

Annex 1: Diagramms to
TEST REPORT
 No.: 2-20842790-15-11a

According to:
FCC Regulations
 Part 15.225
 Part 15.207
 Part 15.209
IC Regulations
 RSS-210, Issue 9
 RSS-Gen Issue 4

for

Datalogic ADC S.r.l.

JOYA TOUCH 3-SLOT CRADLE

FCC-ID: U4GJNG3SD
 IC: 3862E-JNG3SD
 PMN:JOYA TOUCH 3-SLOT CRADLE
 HVIN: 3SD WPT







| Laboratory Accreditation and Listings | | | |
|---|--|---|--|
|  <p>DAkkS Deutsche Akkreditierungsstelle D-PL-12047-01-01</p> |  <p>FEDERAL COMMUNICATIONS COMMISSION FCC U.S.A. MRA US-EU 0003</p> |  <p>Industry Canada Reg. No.: 3462D-2 Reg. No.: 3462D-3</p> |  <p>Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2666 C-2914, T-1967, G-301</p> |
|  <p>WiFi ALLIANCE AUTHORIZED RF LABORATORY</p> |  <p>ctia AuthorizedTM Test Lab Lab Code: 20011130-00</p> | | |
| accredited according to DIN EN ISO/IEC 17025 | | | |
| <p>CETECOM GmbH Laboratory Radio Communications & Electromagnetic Compatibility Im Teelbruch 116 • 45219 Essen • Germany Registered in Essen, Germany, Reg. No.: HRB Essen 8984 Tel.: + 49 (0) 20 54 / 95 19-954 • Fax: + 49 (0) 20 54 / 95 19-964 E-mail: info@cetecom.com • Internet: www.cetecom.com</p> | | | |

Table of contents

| | |
|--|-----------|
| 1. RADIATED FIELD STRENGTH EMISSIONS MEASUREMENTS | 3 |
| 1.1. Radiated Field Strength with Transmitter Spectrum Mask..... | 3 |
| 1.2. Radiated Spurious Emissions 9kHz -30 MHz..... | 5 |
| 1.3. Radiated Spurious Emissions 30 MHz – 1 GHz | 7 |
| 2. FREQUENCY ERROR..... | 9 |
| 3. 99 % OCCUPIED BANDWIDTH..... | 28 |
| 4. AC-POWER LINE CONDUCTED EMISSIONS..... | 29 |

1. Radiated Field Strength Emissions Measurements

1.1. Radiated Field Strength with Transmitter Spectrum Mask

Diagram No. 2.05_Tx_Spectrum mask_NFC 13.56MHz

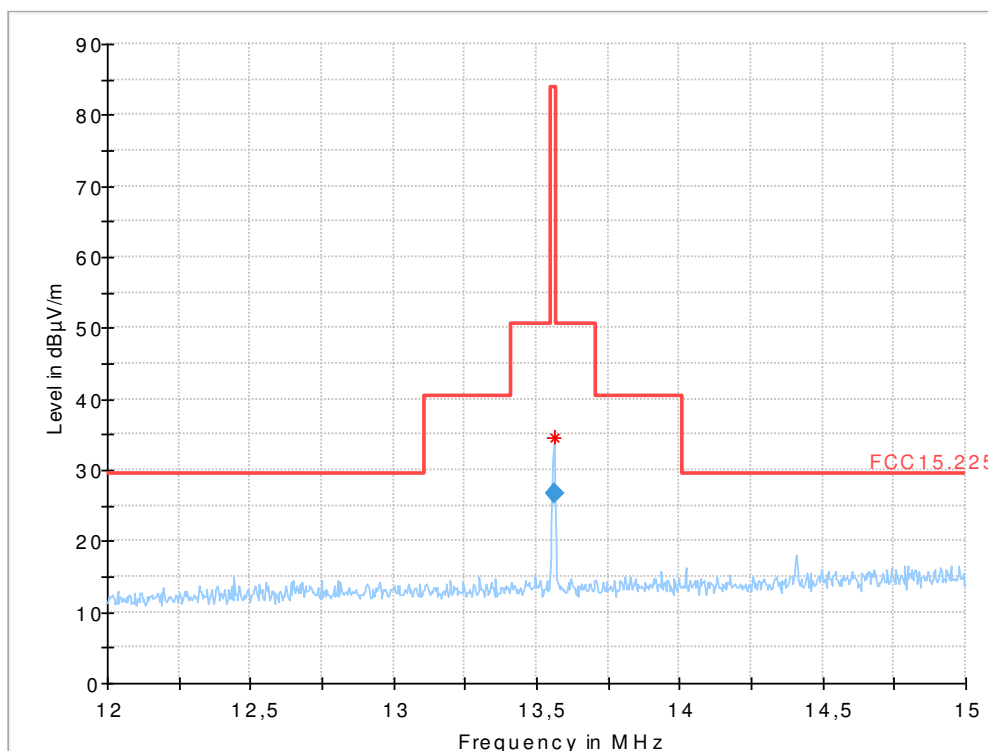
Common Information

| | |
|--------------------------|--|
| Test description: | Magnetic Field Strength Measurement related to 30 m distance |
| Test site and distance: | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware: | EMC32 V9.25.0 |
| Distance correction: | used accord. table, pls. see test report |
| Technical Data: | Please see page 2 for detailed data of measurement setup |
| Rec. antenna (pre-scan): | height 1.00 m, parallel and 90° to EUT polarisation |
| Used filter: | bypass |
| Test specification: | FCC 15.225; RSS-Gen: Issue 4 |
| Operator: | RIs |
| Operating conditions: | NFC mode 13.56 MHz _Full Power mode |
| Power during tests: | Fully Charged Battery |
| Test mode: | Cradle with AC/DC Power Supply & NFC communication active with 1 x JOYA TOUCH Terminals in NFC Mode |
| JOYA TOUCHTerminals: | Slot 1: Empty Slot 2:EUT Type :P00AN04HL0HT0W7-GR0 S/N:Z16P00044 Slot 3:Empty |

EUT Information

| | |
|----------------------|---|
| Manufacturer: | Datalogic ADCL S.r.l. |
| MODEL: | JOYA TOUCH 3-SLOT CRADLE |
| EuT Type: | -- |
| P/N: | 91ACC0043 |
| S/N: | Z15P00993 |
| HW Version: | Beta 2 |
| Firmware Version: | 99.99.99 |
| Input: | 12VDC 6 A using AC/DC Adapter (AC input: 120 VAC 60 Hz) |
| AC/DC Adapter Type: | 100-240 VAC-2.0A 50-60Hz to 12VDC 6 A |
| AC/DC Adapter Model: | EA10681U-120 |
| AC/DC Manufacturer: | EDACPOWER ELEC. |
| EuT Mode: | NFC Mode only |

Full Spectrum



Final_Result

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Pol | Azimuth (deg) |
|-----------------|--------------------------|----------------------|-------------|-----------------|-----------------|-----|---------------|
| 13.560000 | 26.73 | 84.00 | 57.27 | 1000.0 | 10.000 | H | 35.0 |

1.2. Radiated Spurious Emissions 9kHz -30 MHz

Diagram No. 2.06_Radiated field strength _NFC_9KHz- 30 MHz

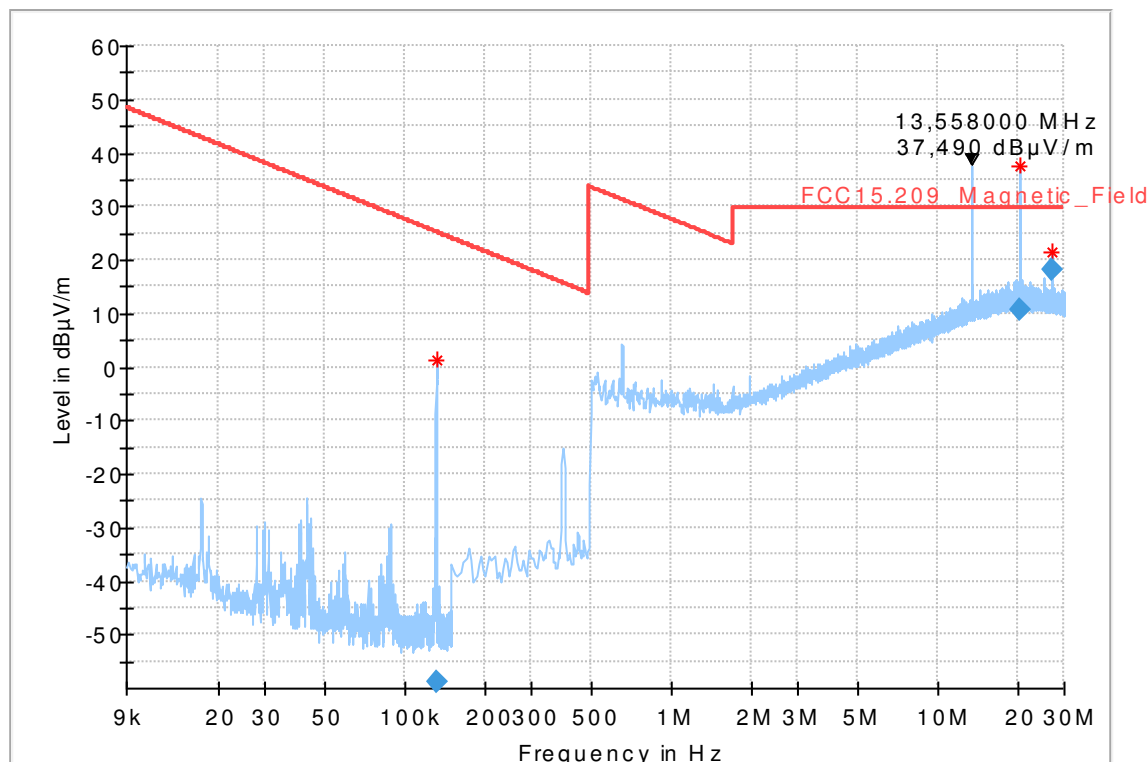
Common Information

| | |
|--------------------------|--|
| Test description: | Magnetic Field Strength Measurement related to 30 m distance |
| Test site and distance: | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware: | EMC32 V9.25.0 |
| Distance correction: | used accord. table, pls. see test report |
| Technical Data: | Please see page 2 for detailed data of measurement setup |
| Rec. antenna (pre-scan): | height 1.00 m, parallel and 90° to EUT polarisation |
| Used filter: | bypass |
| Test specification: | FCC 15.225; RSS-Gen: Issue 3 |
| Operator: | APh |
| Operating conditions: | NFC mode 13.56 MHz _Full Power mode |
| Power during tests: | Fully Charged Battery |
| Test mode: | Cradle with AC/DC Power Supply & NFC communication active with 1 x JOYA TOUCH Terminals in NFC Mode |
| JOYA TOUCHTerminals: | Slot 1: Empty Slot 2:EUT Type :P00AN04HL0HT0W7-GR0 S/N:Z16P00044 Slot 3:Empty |

EUT Information

| | |
|----------------------|---|
| Manufacturer: | Datalogic ADCL S.r.l. |
| MODEL: | JOYA TOUCH 3-SLOT CRADLE |
| EuT Type: | -- |
| P/N: | 91ACC0043 |
| S/N: | Z15P00993 |
| HW Version: | Beta 2 |
| Firmware Version: | 99.99.99 |
| Input: | 12VDC 6 A using AC/DC Adapter (AC Input : 120 V AC 60 Hz) |
| AC/DC Adapter Type: | 100-240 VAC-2.0A 50-60Hz to 12VDC 6 A |
| AC/DC Adapter Model: | EA10681U-120 |
| AC/DC Manufacturer: | EDACPOWER ELEC. |
| EuT Mode: | NFC mode only |

Full Spectrum



Final_Result_Manual Measurements

| Frequency (MHz) | Detector Type | Value (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Verdict |
|-----------------|---------------|----------------------|----------------------|-------------|-----------------|-----------------|-------------|-----|---------------|---------|
| 0.131480 | Average | -38.33 | 25.22 | 63.55 | 100.0 | 0.200 | 100.0 | V | 119.0 | Pass |
| 20.342000 | Quasi Peak | 20.79 | 29.54 | 8.75 | 1000.0 | 10.000 | 100.0 | H | 86.0 | Pass |
| 27.118000 | Quasi Peak | 20.32 | 29.54 | 9.22 | 1000.0 | 10.000 | 100.0 | H | 75.0 | Pass |

1.3. Radiated Spurious Emissions 30 MHz – 1 GHz

Diagram No. 3.06_Radiated field strength _NFC_30 MHz-1GHz

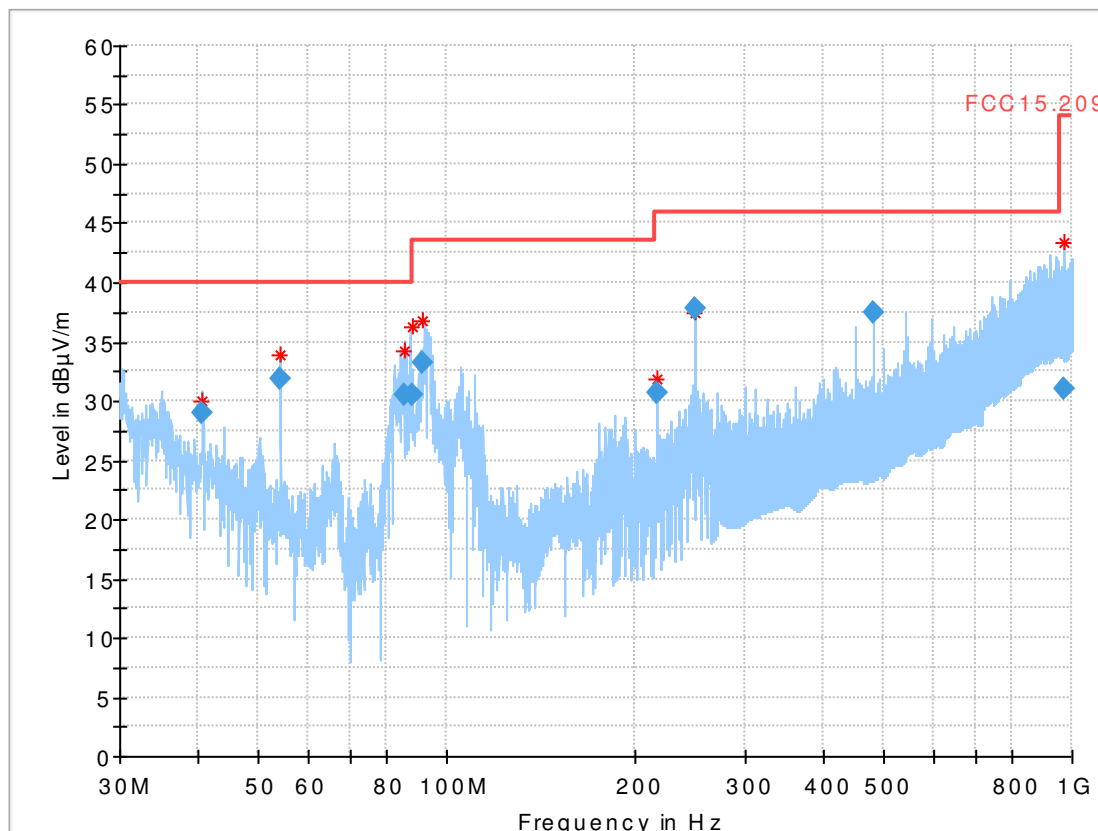
Common Information

| | |
|--------------------------|---|
| Test description: | Electric Field Strength Measurement |
| Test site and distance: | Ref.-Nr. 441 Semi Anechoic Room (SAR) with 3 m measurement distance |
| Version of Testsoftware: | EMC32 V9.25.0 |
| Distance correction: | not used |
| Used filter: | not used |
| Technical Data: | please see page 2 for detailed data of measurement setup |
| Test specification.: | FCC 15.209; RSS-Gen: Issue 3 |
| Operator: | Aph |
| Operating conditions: | NFC mode 13.56 MHz _Full Power mode |
| Power during tests: | Fully Charged Battery |
| Test mode: | Cradle with AC/DC Power Supply & NFC communication active with 1 x JOYA TOUCH Terminals in NFC Mode |
| JOYA TOUCHTerminals: | Slot 1: Empty Slot 2:EUT Type :P00AN04HL0HT0W7-GR0 S/N:Z16P00044 Slot 3:Empty |

EUT Information

| | |
|----------------------|--|
| Manufacturer: | Datalogic ADCL S.r.l. |
| MODEL: | JOYA TOUCH 3-SLOT CRADLE |
| EuT Type: | -- |
| P/N: | 91ACC0043 |
| S/N: | Z15P00993 |
| HW Version: | Beta 2 |
| Firmware Version: | 99.99.99 |
| Input: | 12VDC 6 A using AC/DC Adapter (Input : 110 V AC 60 Hz) |
| AC/DC Adapter Type: | 100-240 VAC-2.0A 50-60Hz to 12VDC 6 A |
| AC/DC Adapter Model: | EA10681U-120 |
| AC/DC Manufacturer: | EDACPOWER ELEC. |
| EuT Mode: | NFC mode only |

Full Spectrum

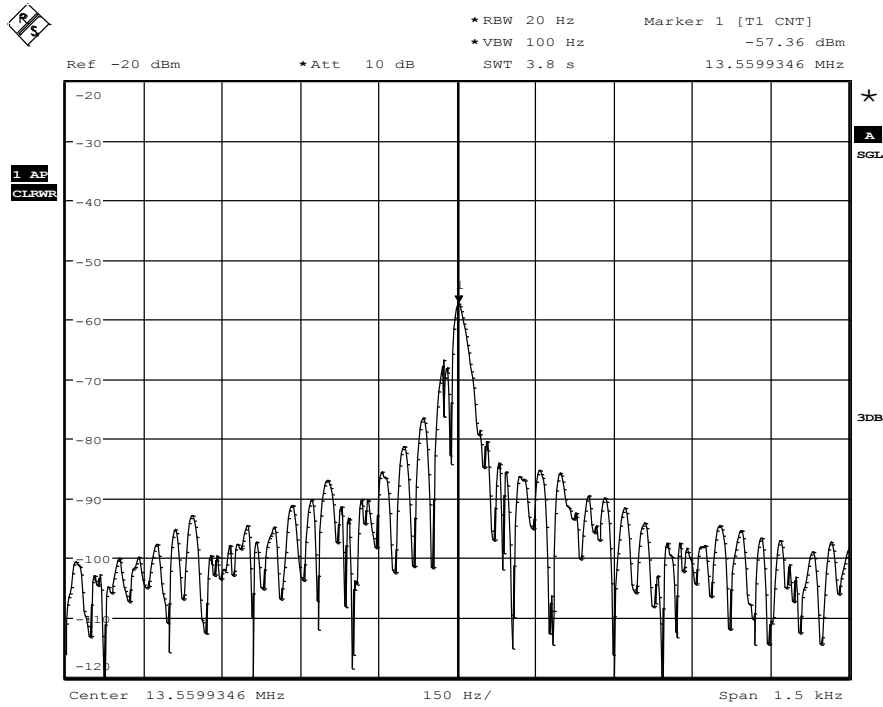


Final_Result

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|--------------------------|----------------------|-------------|-----------------|-----------------|-------------|-----|---------------|------------|
| 40.670000 | 29.04 | 40.00 | 10.96 | 1000.0 | 120.000 | 109.0 | V | 321.0 | 16.8 |
| 54.250000 | 31.92 | 40.00 | 8.08 | 1000.0 | 120.000 | 142.0 | V | 178.0 | 11.4 |
| 85.350000 | 30.58 | 40.00 | 9.42 | 1000.0 | 120.000 | 108.0 | V | 135.0 | 7.8 |
| 88.290000 | 30.59 | 43.50 | 12.91 | 1000.0 | 120.000 | 123.0 | V | 138.0 | 8.1 |
| 91.610000 | 33.28 | 43.50 | 10.22 | 1000.0 | 120.000 | 125.0 | V | 96.0 | 8.2 |
| 216.940000 | 30.69 | 46.00 | 15.31 | 1000.0 | 120.000 | 113.0 | V | 130.0 | 12.0 |
| 250.000000 | 37.76 | 46.00 | 8.24 | 1000.0 | 120.000 | 113.0 | H | 204.0 | 13.0 |
| 480.000000 | 37.46 | 46.00 | 8.54 | 1000.0 | 120.000 | 112.0 | V | 337.0 | 19.2 |
| 971.450000 | 30.94 | 54.00 | 23.06 | 1000.0 | 120.000 | 300.0 | V | 220.0 | 27.2 |

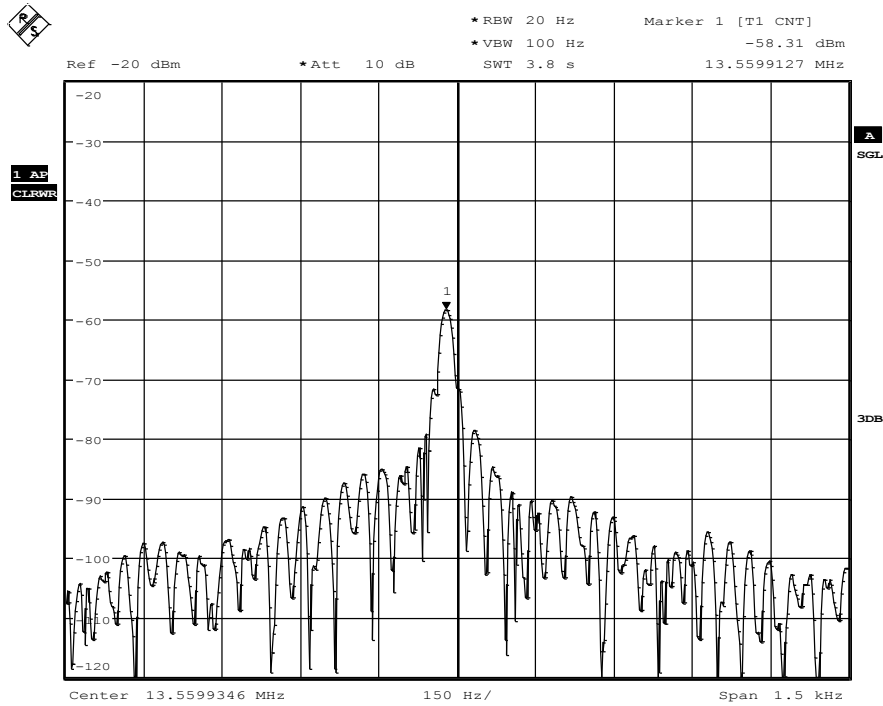
2. Frequency Error

Frequency Error for $T_{nom}=21^{\circ}\text{C}$ and $V_{nom}=12\text{ V DC}$ (Reference)



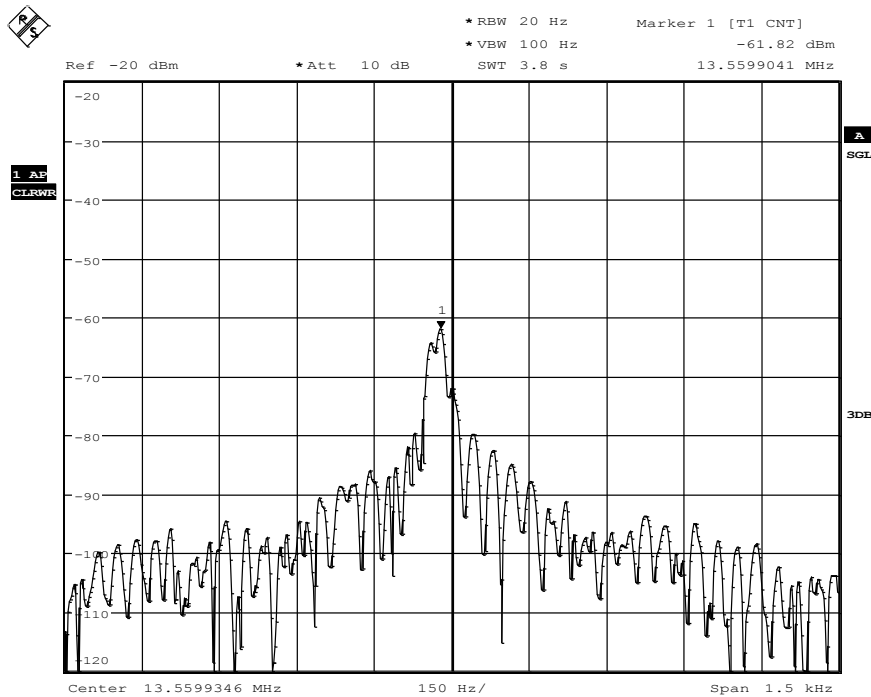
Date: 28.JUN.2016 11:16:44

Temperature Variation at Nominal Primary Supply Voltage Frequency Error for T=+50°C and Vnom= 12 V DC



Date: 28.JUN.2016 14:48:42

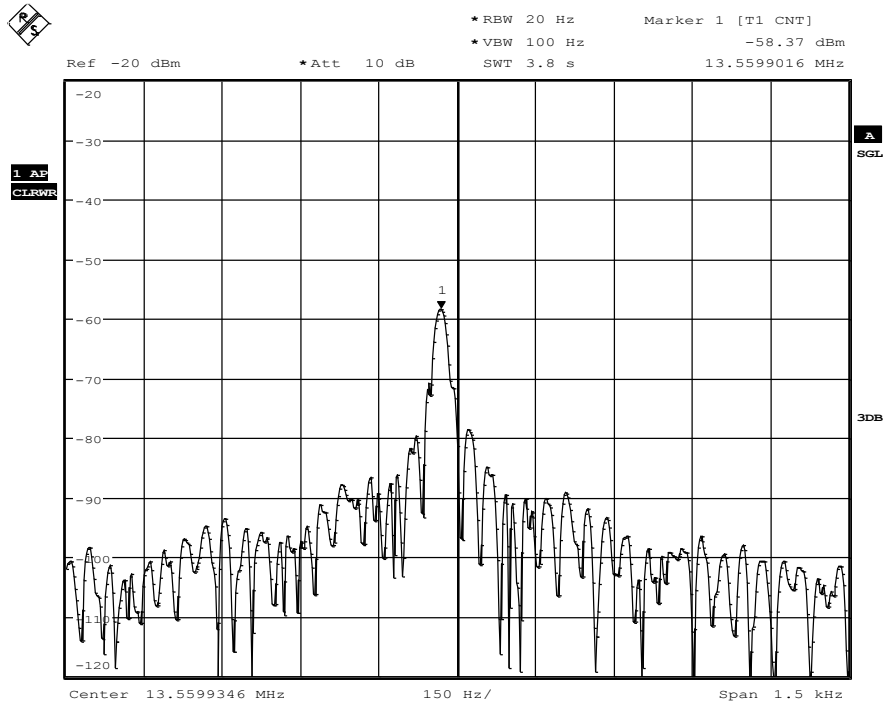
On TX-Start Up



Date: 28.JUN.2016 14:50:39

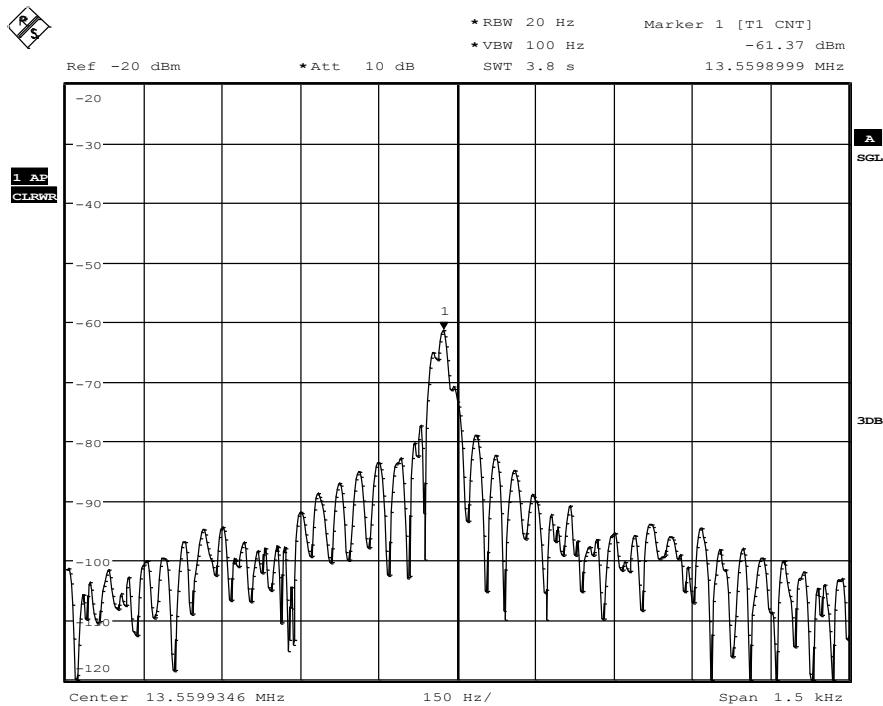
On 2Minutes after TX-Start Up

Frequency Error for T=+50°C and Vnom= 12 V DC



Date: 28.JUN.2016 14:53:39

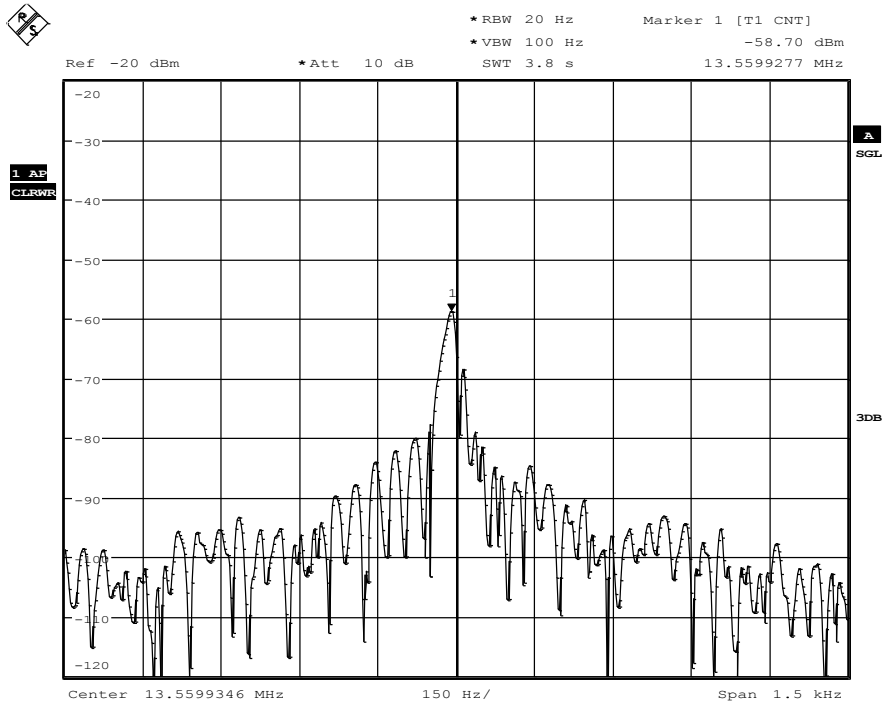
On 5Minutes after TX-Start Up



Date: 28.JUN.2016 14:58:41

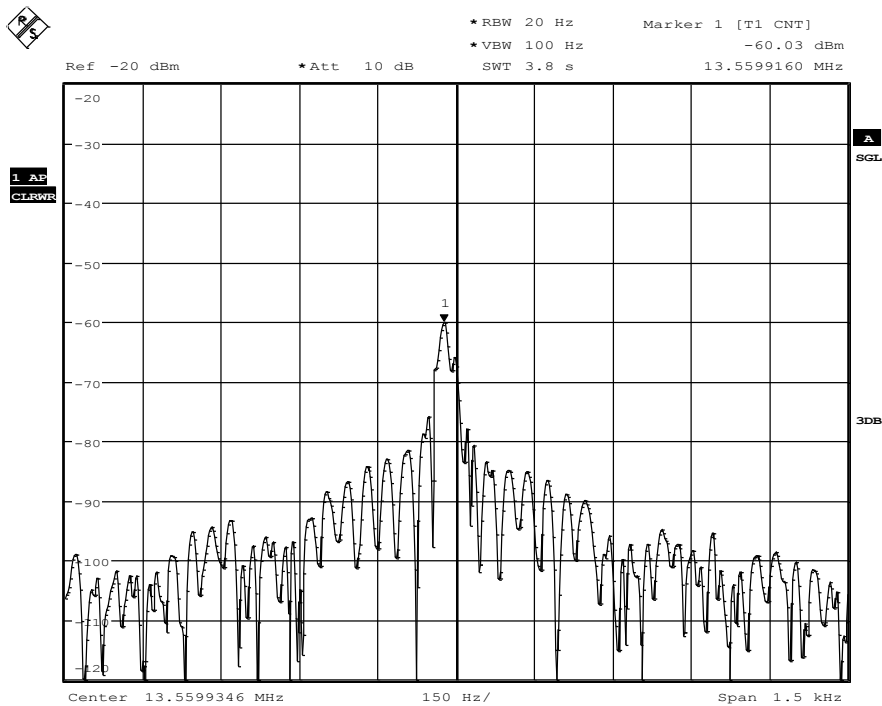
On 10Minutes after TX-Start Up

Frequency Error for T=+40°C and Vnom= 12 V DC



Date: 28.JUN.2016 13:59:32

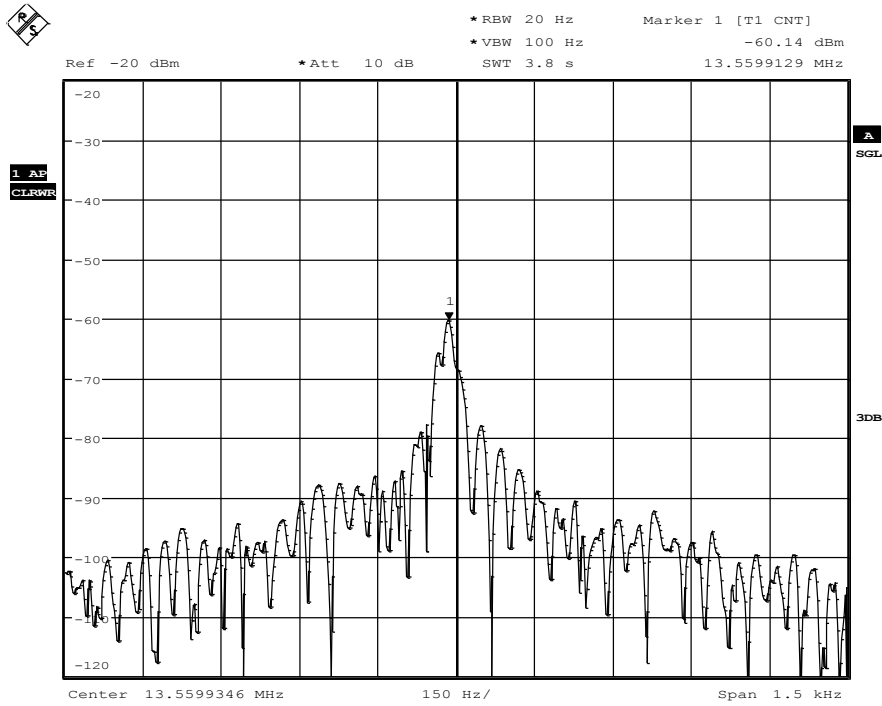
On TX-Start Up



Date: 28.JUN.2016 14:01:26

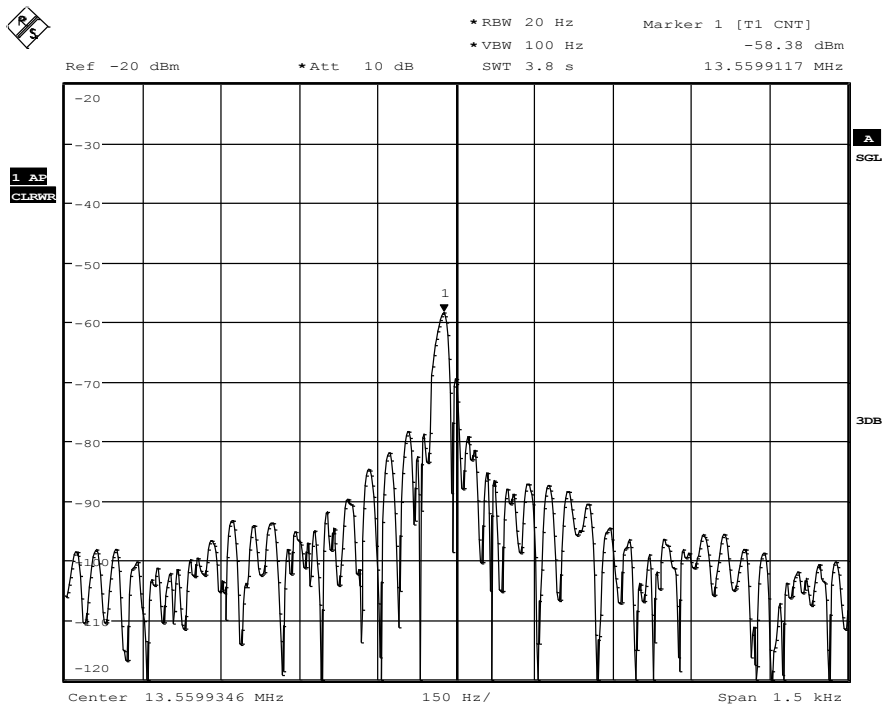
On 2Minutes after TX-Start Up

Frequency Error for T= +40°C and Vnom= 12 V DC



Date: 28.JUN.2016 14:04:30

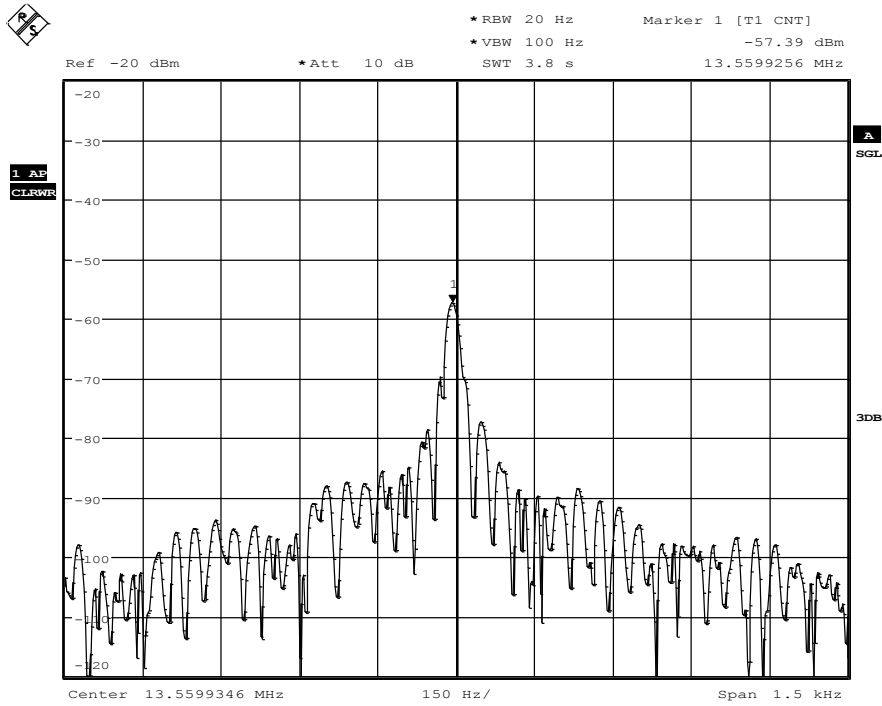
On 5Minutes after TX-Start Up



Date: 28.JUN.2016 14:09:27

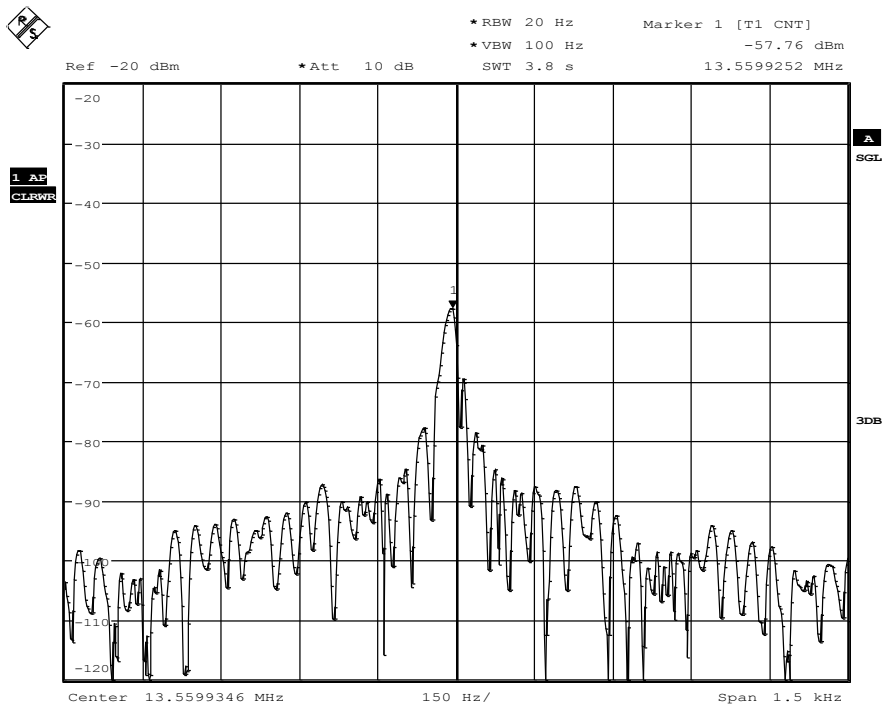
On 10Minutes after TX-Start Up

Frequency Error for T=+30°C and Vnom= 12 V DC



Date: 28.JUN.2016 12:39:24

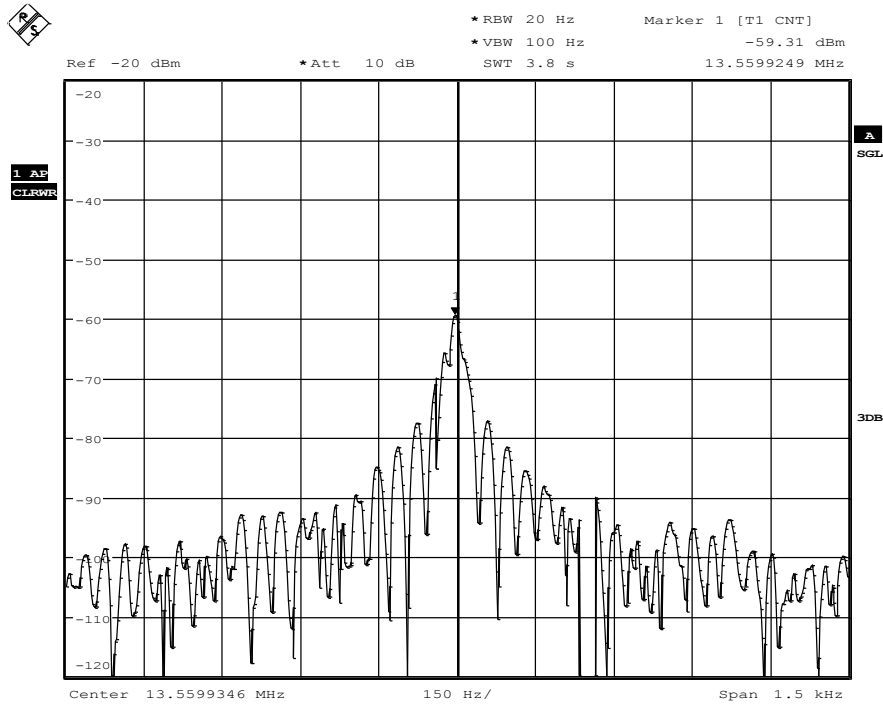
On TX-Start Up



Date: 28.JUN.2016 12:41:07

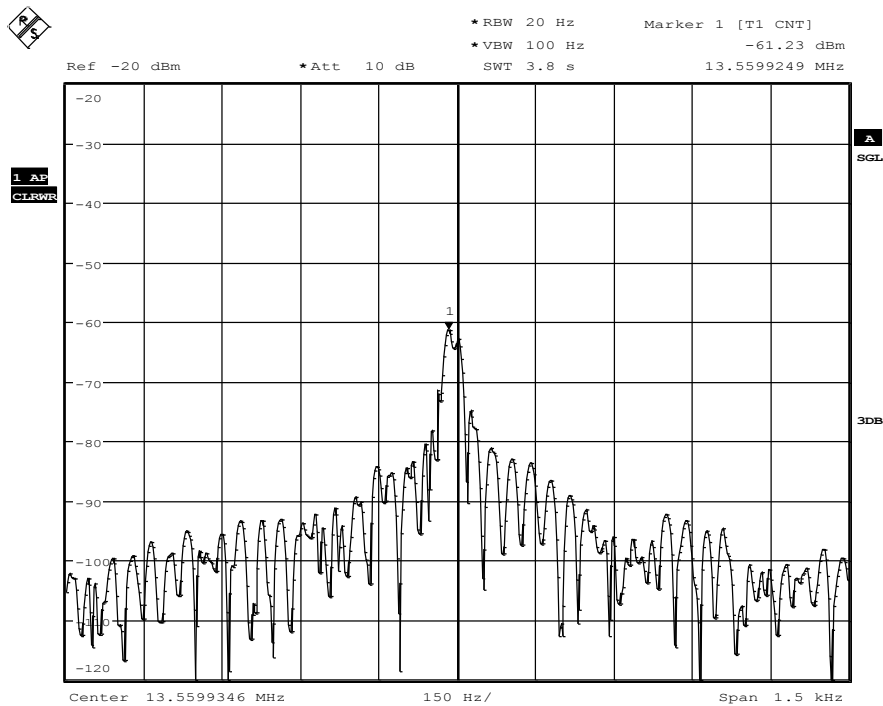
On 2Minutes after TX-Start Up

Frequency Error for T=+30°C and Vnom= 12 V DC



Date: 28.JUN.2016 12:44:17

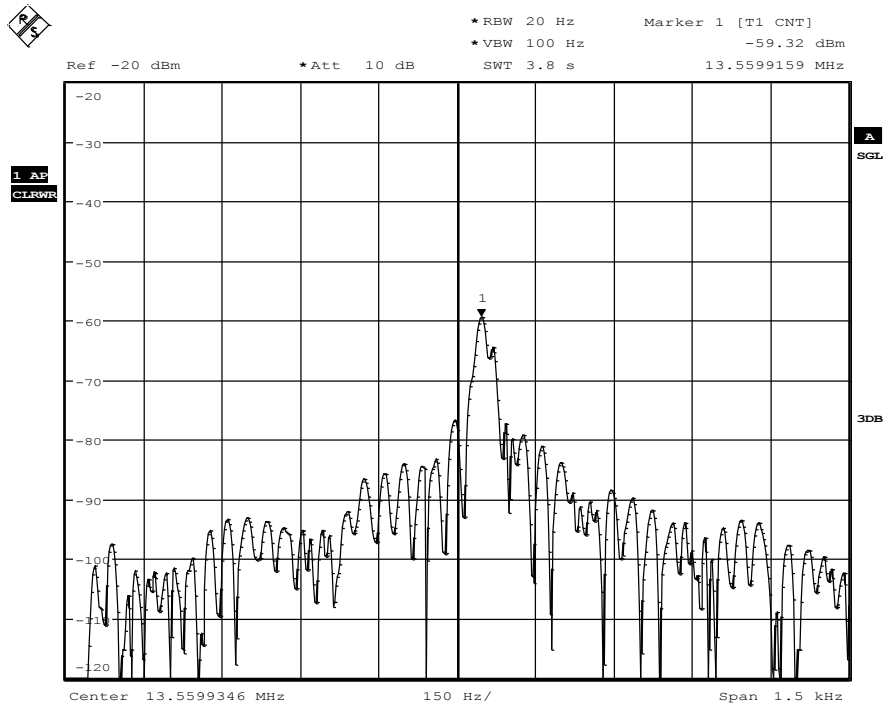
On 5Minutes after TX-Start Up



Date: 28.JUN.2016 12:49:21

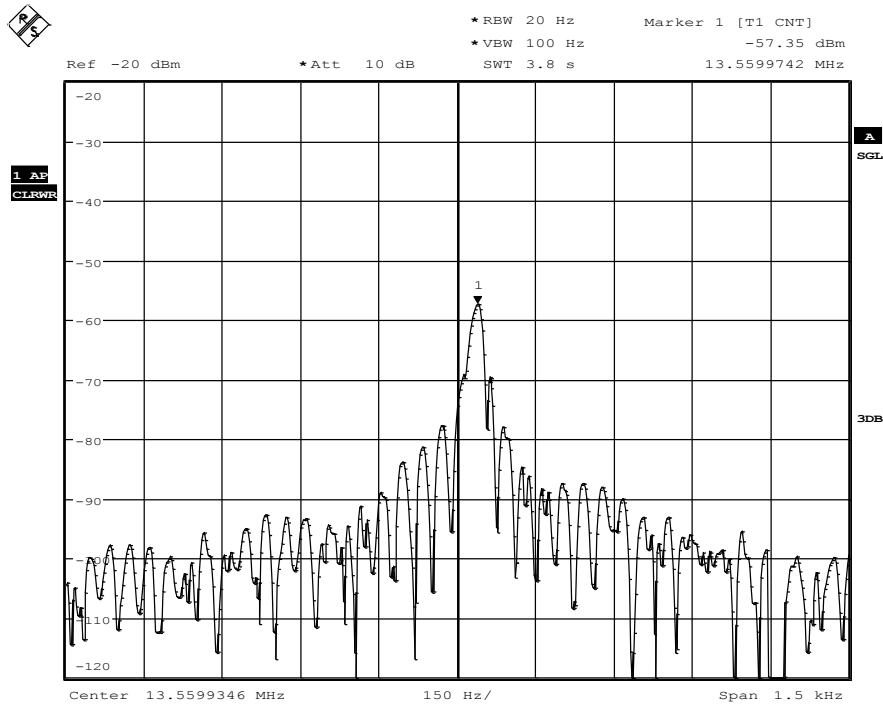
On 10Minutes after TX-Start Up

Frequency Error for T=+10°C and Vnom= 12 V DC



Date: 28.JUN.2016 15:51:44

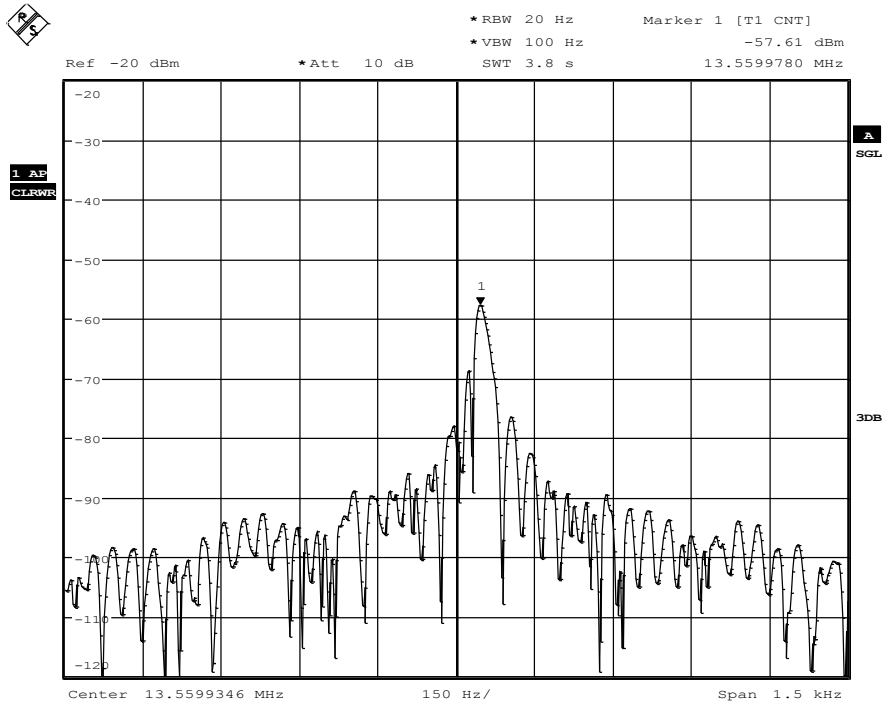
On TX-Start Up



Date: 28.JUN.2016 15:53:48

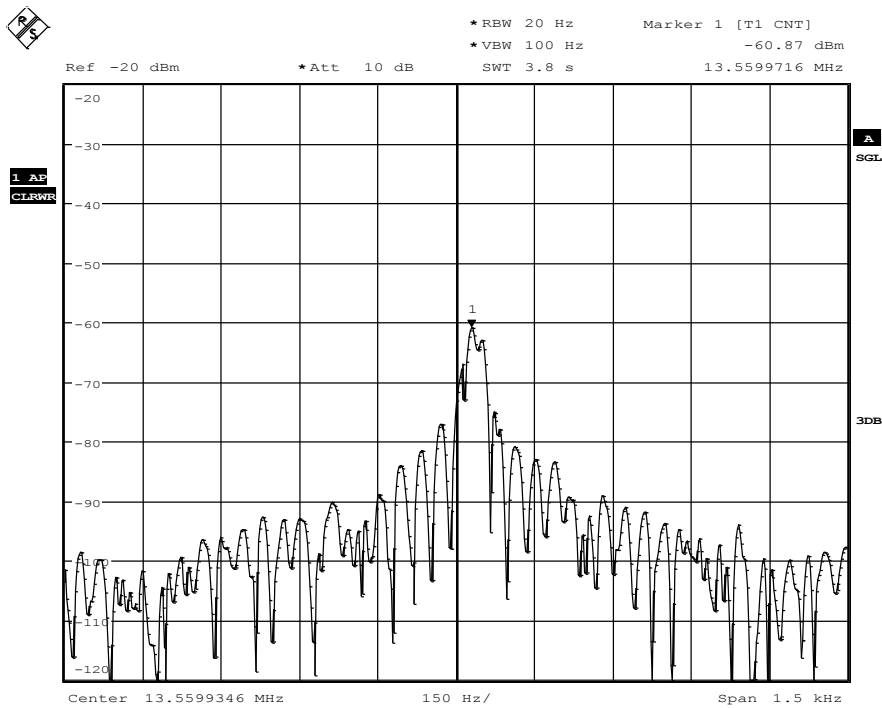
On 2Minutes after TX-Start Up

Frequency Error for T= +10°C and Vnom= 12 V DC



Date: 28.JUN.2016 15:57:46

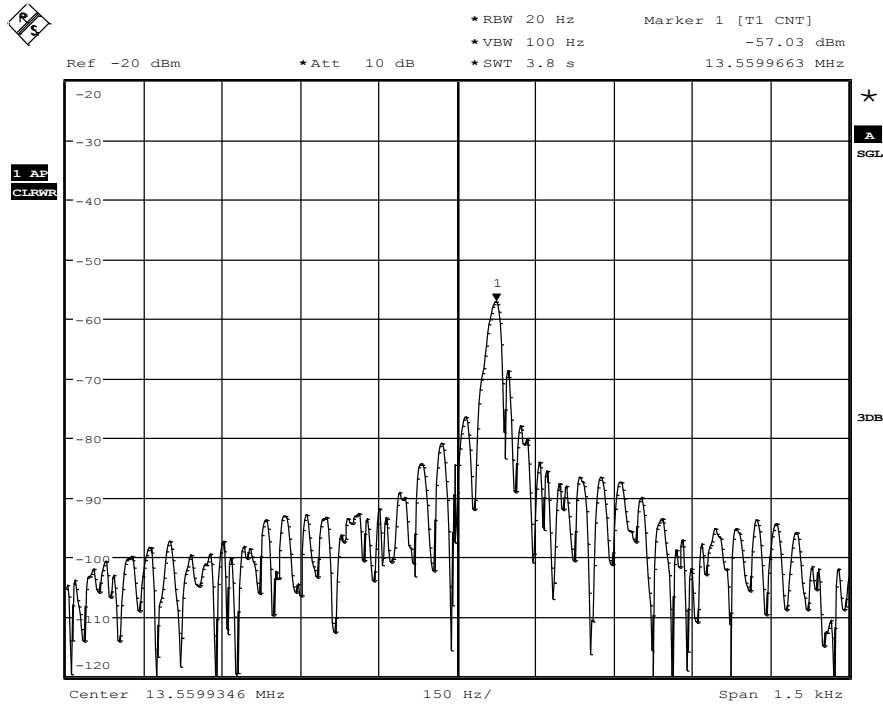
On 5Minutes after TX-Start Up



Date: 28.JUN.2016 16:01:52

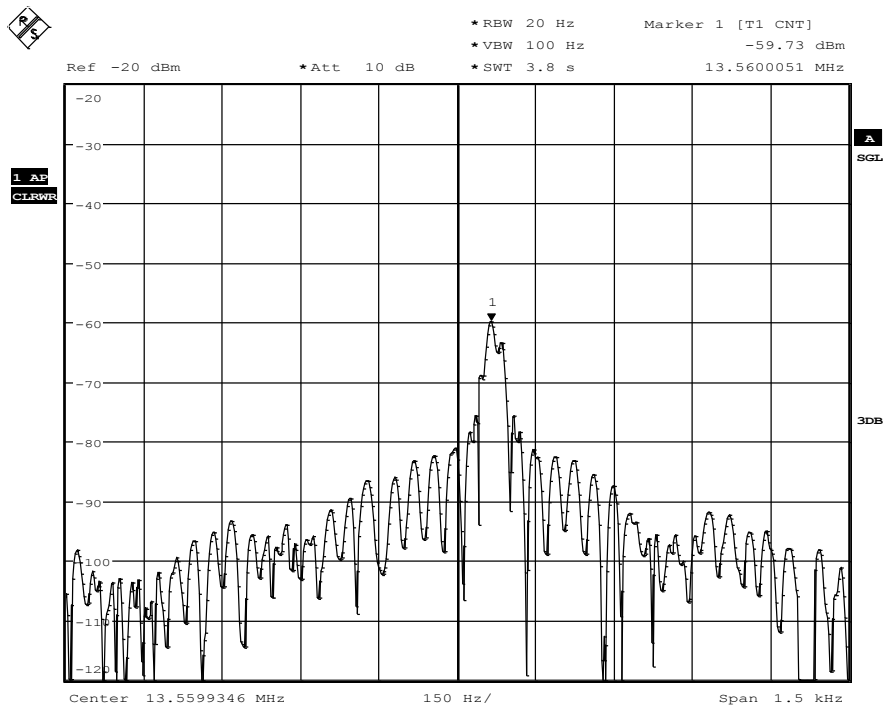
On 10Minutes after TX-Start Up

Frequency Error for T=0°C and Vnom= 12 V DC



Date: 28.JUN.2016 17:07:13

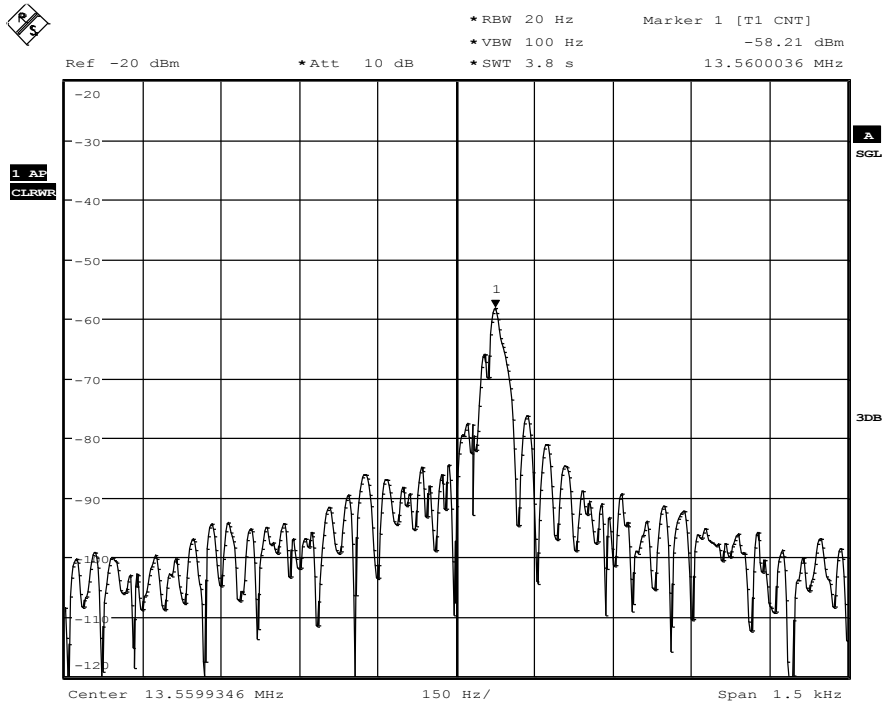
On TX-Start Up



Date: 28.JUN.2016 17:09:21

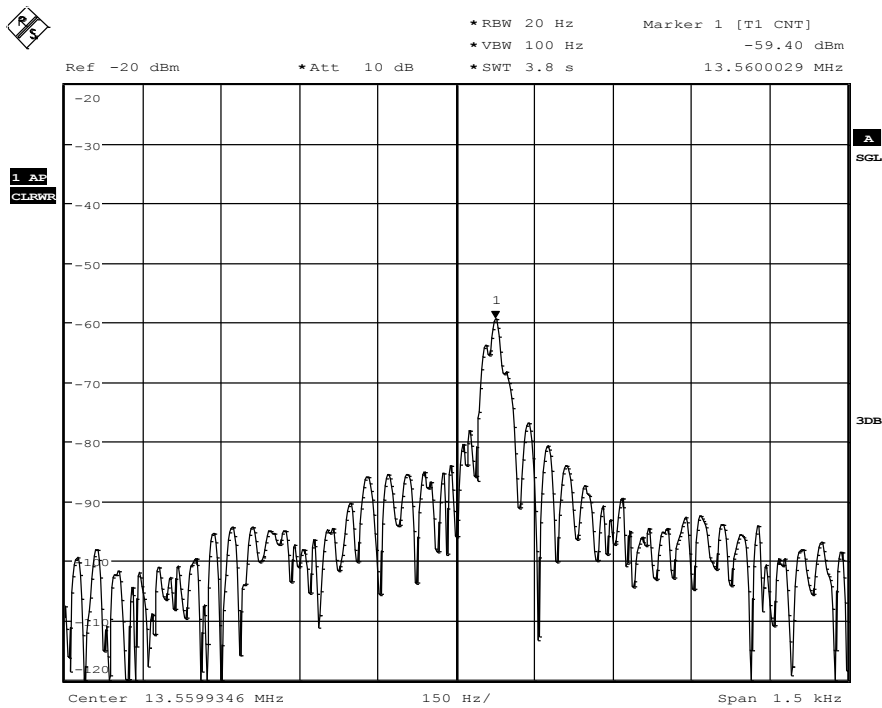
On 2Minutes after TX-Start Up

Frequency Error for T=0°C and Vnom= 12 V DC



Date: 28.JUN.2016 17:12:48

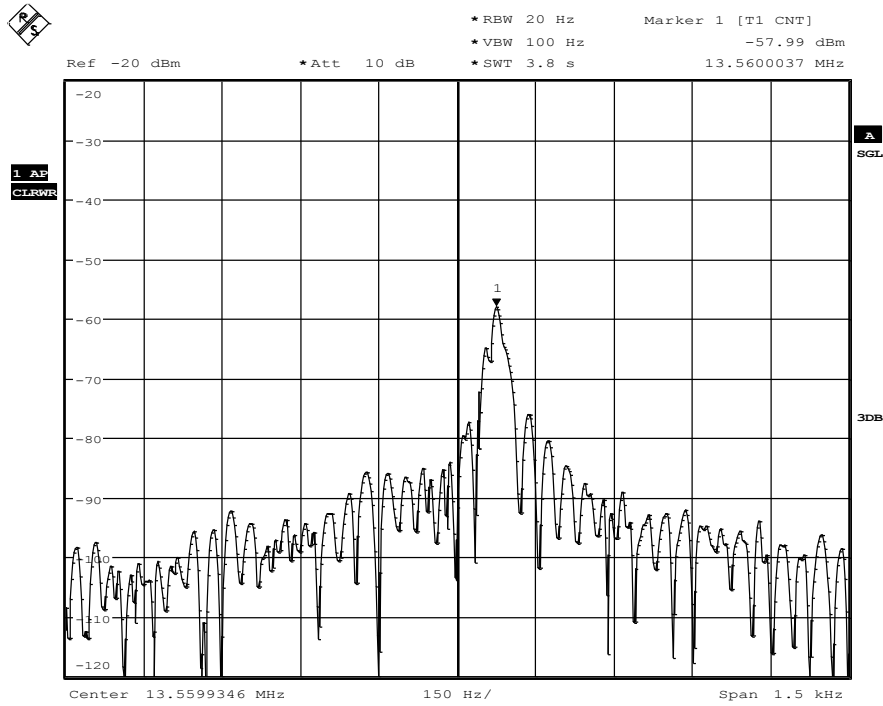
On 5Minutes after TX-Start Up



Date: 28.JUN.2016 17:17:28

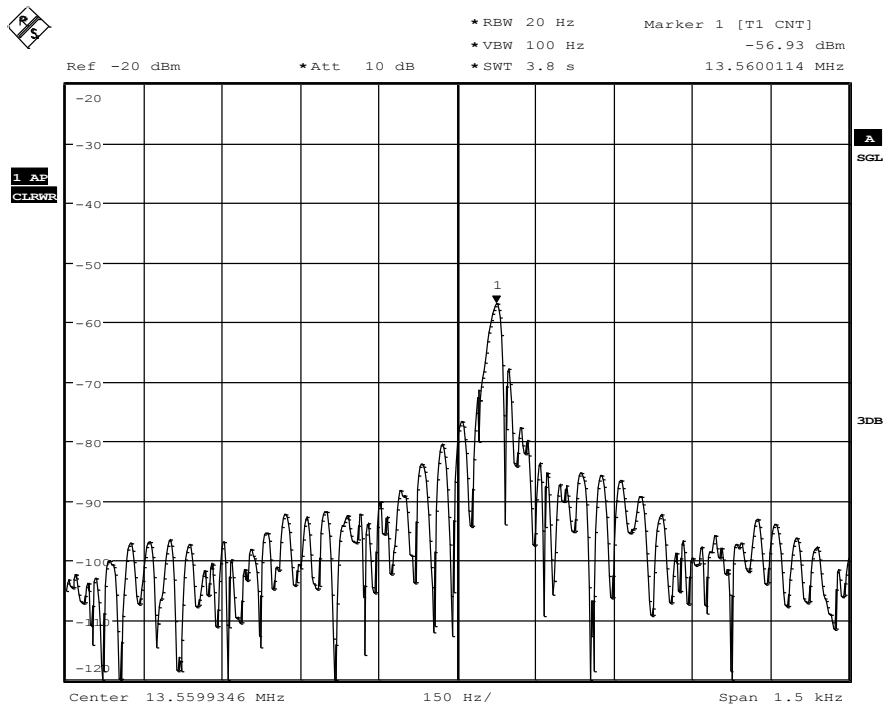
On 10Minutes after TX-Start Up

Frequency Error for T=-10°C and Vnom= 12 V DC



Date: 28.JUN.2016 18:04:05

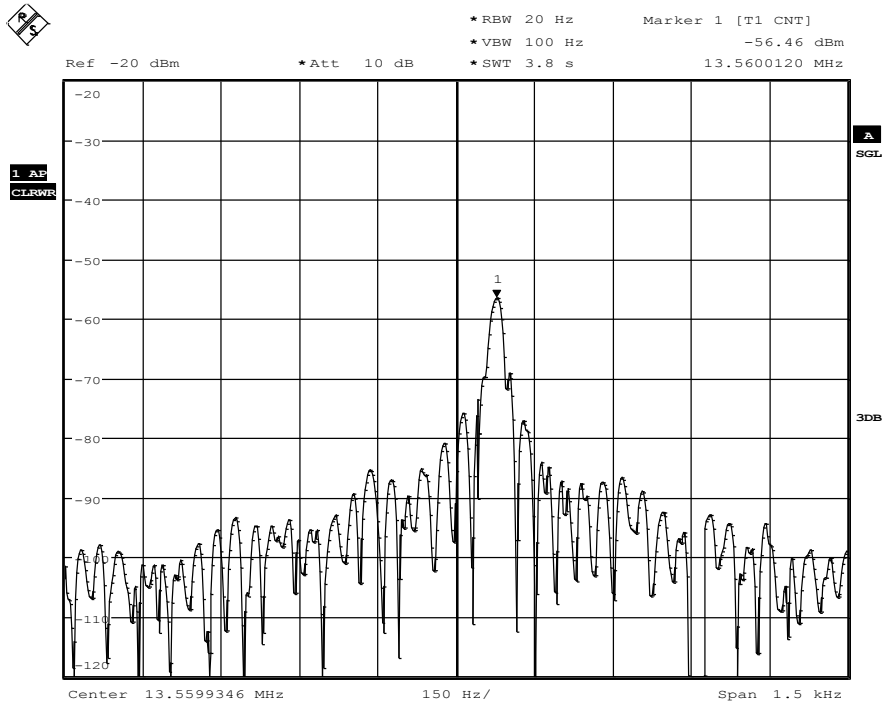
On TX-Start Up



Date: 28.JUN.2016 18:06:00

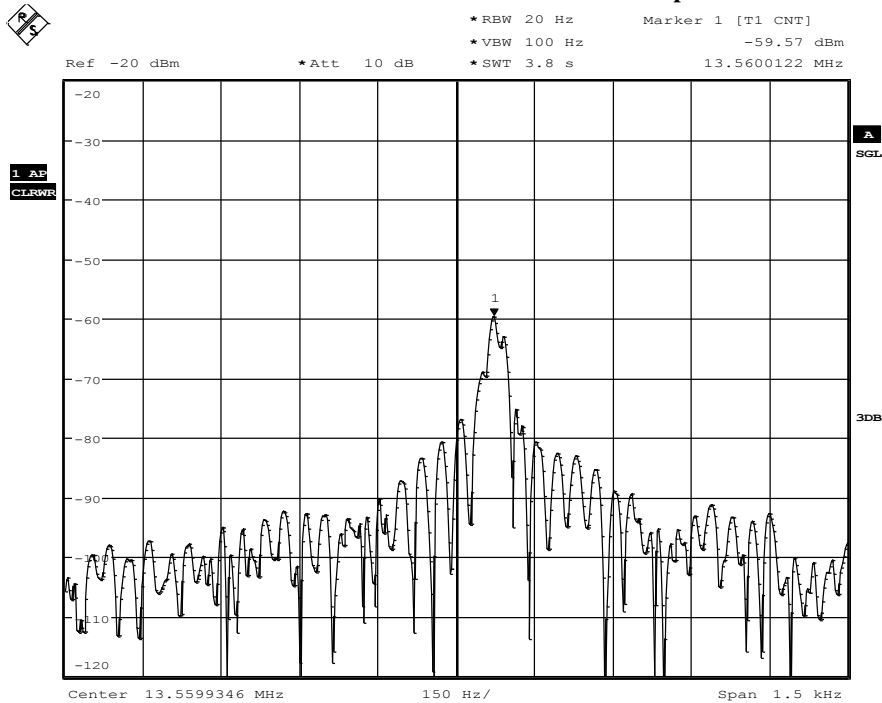
On 2Minutes after TX-Start Up

Frequency Error for T=-10°C and Vnom= 12 V DC



Date: 28.JUN.2016 18:09:00

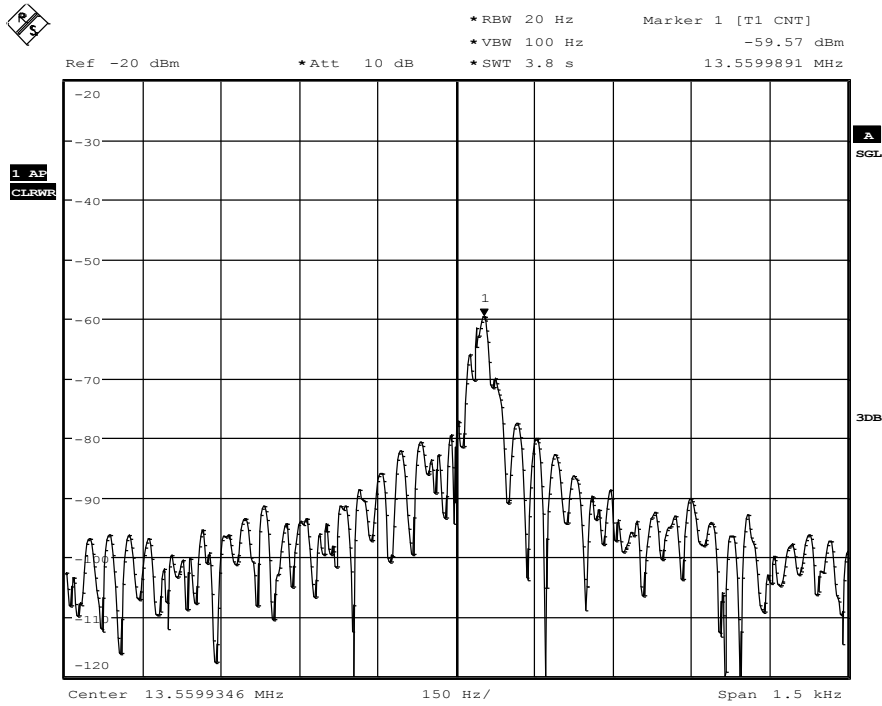
On 5Minutes after TX-Start Up



Date: 28.JUN.2016 18:14:06

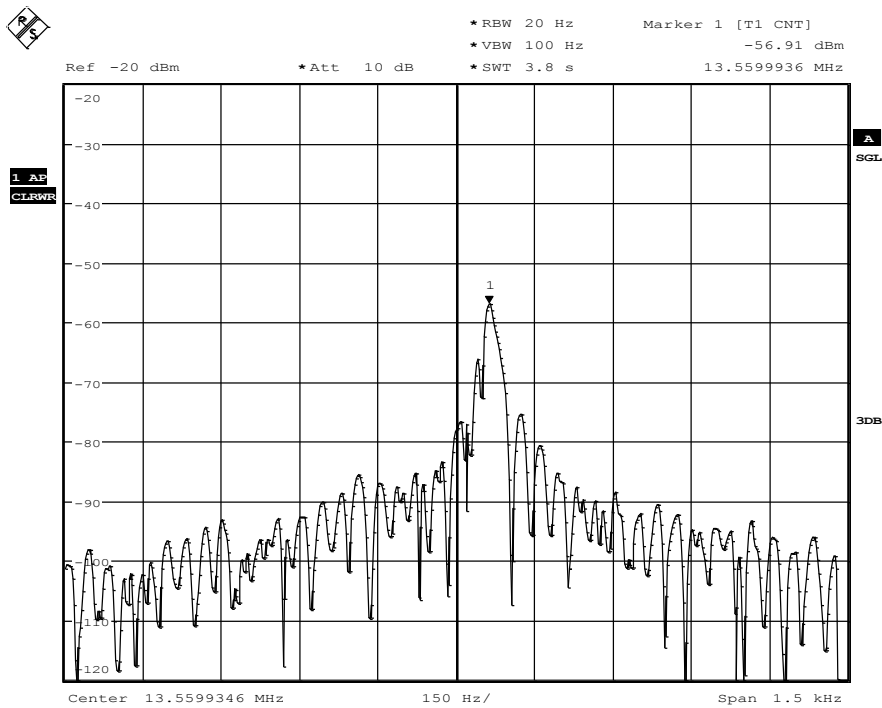
On 10Minutes after TX-Start Up

Frequency Error for T=-20°C and Vnom= 12 V DC



Date: 28.JUN.2016 19:00:39

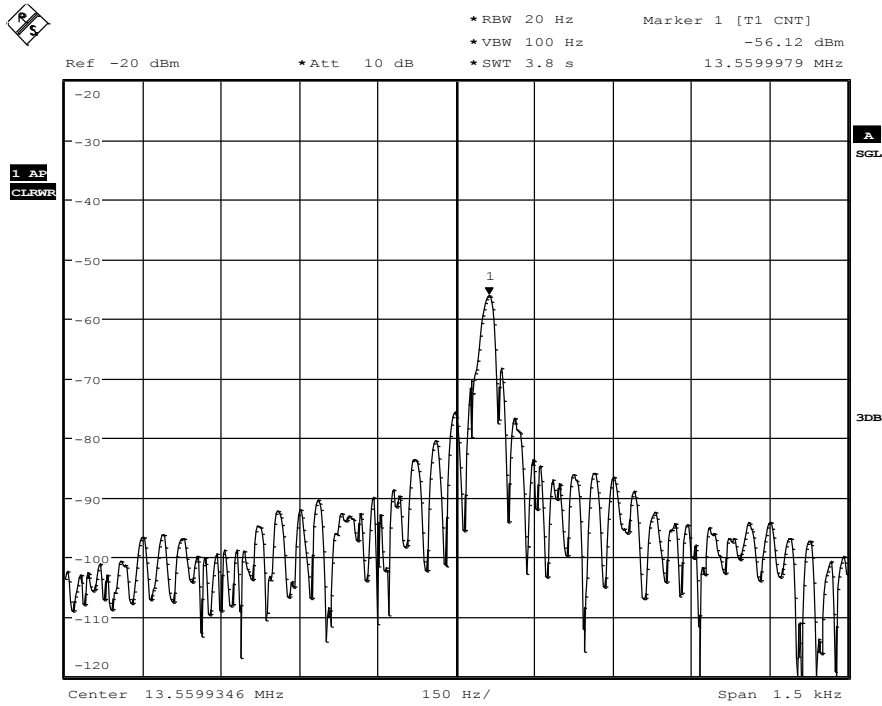
On TX-Start Up



Date: 28.JUN.2016 19:02:31

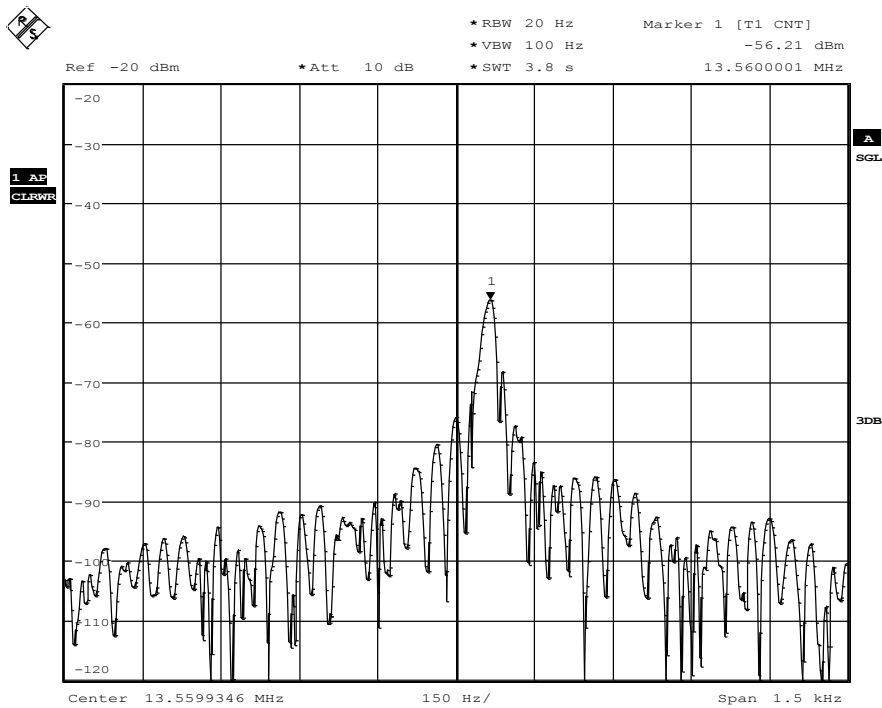
On 2Minutes after TX-Start Up

Frequency Error for T=-20°C and Vnom= 12 V DC



Date: 28.JUN.2016 19:05:28

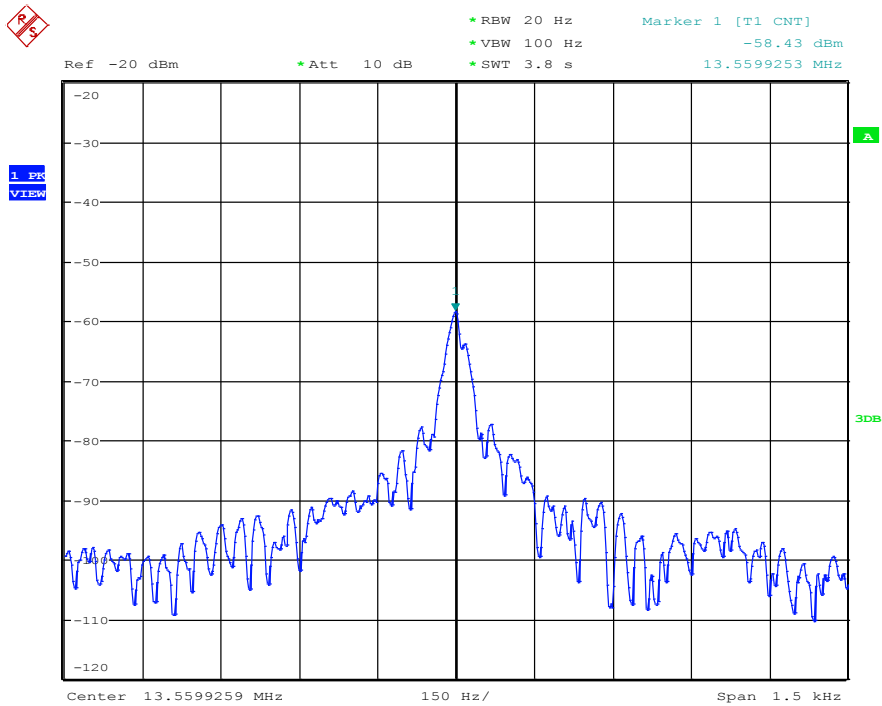
On 5Minutes after TX-Start Up



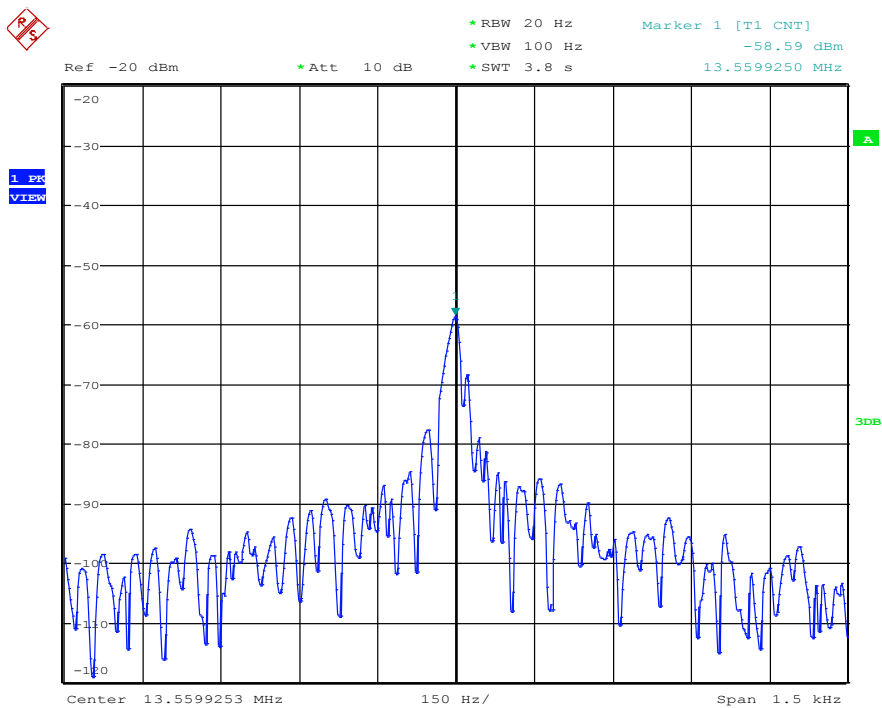
Date: 28.JUN.2016 19:10:33

On 10Minutes after TX-Start Up

**85% of Rated Primary Supply Voltage Variation at Temperature of 20°C
Frequency Error for T=+20°C and Vnom= 12 V DC / Vprimary = 108 V AC**

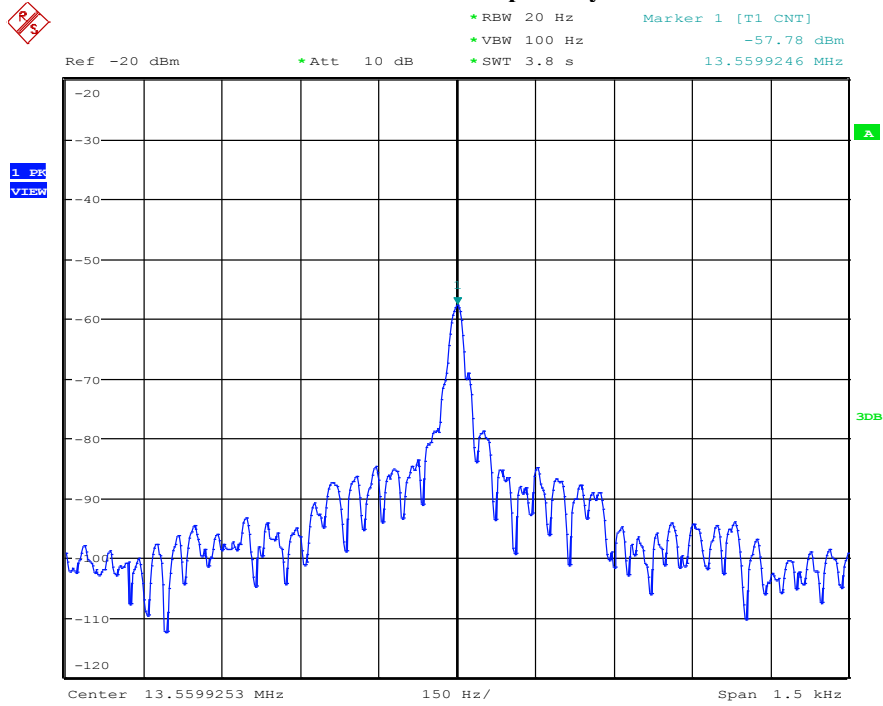


On TX-Start Up

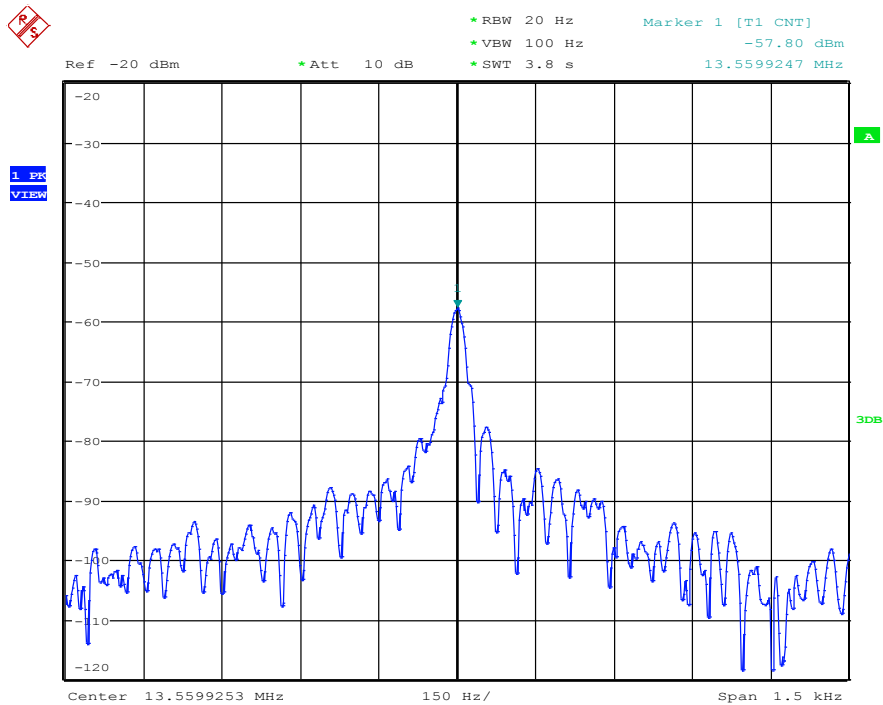


On 2Minutes after TX-Start Up

Frequency Error for T=+20°C and Vnom= 12 V DC / Vprimary = 108 V AC

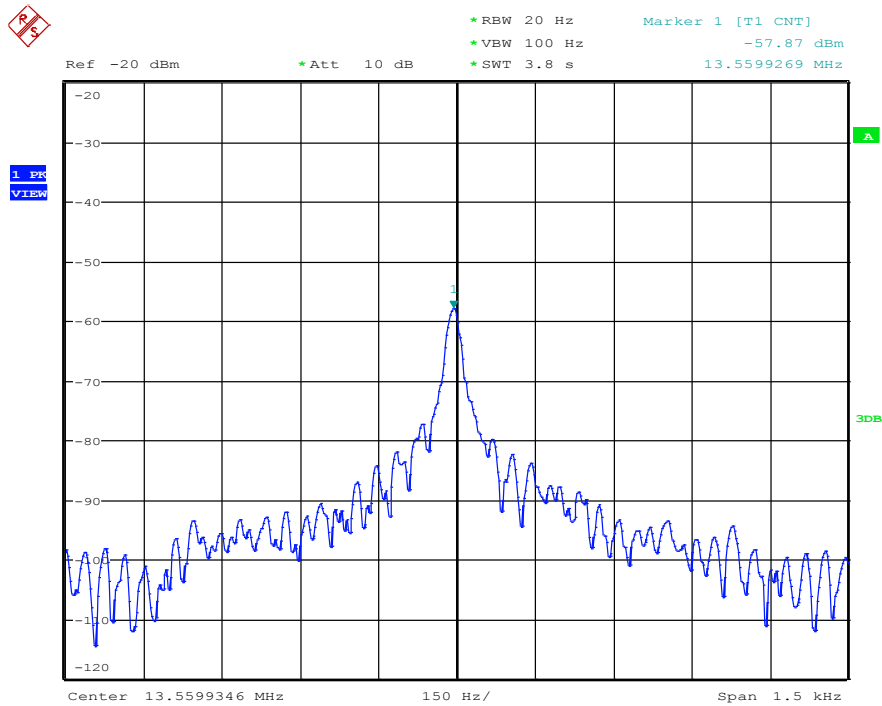


On 5Minutes after TX-Start Up

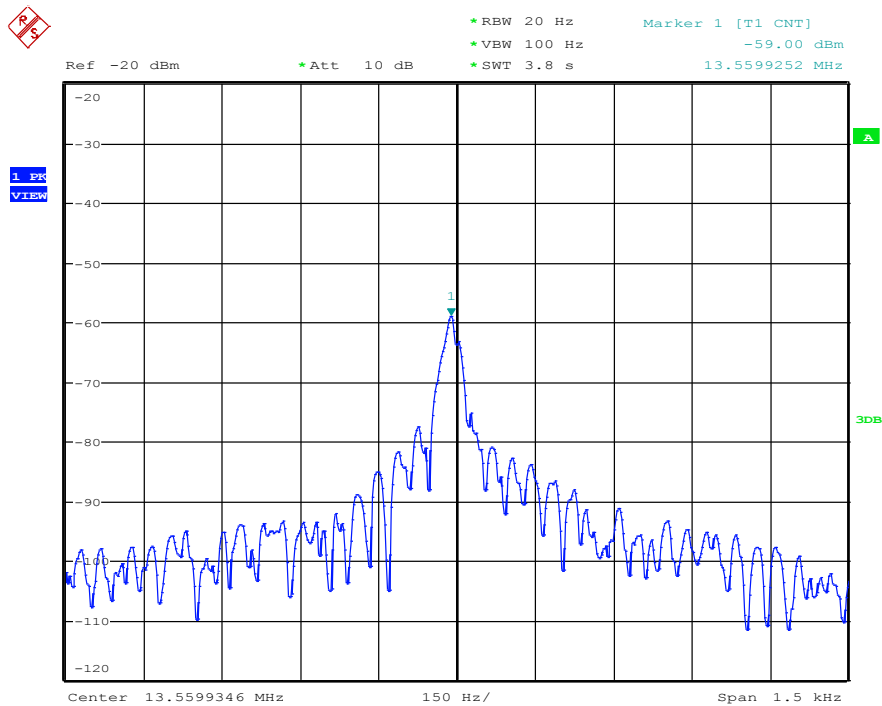


On 10Minutes after TX-Start Up

115% of Rated Primary Supply Voltage Variation at Temperature of 20°C Frequency Error for T=+20°C and Vnom= 12 V DC / Vprimary = 138 V AC

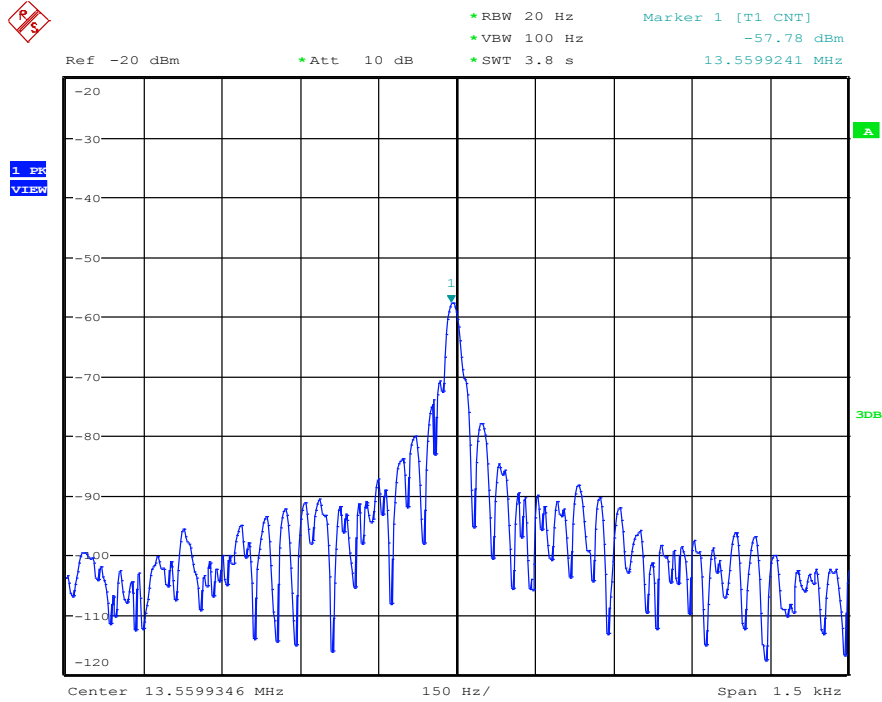


On TX-Start Up

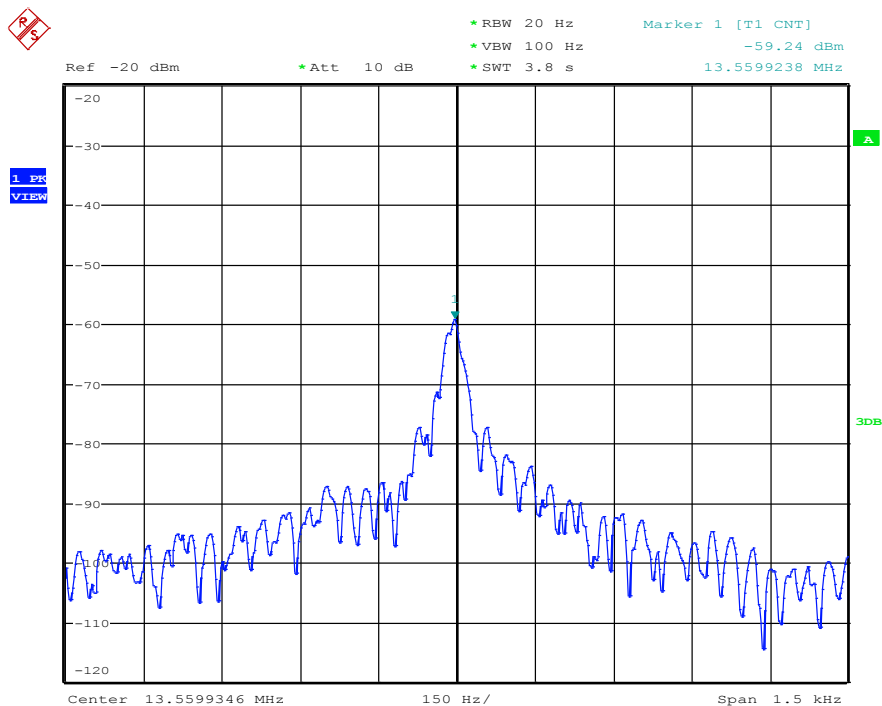


On 2Minutes after TX-Start Up

Frequency Error for T=+20°C and Vnom= 12 V DC / Vprimary = 108 V AC

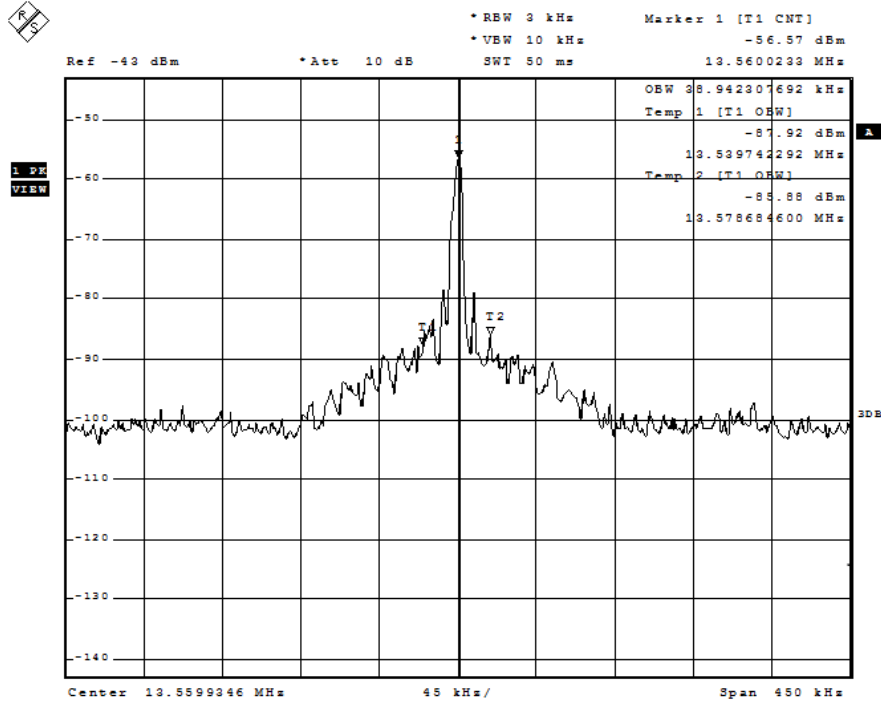


On 5Minutes after TX-Start Up



On 10Minutes after TX-Start Up

3. 99 % Occupied Bandwidth



Date: 28.JUN.2016 16:14:39

99% Occupied Bandwidth

4. AC-Power Line Conducted Emissions

Diagram No.:1.01_ With NFC Antenna

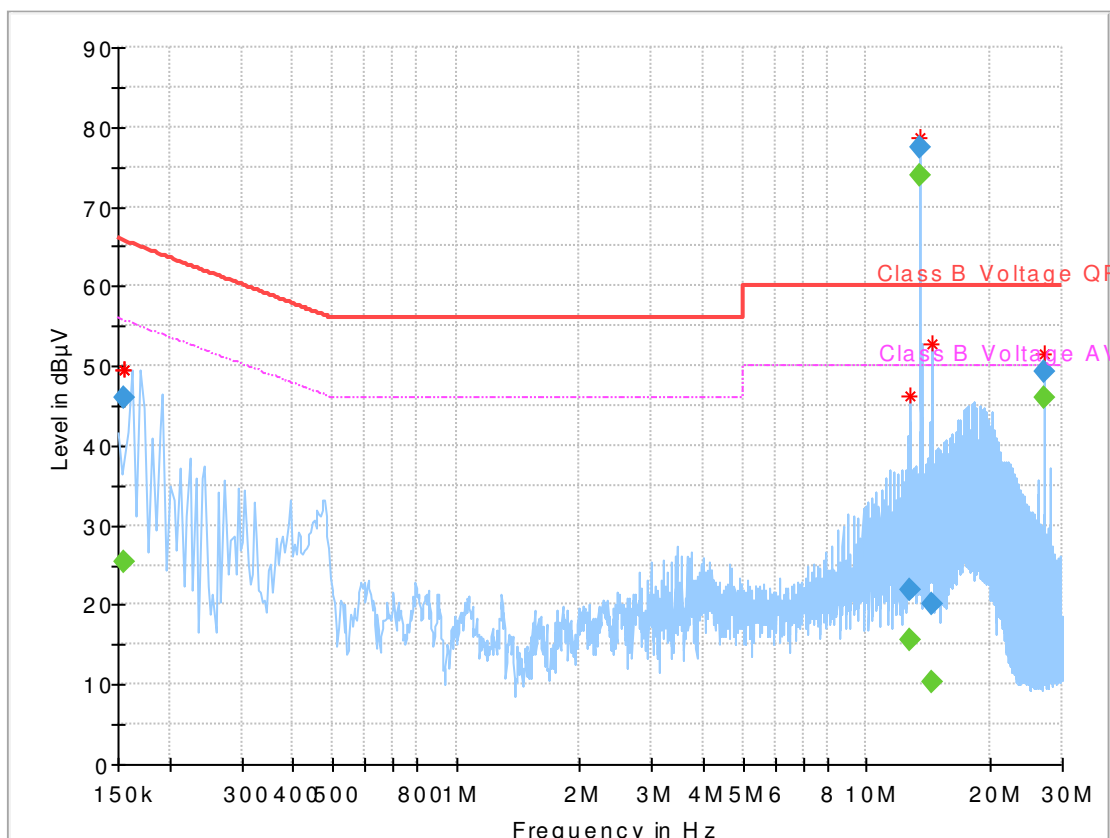
Common Information

| | |
|---------------------------|---|
| Test Description: | Conducted Voltage Measurement Class B |
| Test Site & Location: | Conducted Emission, CETECOM GmbH Essen |
| Test Software: | R&S EMC32 v9.15 |
| Test Specification: | FCC 15.107, FCC 15.207 |
| Operating Mode: | NFC mode |
| Measured on line: | N/L1 |
| Diagram details: | Shows the peak values as a sum of measured ports in maxhold mode |
| Environmental Conditions: | Humidity: 41%rH; Temperature: 23°C |
| Operator: | HLA |
| Test mode: | Cradle with AC/DC Power Supply & NFC communication active with 1 x JOYA TOUCH Terminals in NFC Mode |
| JOYA TOUCH Terminals: | Slot 1: Empty Slot 2:EUT Type :P00AN04HL0HT0W7-GR0 S/N:Z16P00044 Slot 3:Empty |

EUT Information

| | |
|----------------------|--|
| Manufacturer: | Datalogic ADCL S.r.l. |
| MODEL: | JOYA TOUCH CRADLE |
| EuT Type: | 3-SLOTS CRADLE |
| P/N: | 91ACC0043 |
| S/N: | Z15P00993 |
| HW Version: | Beta 2 |
| Firmware Version: | 99.99.99 |
| Input: | 12VDC 6 A using AC/DC Adapter |
| AC/DC Adapter Type: | 100-240 VAC-2.0A 50-60Hz to 12VDC 6 A (AC input: 120 VAC, 60 Hz) |
| AC/DC Adapter Model: | EA10681U-120 |
| AC/DC Manufacturer: | EDACPOWER ELEC. |
| EuT Operating Mode: | NFC Mode only |

Full Spectrum



Final_Result

| Frequency (MHz) | QuasiPeak (dBµV) | CAverage (dBµV) | Limit (dBµV) |
|-----------------|------------------|-----------------|--------------|
| 0.155000 | 46.02 | --- | 65.73 |
| 0.155000 | --- | 25.45 | 55.73 |
| 12.690000 | 21.87 | --- | 60.00 |
| 12.690000 | --- | 15.47 | 50.00 |
| 13.557656 | 77.36 | --- | 60.00 |
| 13.557656 | --- | 73.90 | 50.00 |
| 14.409219 | 20.18 | --- | 60.00 |
| 14.409219 | --- | 10.21 | 50.00 |
| 27.121250 | --- | 45.99 | 50.00 |
| 27.121250 | 49.38 | --- | 60.00 |

Diagram No.:1.01b_ NFC Output port Terminated with 50 Ω

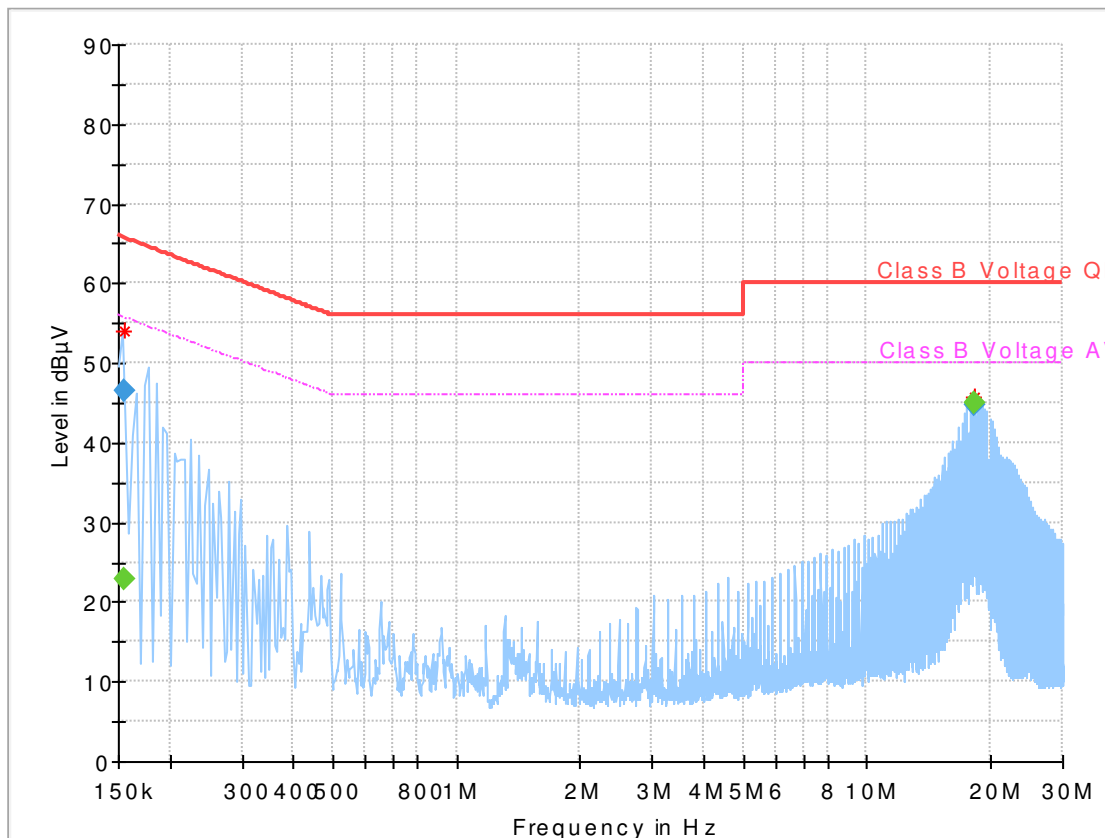
Common Information

| | |
|---------------------------|--|
| Test Description: | Conducted Voltage Measurement Class B |
| Test Site & Location: | Conducted Emission, CETECOM GmbH Essen |
| Test Software: | R&S EMC32 v9.15 |
| Test Specification: | FCC 15.107, FCC 15.207 |
| Operating Mode: | NFC mode |
| Measured on line: | N/L1 |
| Diagram details: | Shows the peak values as a sum of measured ports in maxhold mode |
| Environmental Conditions: | Humidity: 48%rH; Temperature: 21°C |
| Operator: | HLA |
| Test mode: | Cradle with AC/DC Power Supply & NFC communication active with 1 x JOYA TOUCH Terminals in NFC Mode |
| JOYA TOUCH Terminals: | Slot 1: Empty Slot 2:EUT Type :P00AN04HL0HT0W7-GR0 S/N:Z16P00044 Slot 3:Empty |

EUT Information

| | |
|----------------------|---|
| Manufacturer: | Datalogic ADCL S.r.l. |
| MODEL: | JOYA TOUCH CRADLE |
| EuT Type: | 3-SLOTS CRADLE |
| P/N: | 91ACC0043 |
| S/N: | Z15P00993 |
| HW Version: | Beta 2 |
| Firmware Version: | 99.99.99 |
| Input: | 12VDC 6 A using AC/DC Adapter |
| AC/DC Adapter Type: | 100-240 VAC-2.0A 50-60Hz to 12VDC 6 A (AC input: 120 VAC, 60 Hz) |
| AC/DC Adapter Model: | EA10681U-120 |
| AC/DC Manufacturer: | EDACPOWER ELEC. |
| EuT Operating Mode: | NFC Mode only without NFC Antenna NFC Output port Terminated with 50 Ω impedance |

Full Spectrum



Final_Result

| Frequency (MHz) | QuasiPeak (dB μ V) | CAverage (dB μ V) | Limit (dB μ V) |
|-----------------|------------------------|-----------------------|--------------------|
| 0.155000 | --- | 22.92 | 55.73 |
| 0.155000 | 46.59 | --- | 65.73 |
| 18.336094 | --- | 45.11 | 50.00 |
| 18.336094 | 44.80 | --- | 60.00 |