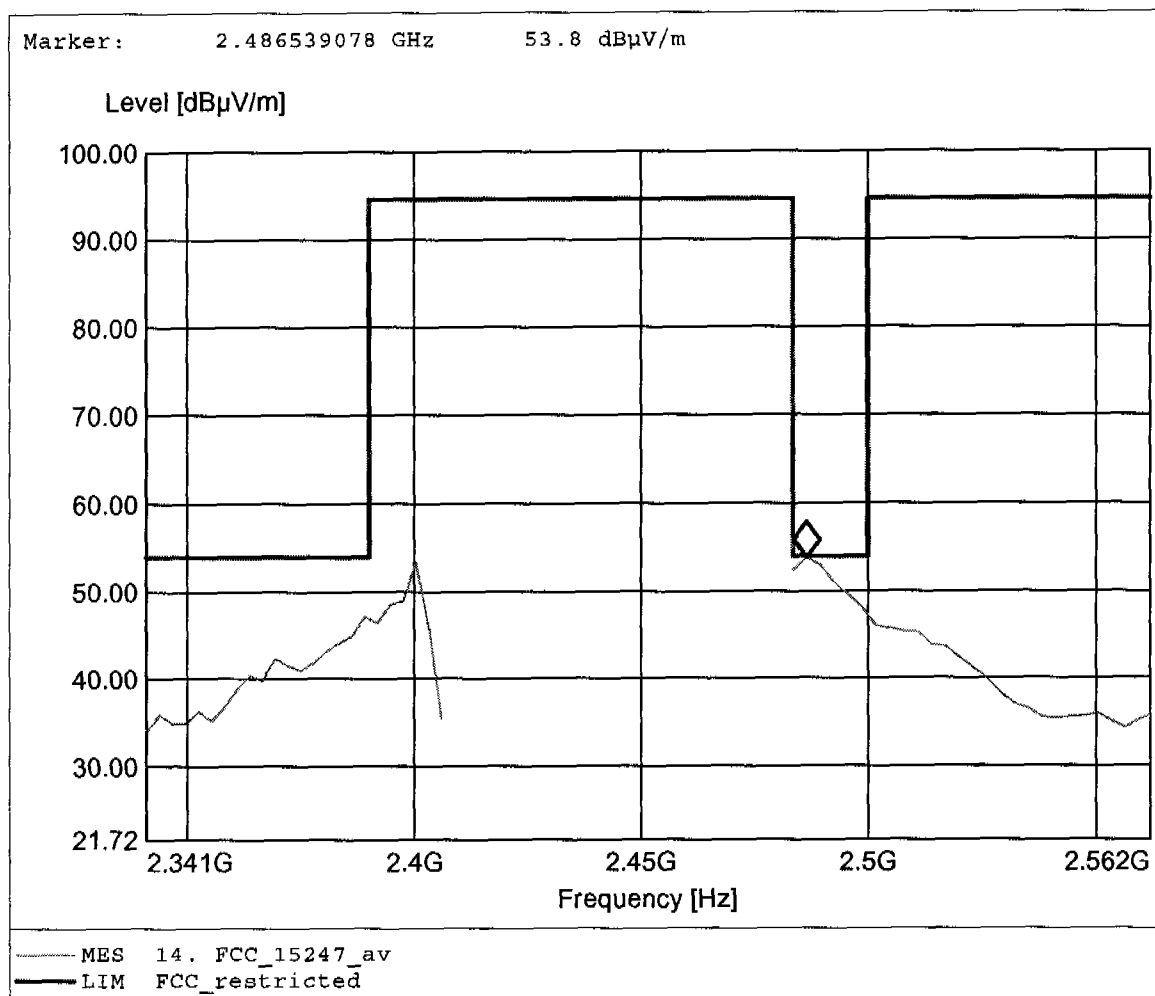
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, average detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.487GHz, Emax: 53.80dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

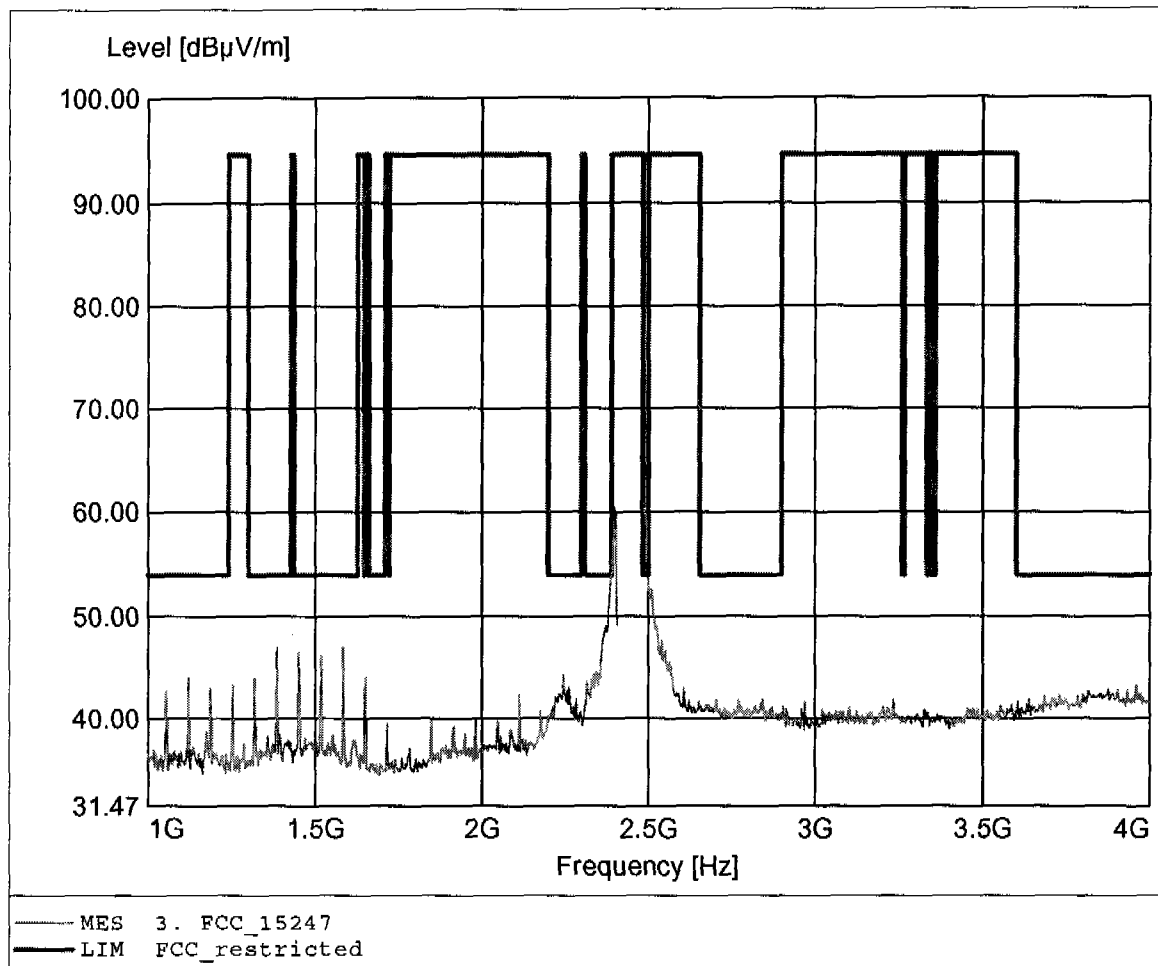
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, average detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.487GHz, Emax: 53.80dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

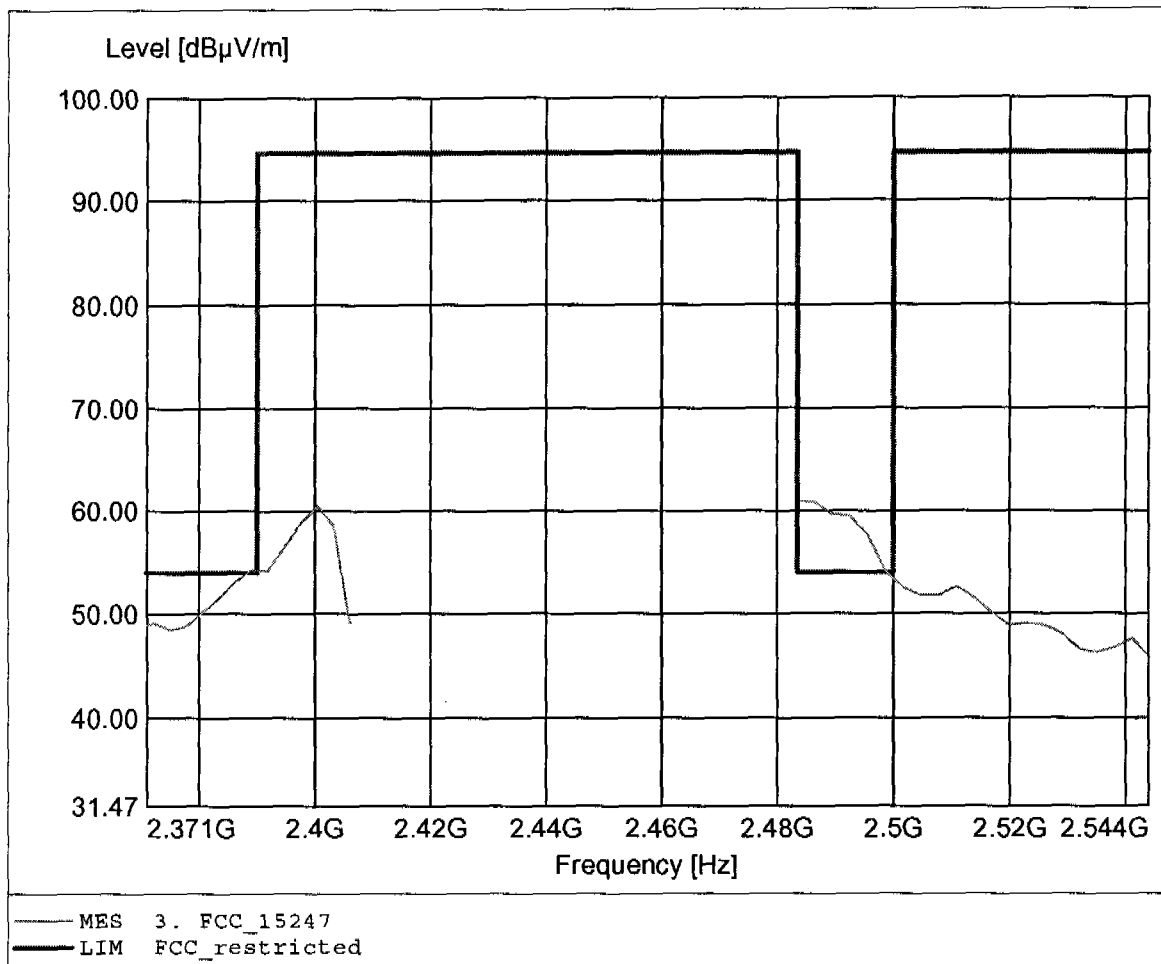
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.484GHz, Emax: 60.93dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

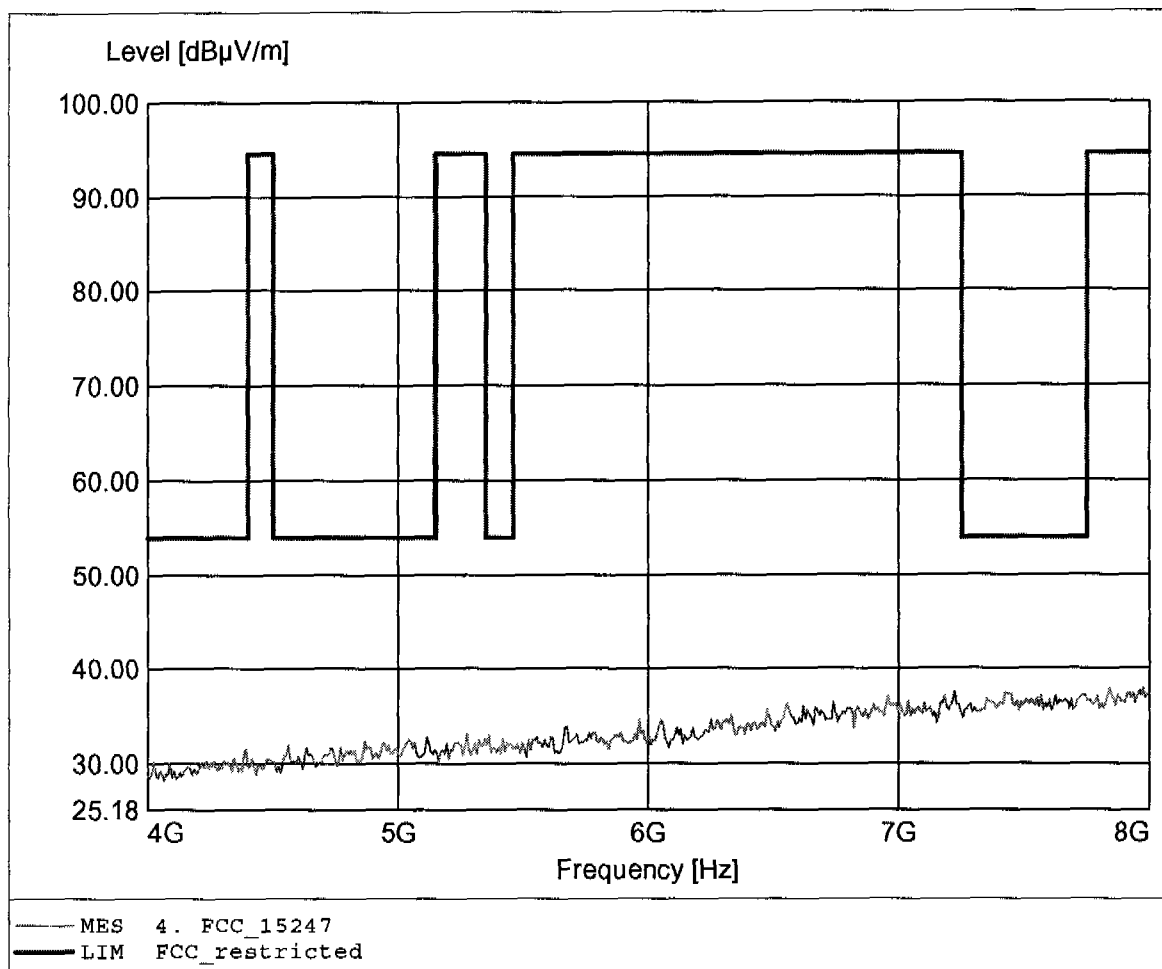
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.484GHz, Emax: 60.93dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

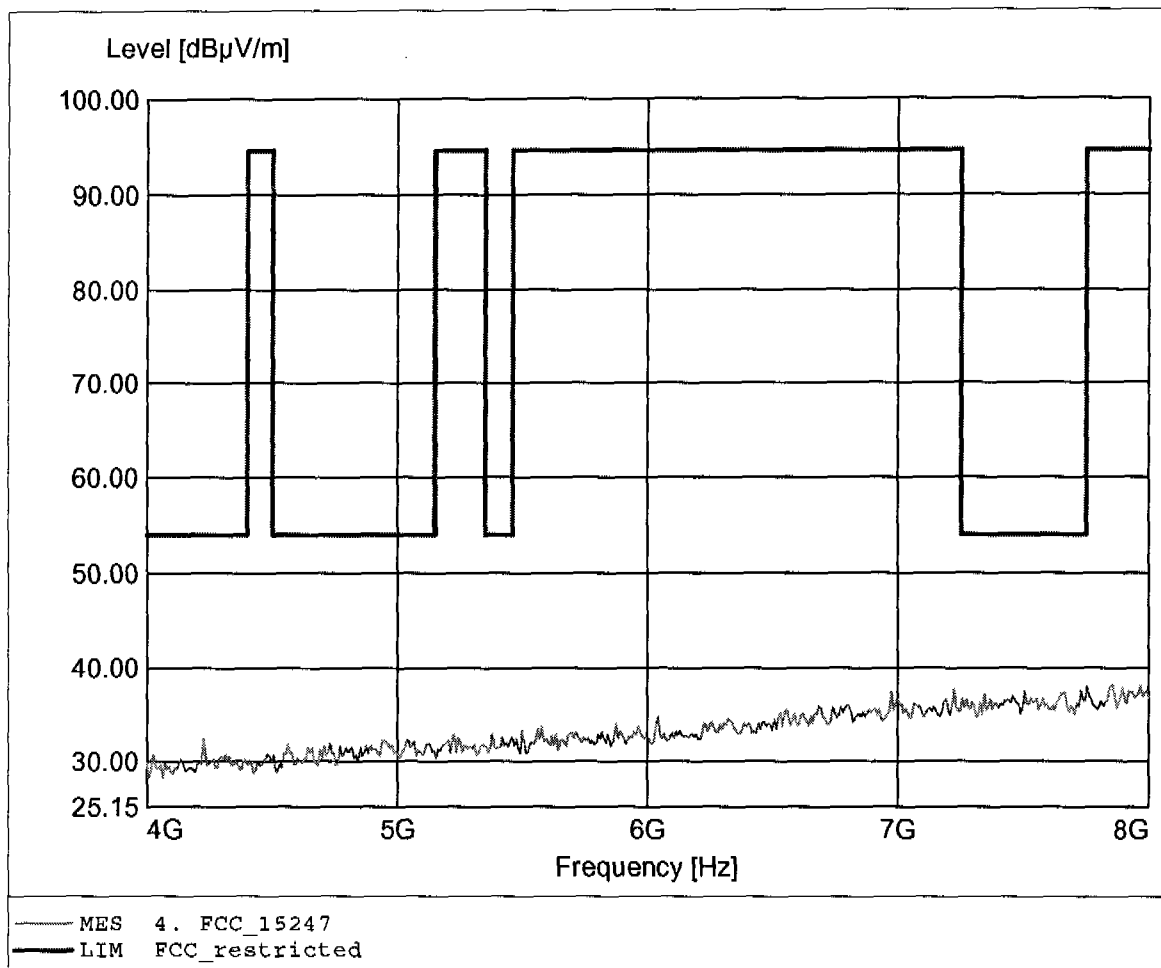
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.840GHz, Emax: 37.81dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

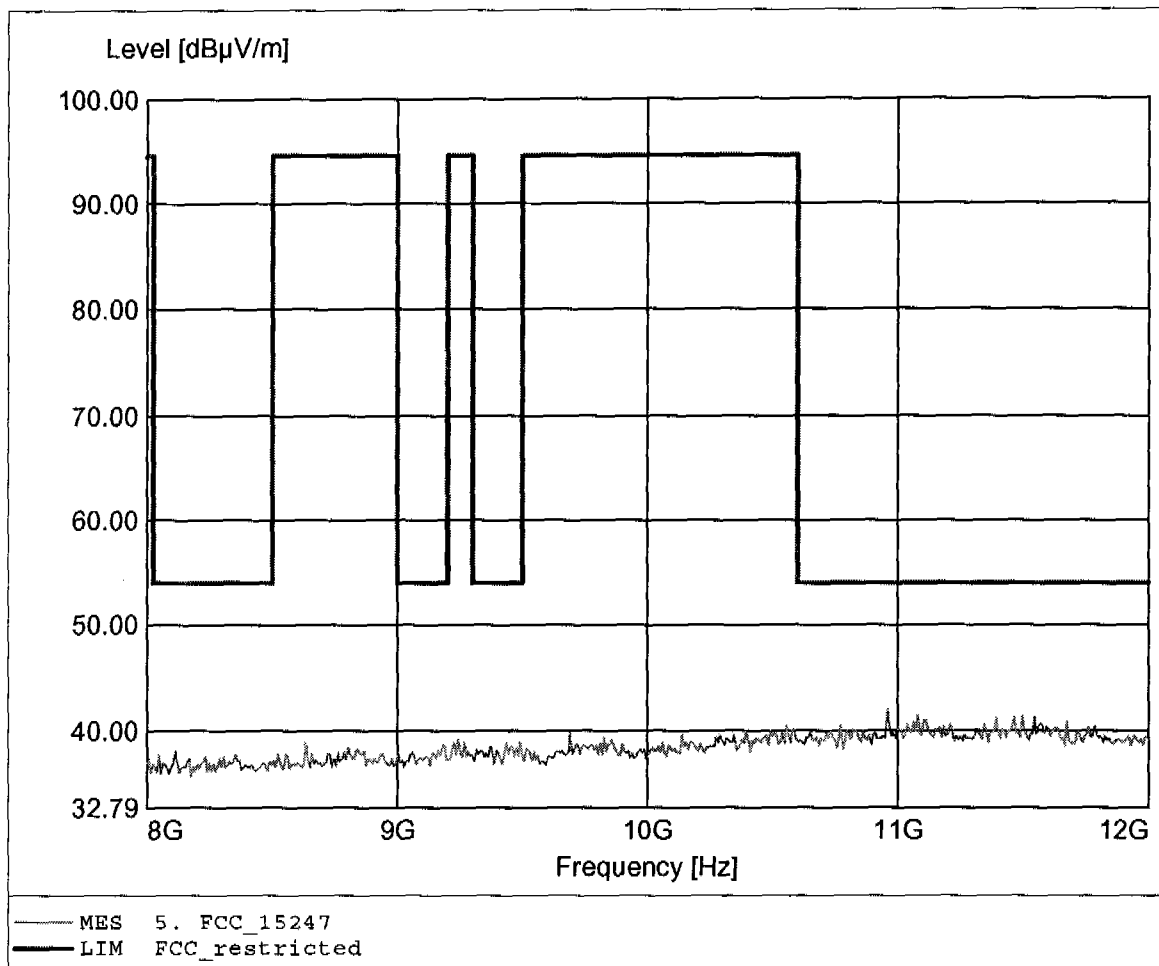
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.968GHz, Emax: 38.15dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

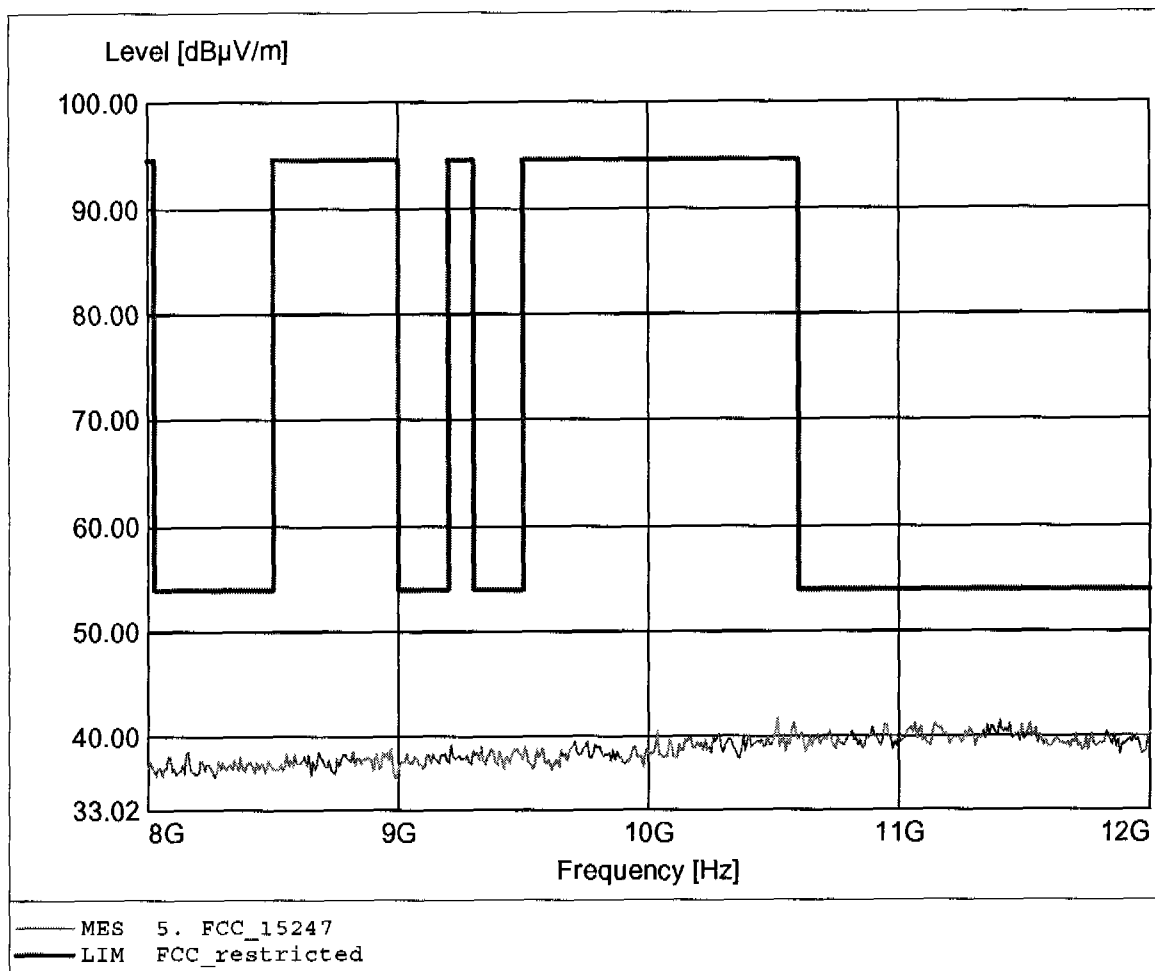
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 10.958GHz, Emax: 42.03dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

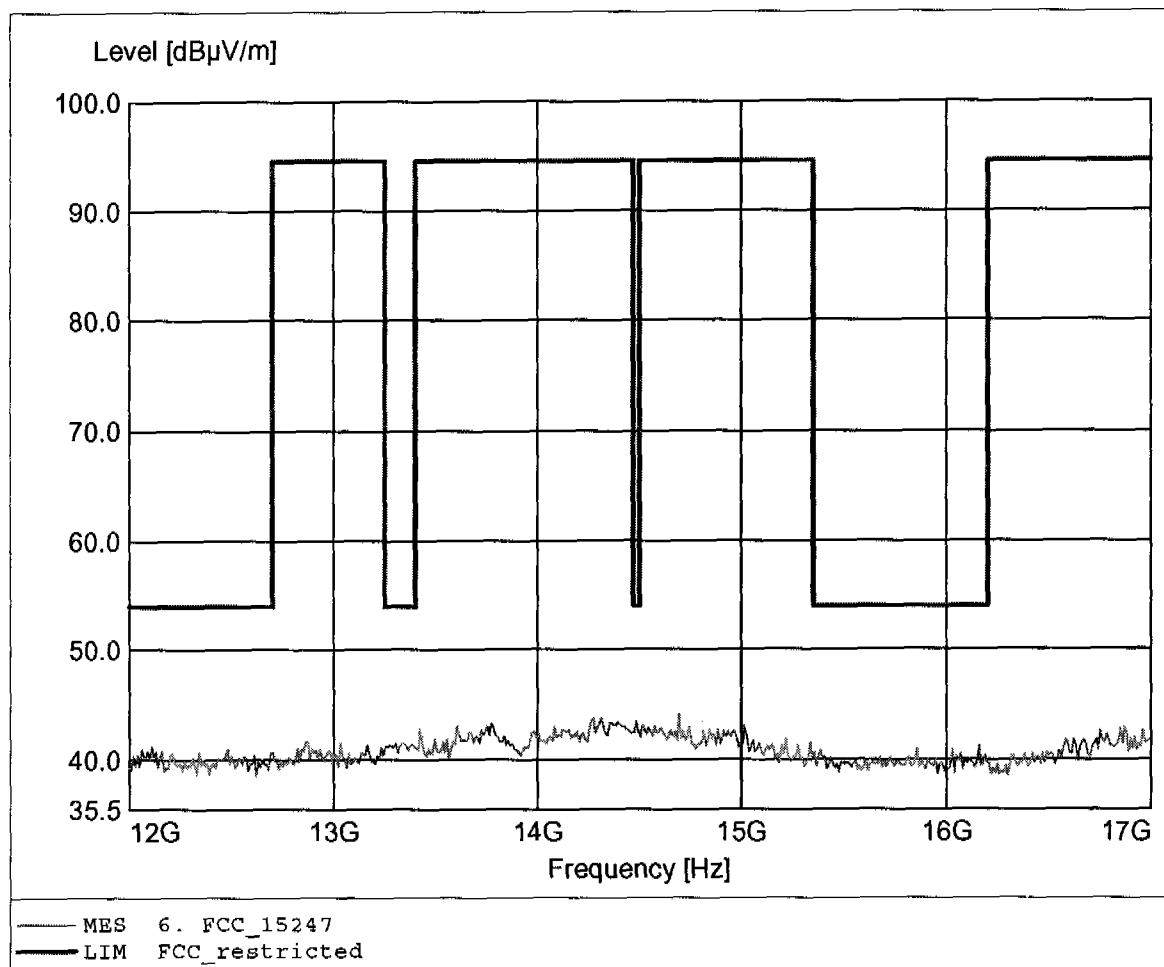
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 10.517GHz, Emax: 41.64dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

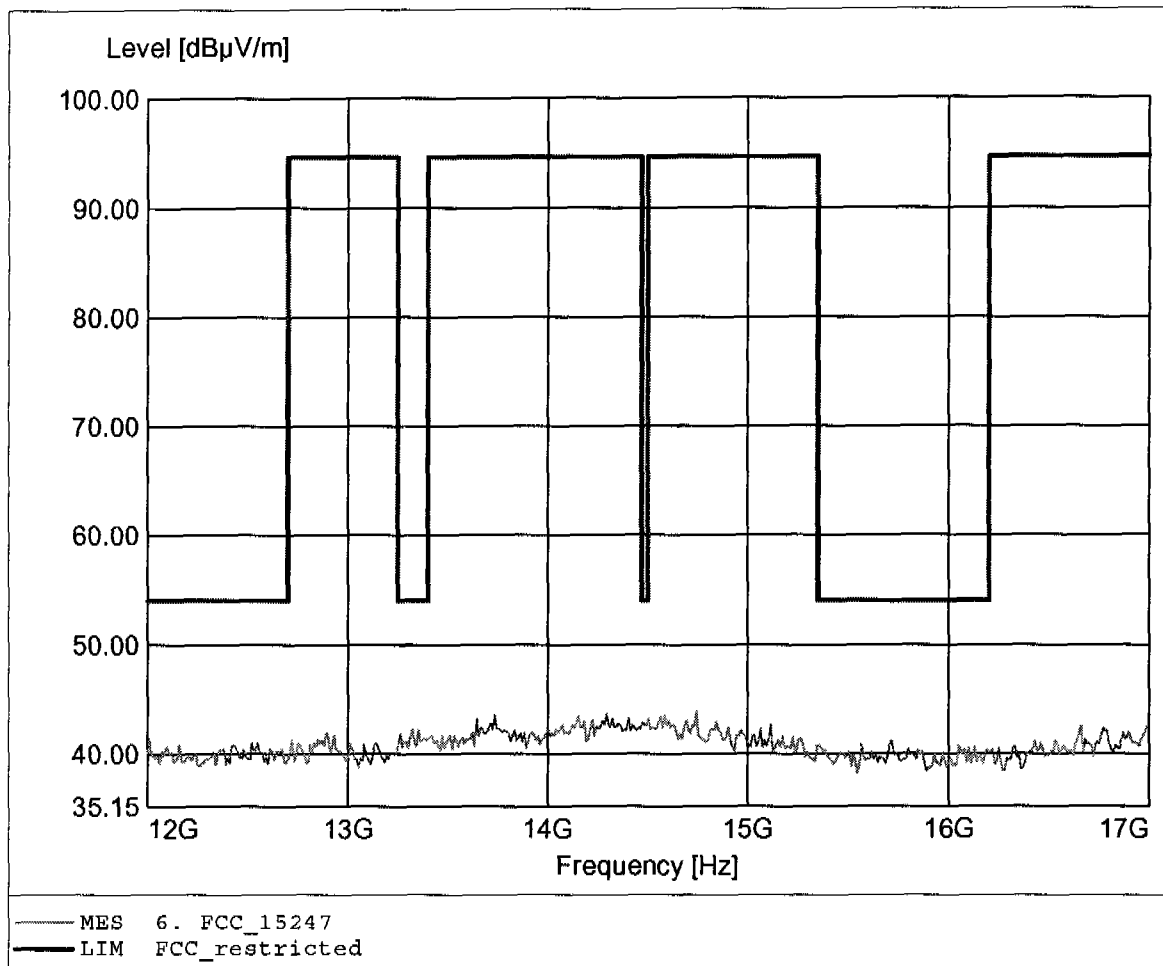
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 14.695GHz, Emax: 44.10dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

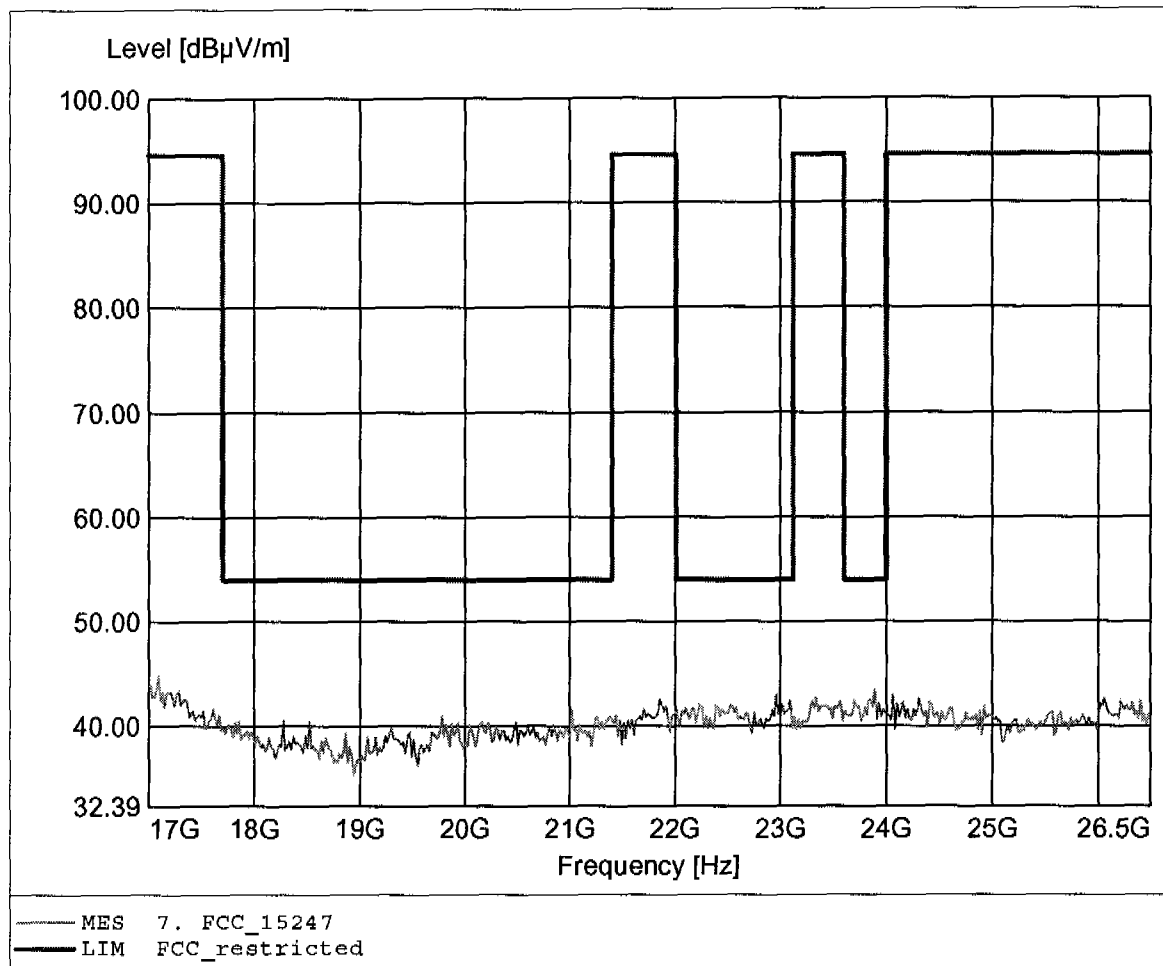
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom:3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 14.745GHz, Emax: 43.85dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

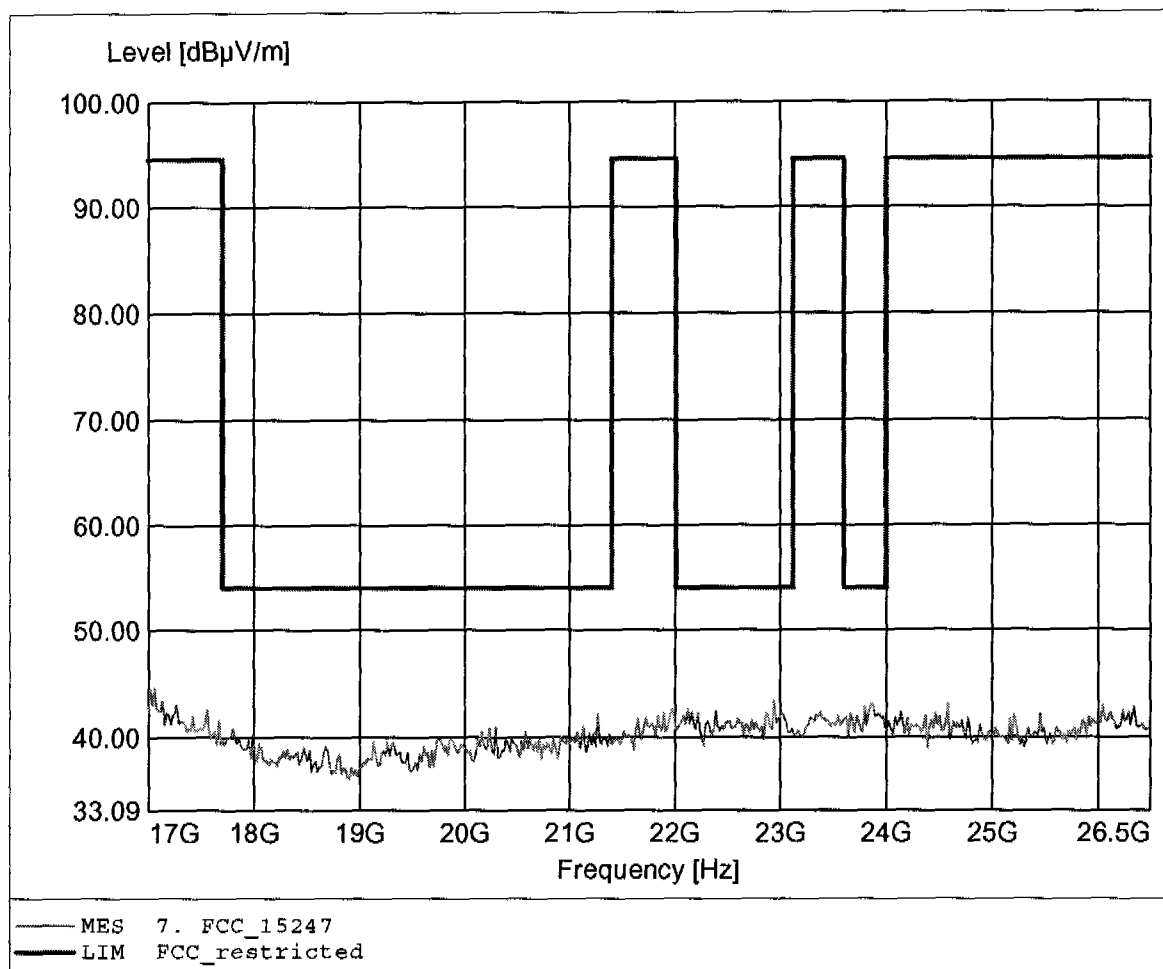
Approval Holder: Nanotron Technologies GmbH
EUT : 2.4GHz Chirp Spread Spectrum (CSS) Low-Power RF Transceiver
Model: nanoNET TRX (module#5)
Test Site / Operator: ETS / Mr. Treffke
Temperature/ Voltage: 25°C / Unom: 3,3 V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Comment 2: Freq: 17.095GHz, Emax: 44.80dBuV/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#5)
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: 17.057GHz, Emax: 44.58dBuV/m, RBW: 1MHz

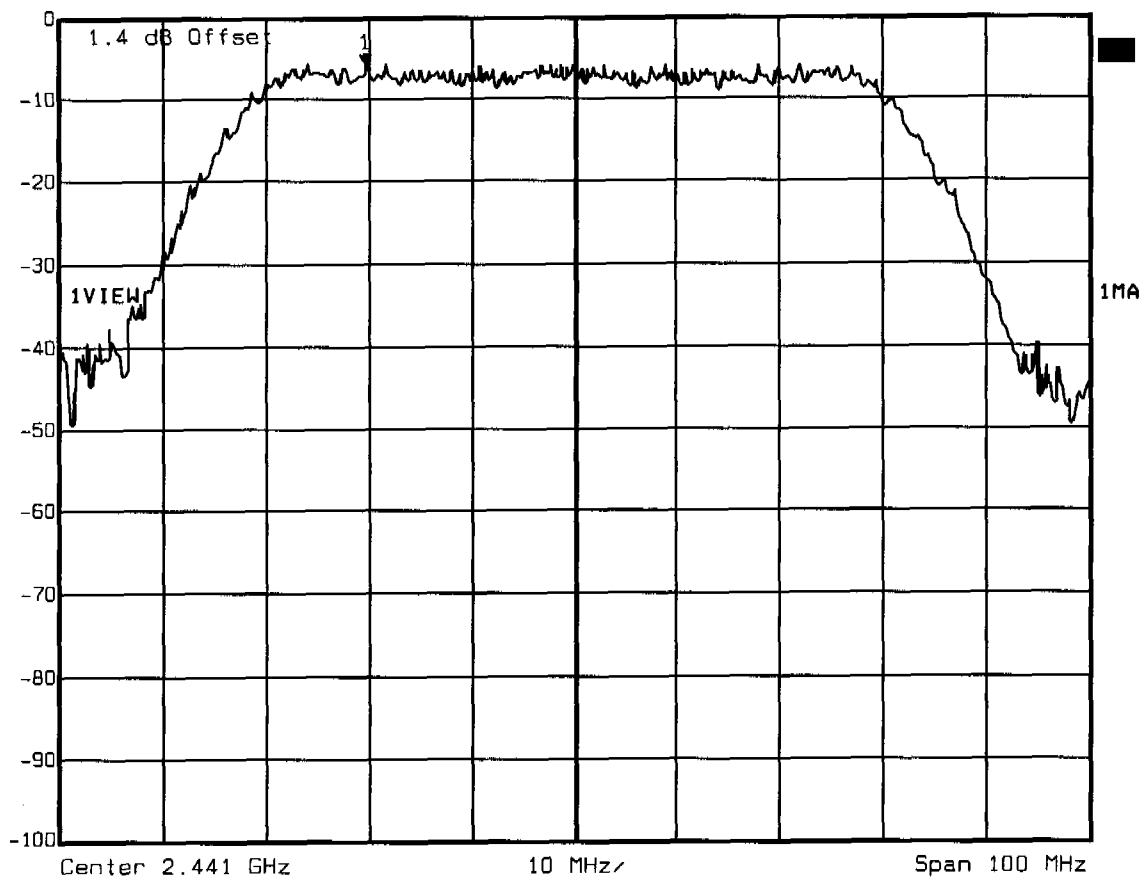


Appendix D

Spurious Emissions conducted - Transmitter operating



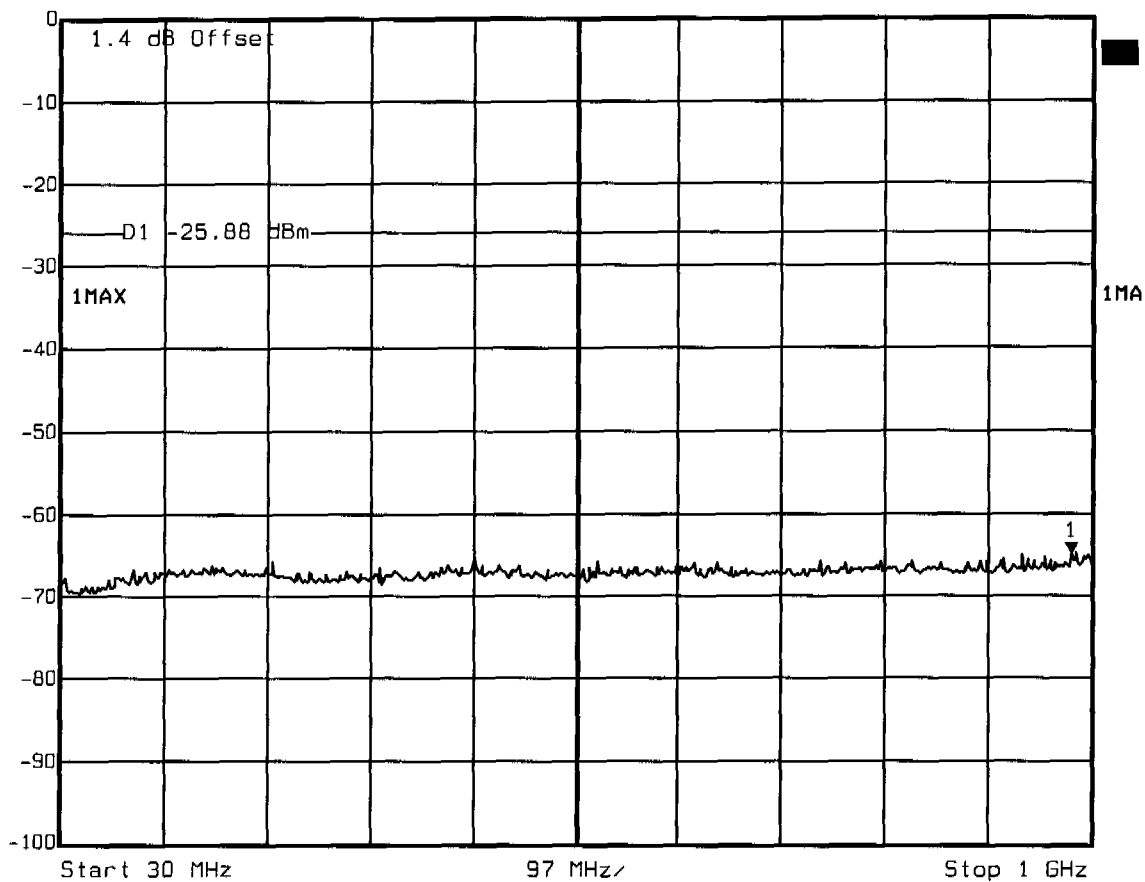
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -5.88 dBm VBW 2 MHz
0 dBm 2.42065932 GHz SWT 25 ms Unit dBm



Title: Power for limit line
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 10:27:29



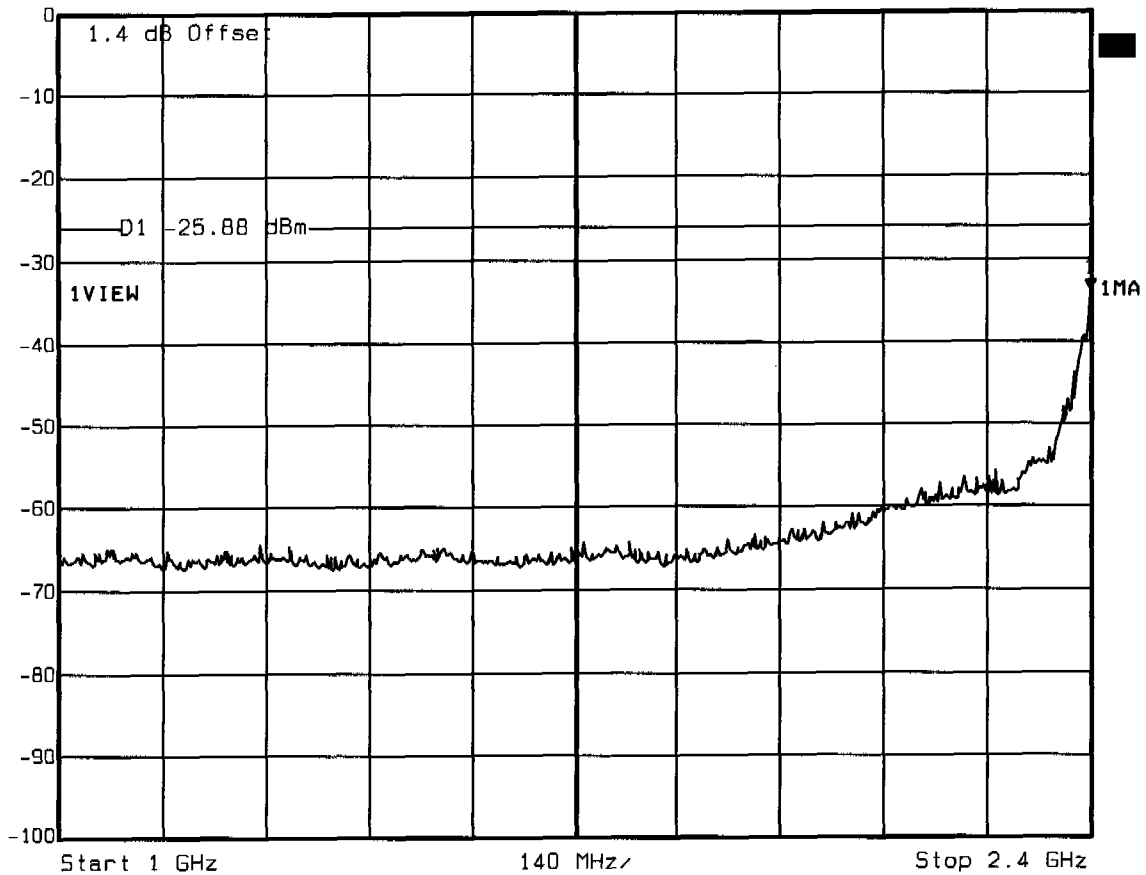
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -64.91 dBm VBW 300 kHz
0 dBm 980.56112224 MHz SWT 245 ms Unit dBm



Title: 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 10:45:04



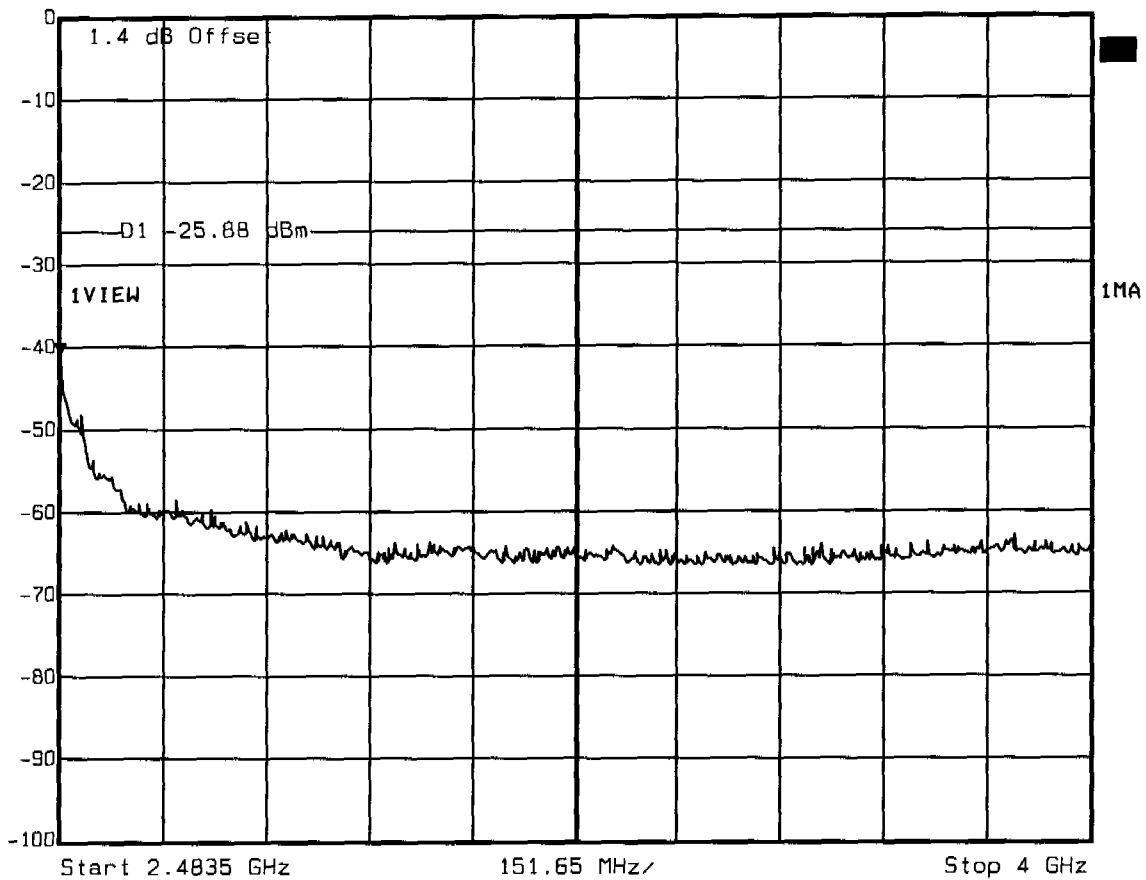
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -33.96 dBm VBW 300 kHz
0 dBm 2.40000000 GHz SWT 350 ms Unit dBm



Title: 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 10:48:21



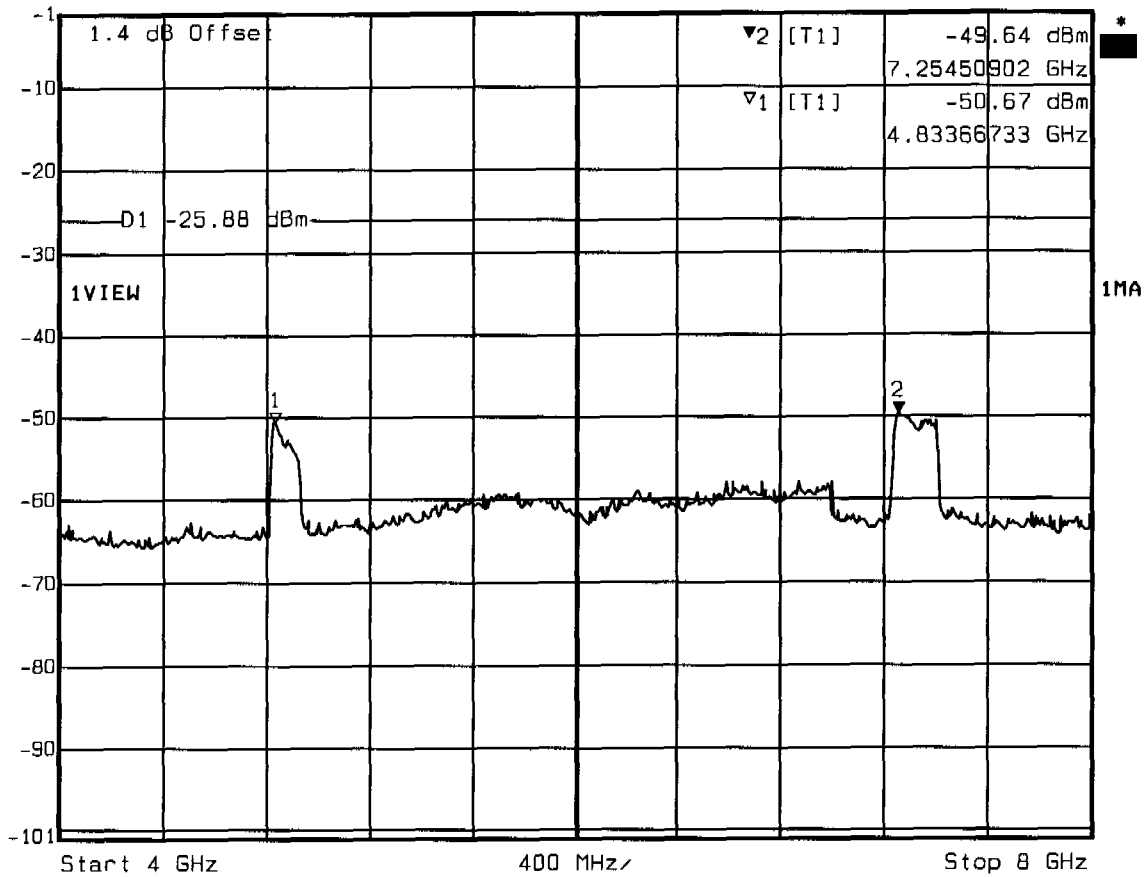
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -40.88 dBm VBW 300 kHz
0 dBm 2.48350000 GHz SWT 380 ms Unit dBm



Title: 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 10:50:25



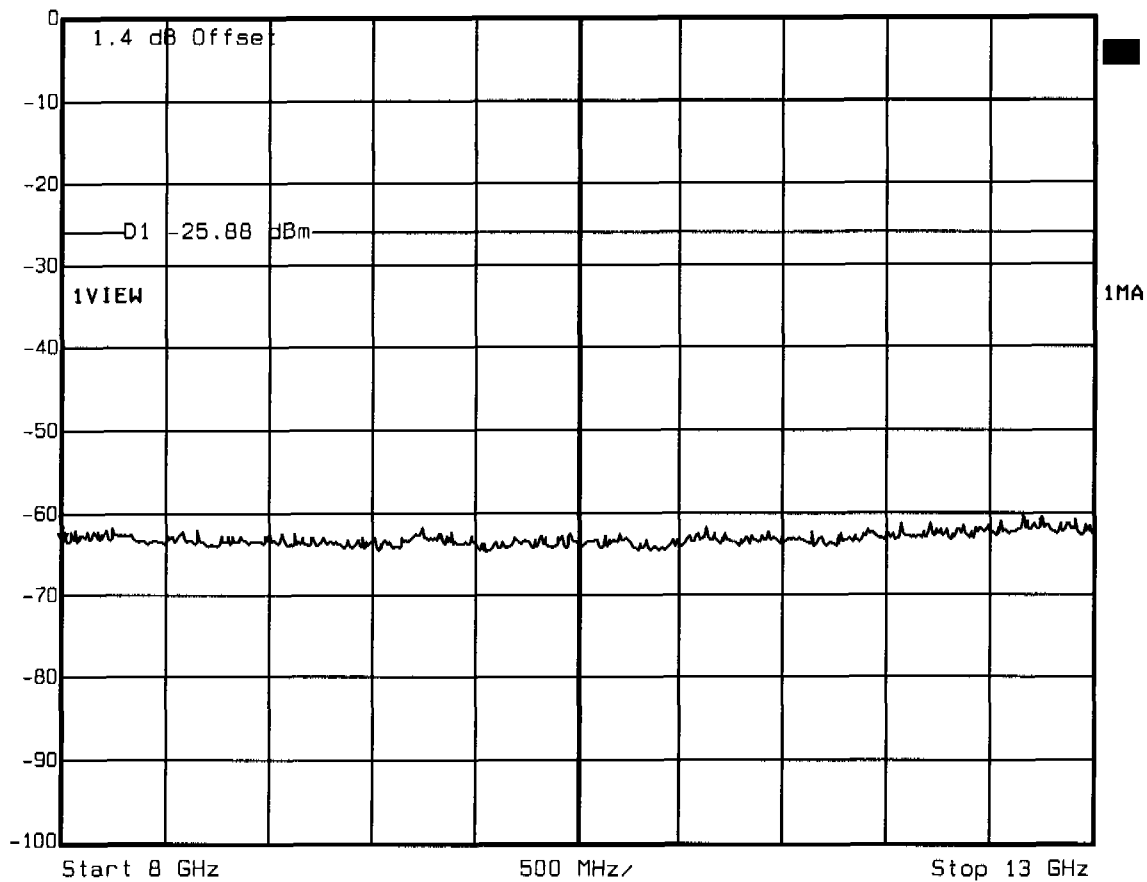
Marker 2 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -49.64 dBm VBW 300 kHz
-1 dBm 7.25450902 GHz SWT 100 s Unit dBm



Title: 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 11:36:24



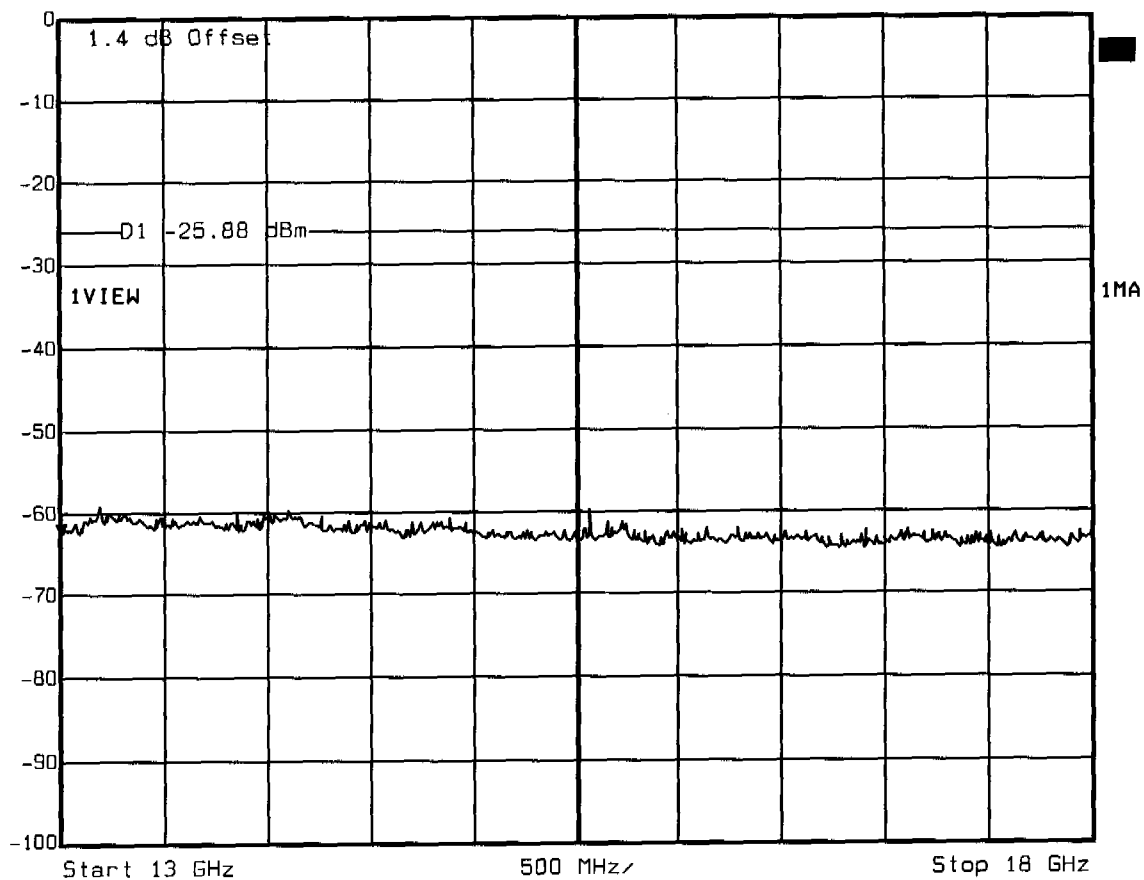
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -63.52 dBm VBW 300 kHz
0 dBm 8.00000000 GHz SWT 100 s Unit dBm



Title: 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 11:30:36



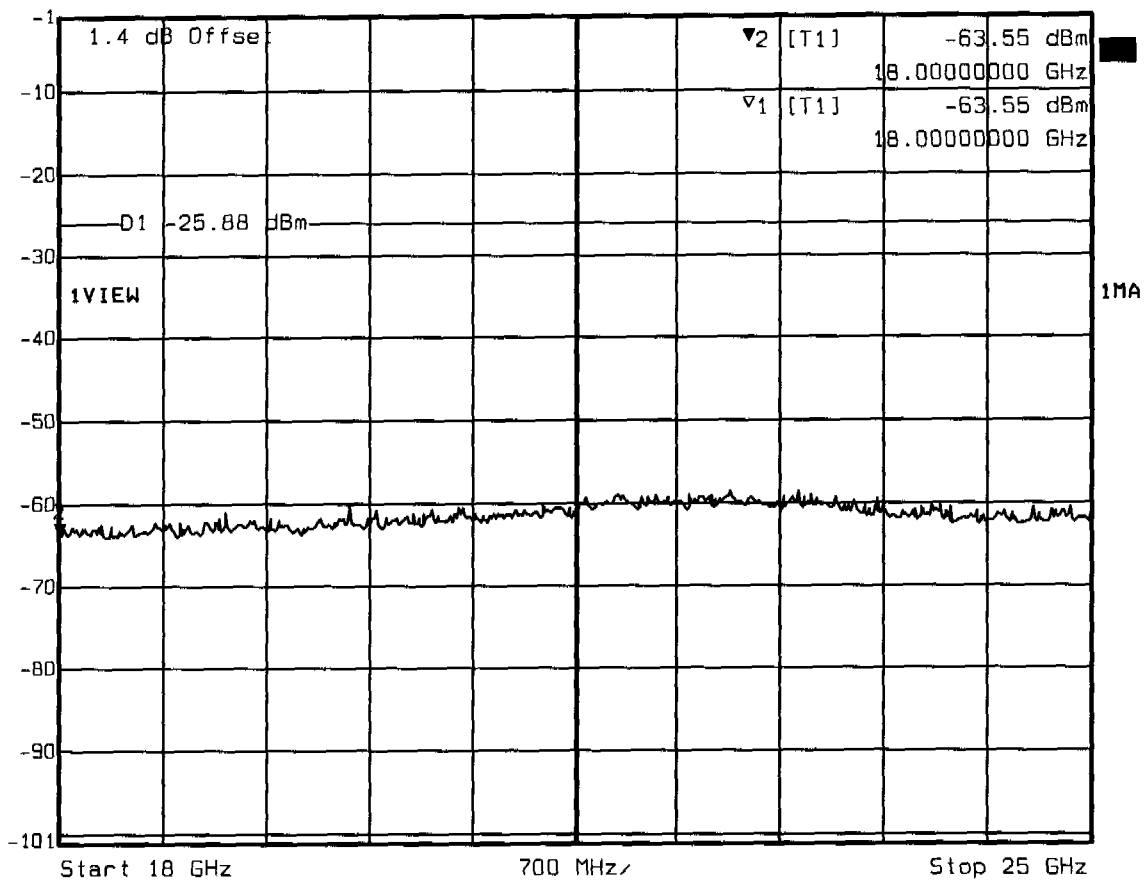
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -62.56 dBm VBW 300 kHz
0 dBm 13.00000000 GHz SWT 100 s Unit dBm



Title: 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 11:33:49



Marker 2 [T1] RBW 100 kHz RF Att 20 dB
Ref Lvl -63.55 dBm VBW 300 kHz
-1 dBm 18.00000000 GHz SWT 100 s Unit dBm



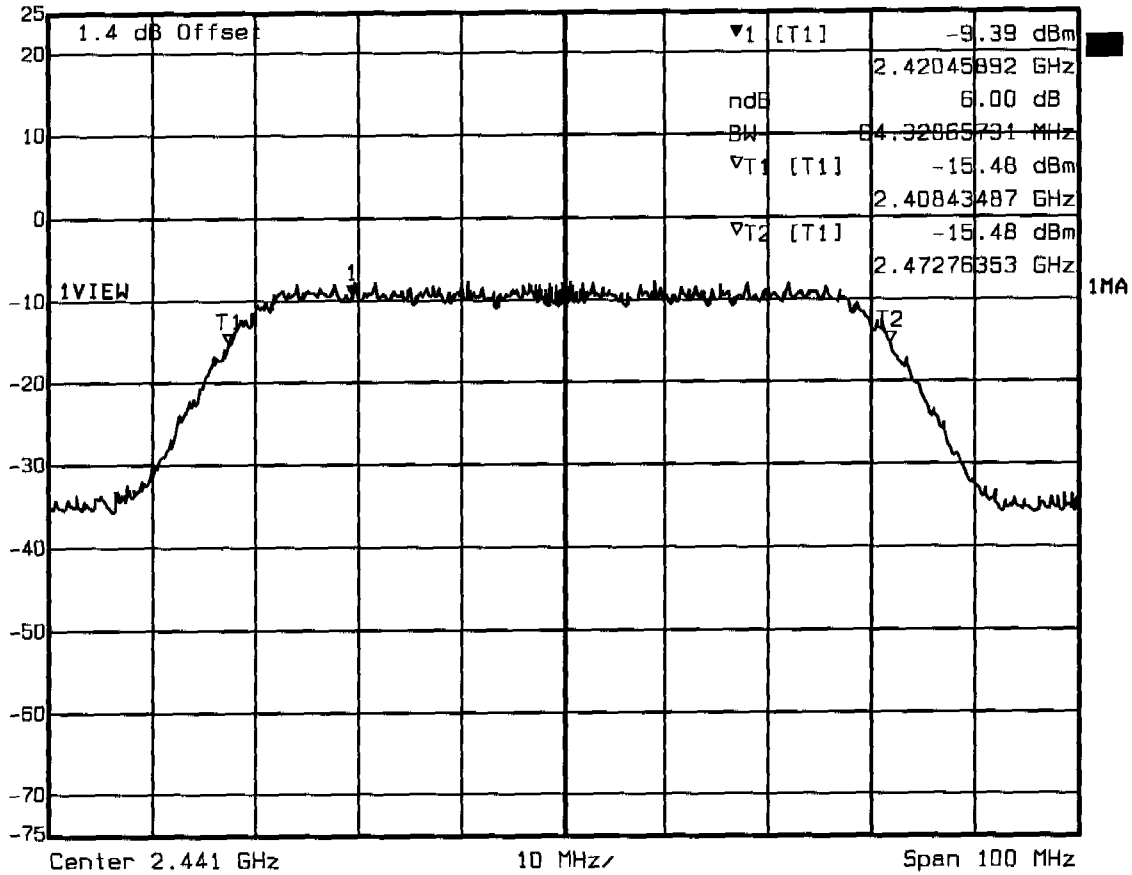
Title: 15.247(c) Spurious emissions (conducted test)
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 11:43:30

Appendix E

Maximum 6 dB Bandwidth



Marker 1 [T1 ndB] RBW 100 kHz RF Att 50 dB
Ref Lvl ndB 6.00 dB VBW 10 MHz
25 dBm BW 64.32865731 MHz SWT 25 ms Unit dBm



Title: FCC 15.247(a)(2) Bandwidth
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 08:41:37

Appendix F

Peak Power Spectral Density



Ref Lvl
20 dBm

Marker 2 [T1 NOI]

-56.53 dBm/Hz

2.45813427 GHz

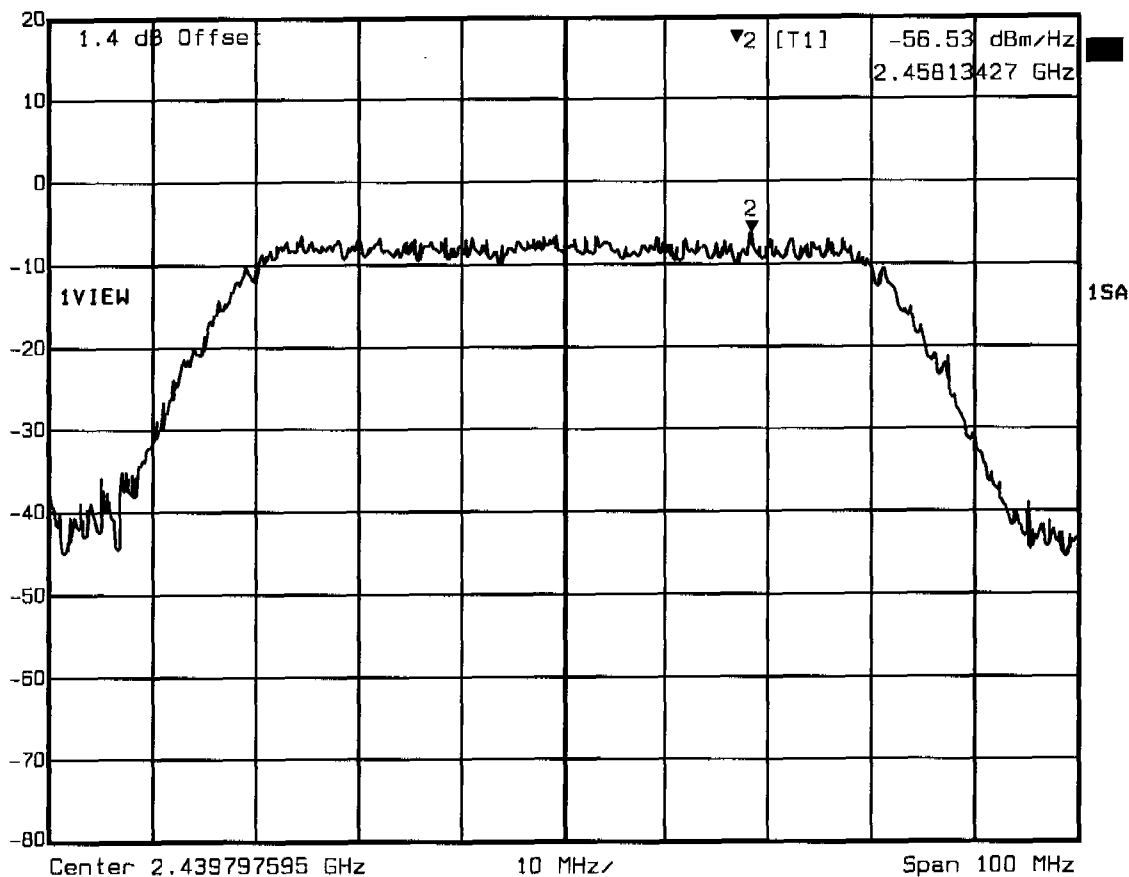
RBW 100 kHz

VBW 100 kHz

SWT 25 ms

RF Att 40 dB

Unit dBm



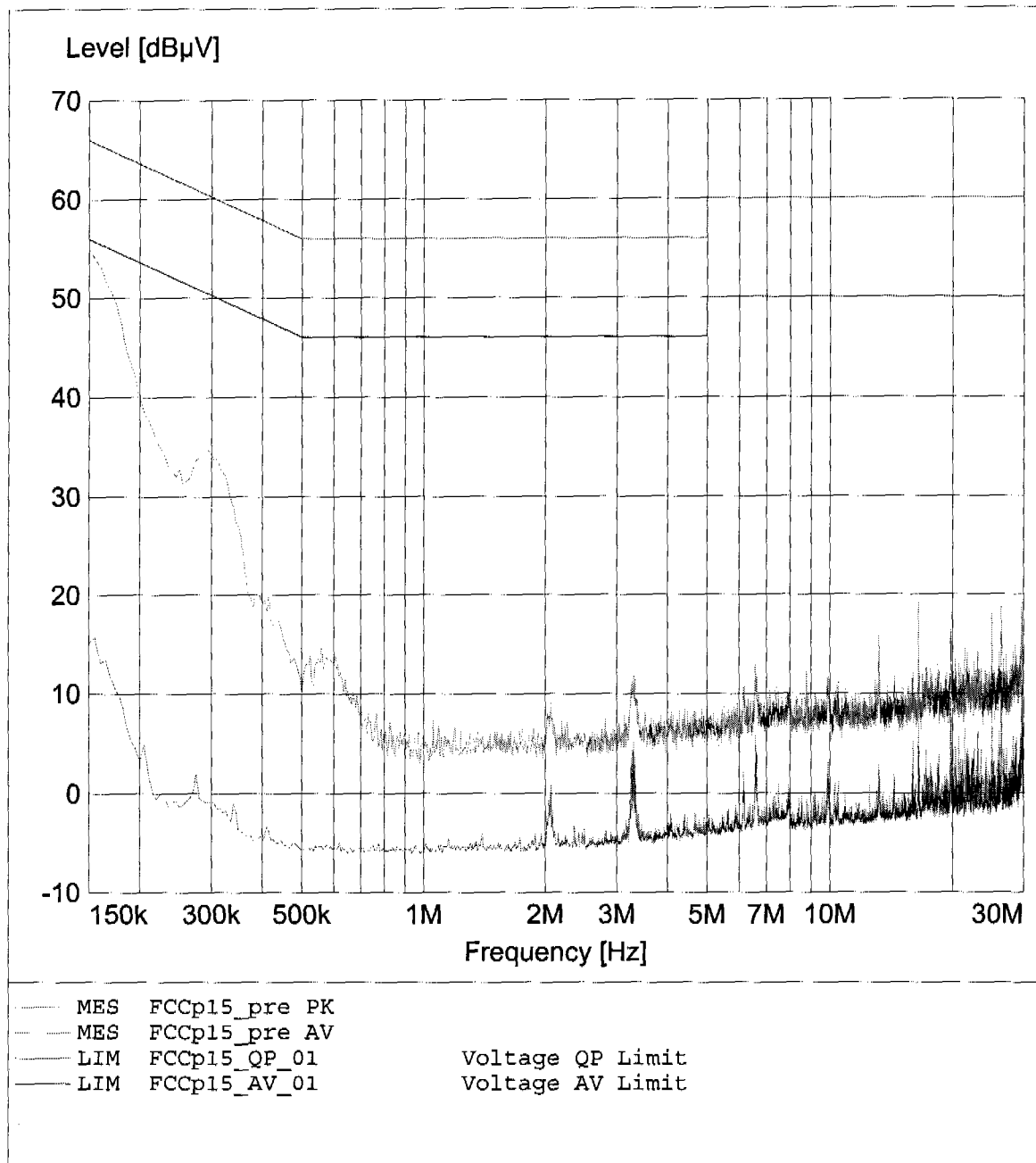
Title: FCC 15.247(d) Power spectral density +35dB (for 3KHz RBW) = -21.53 dBm
Comment A: Nanotron, nanoNET TRX
Date: 21.SEP.2004 09:51:04

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 (CCS) Low-Power RF Transceiver
Manufacturer: Nanotron Technologies GmbH
Operating Condition: Unom: 120 V (AC / DC - ADAPTOR), Tnom: 23°C
Test Site: ETS
Operator: Mr. Jahn
Test Specification: V-Network: ESH2-Z5 (N)
Comment: model: nanoNET TRX mode: transmitting max power
AC/DC-Adapter: RadioShack 273-1761



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

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

