

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			
 Deutsche Akkreditierungsstelle D-PL-12047-01-01	 MRA US-EU 0003	 Industry Canada Reg. No.: 3462D-2 Reg. No.: 3462D-3	 Voluntary Controls for Electromagnetic Emissions Reg. No.: R-2666 C-2914, T-1967, G-301
 AUTHORIZED RF LABORATORY	 Authorized Test Lab Lab Code: 20011130-00		
accredited according to DIN EN ISO/IEC 17025			
<b>CETECOM GmbH</b> 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			

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# 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

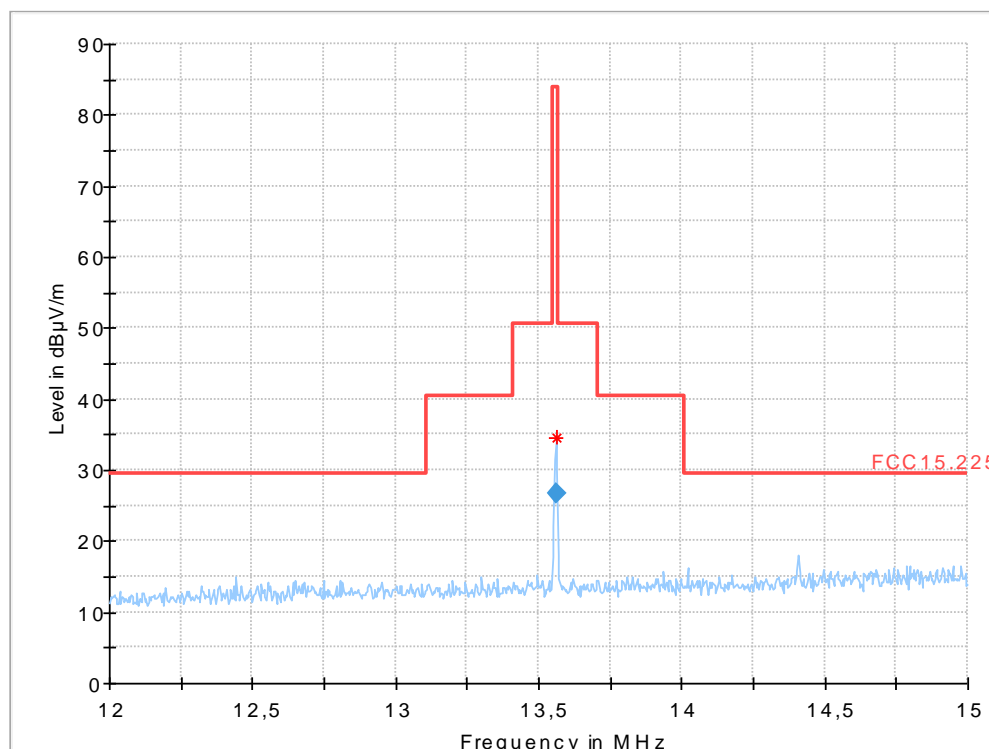
#### Common Information

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 $\mu$ V/m)	Limit (dB $\mu$ 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**

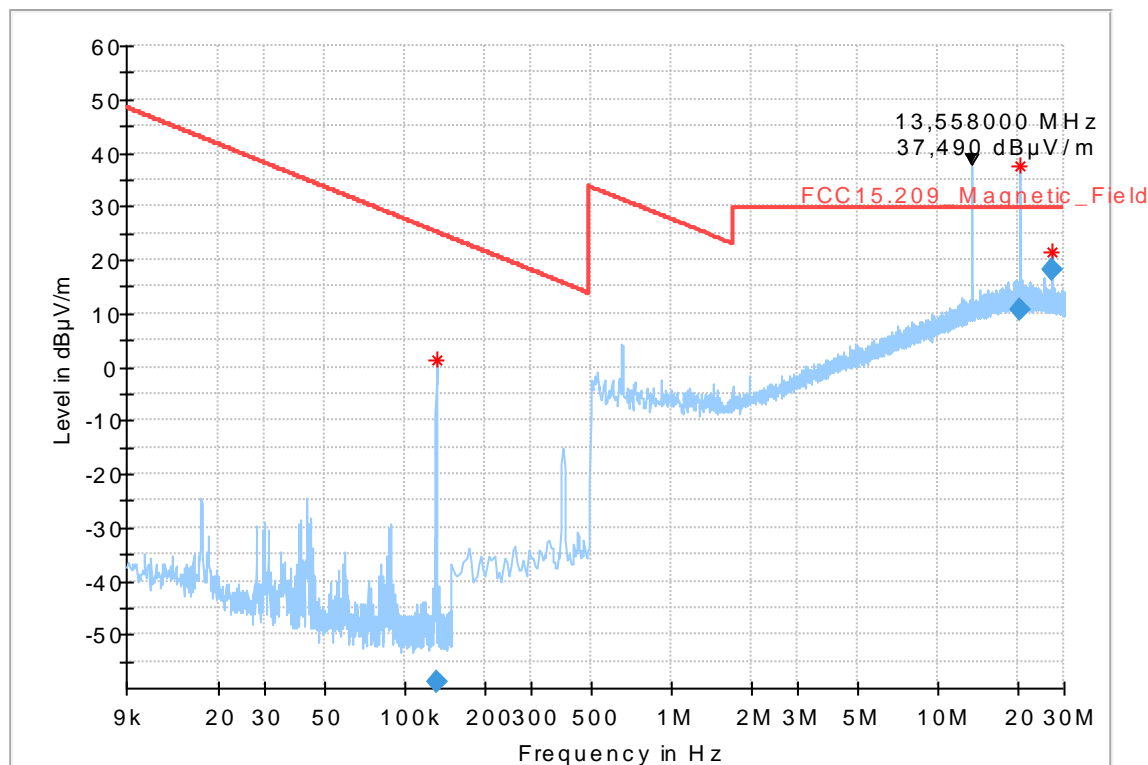
### Common Information

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 (dBμV/m)	Limit (dBμV/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

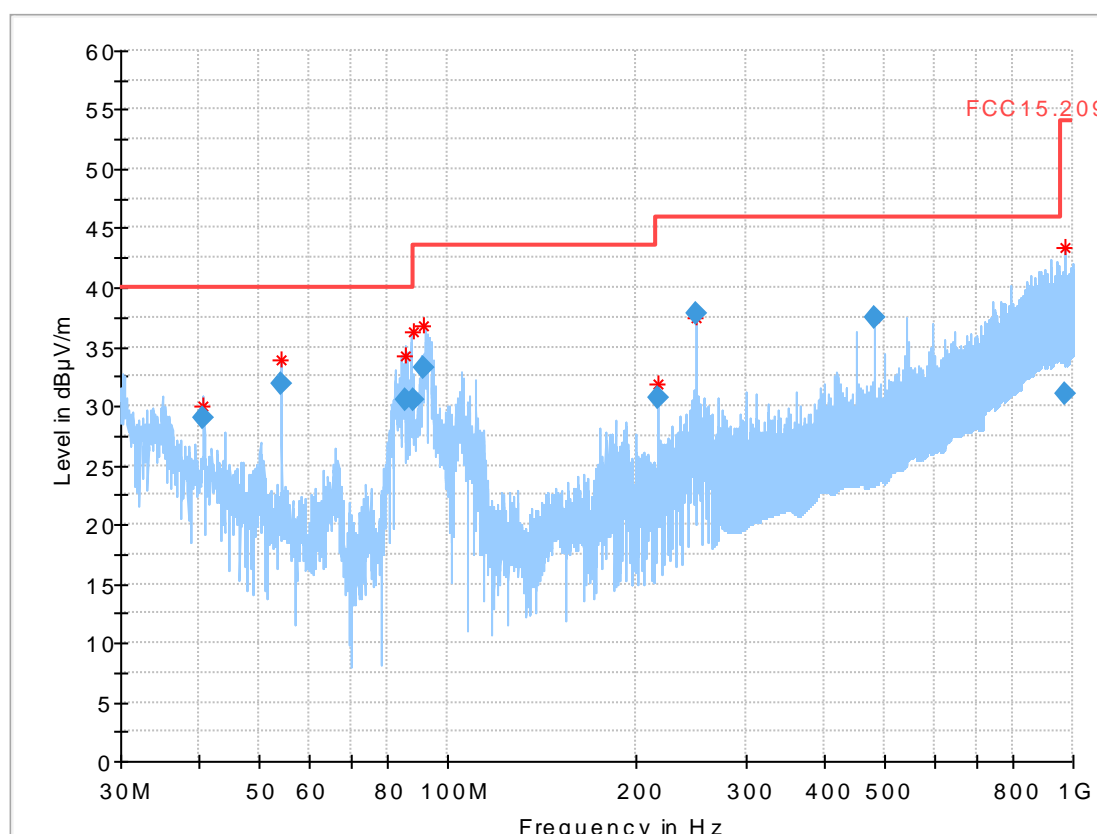
##### Common Information

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



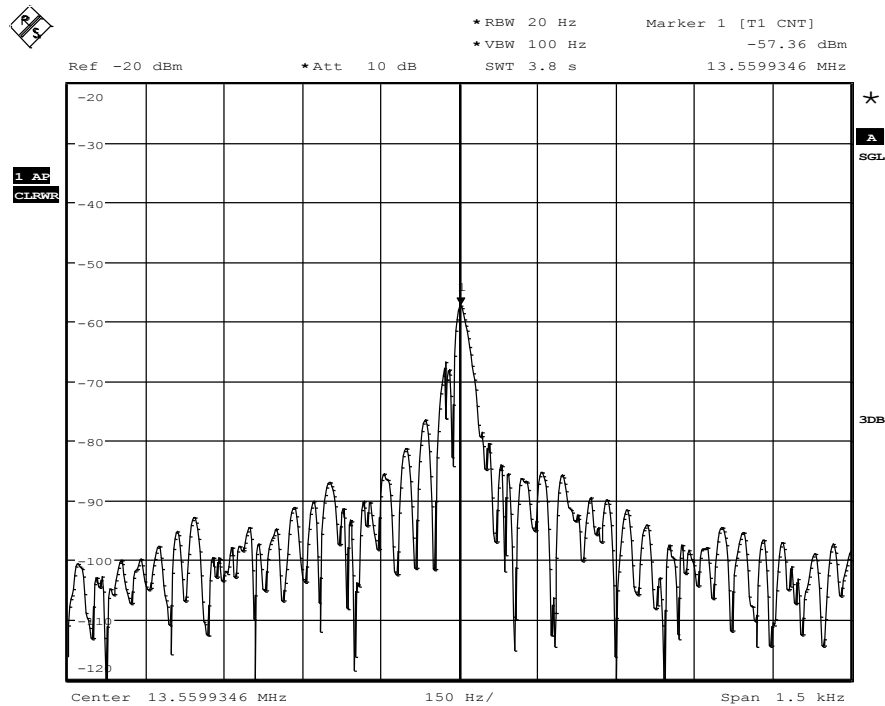
**Final\_Result**

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/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



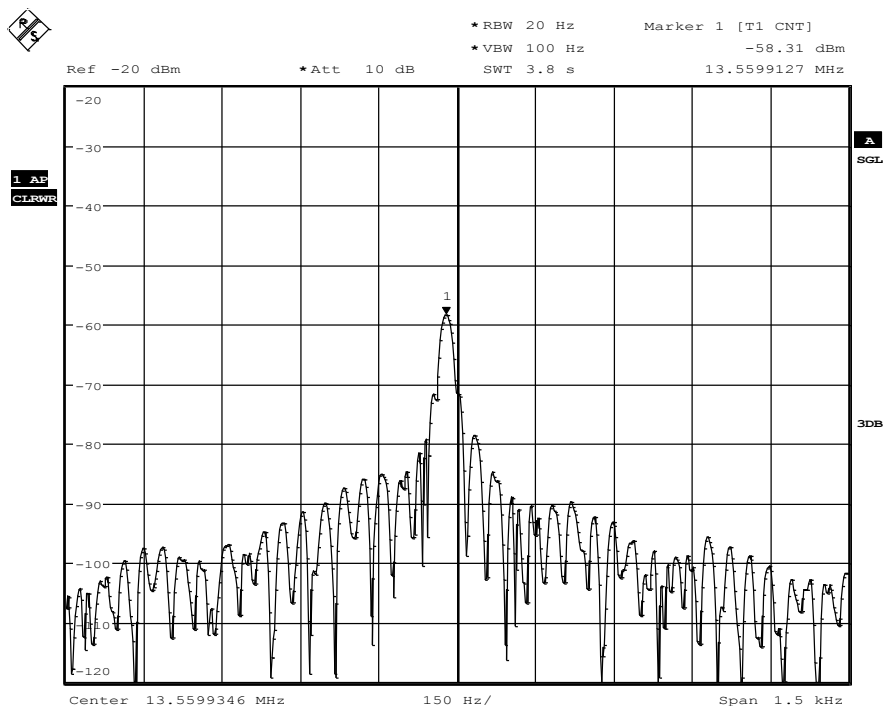
## 2. Frequency Error

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



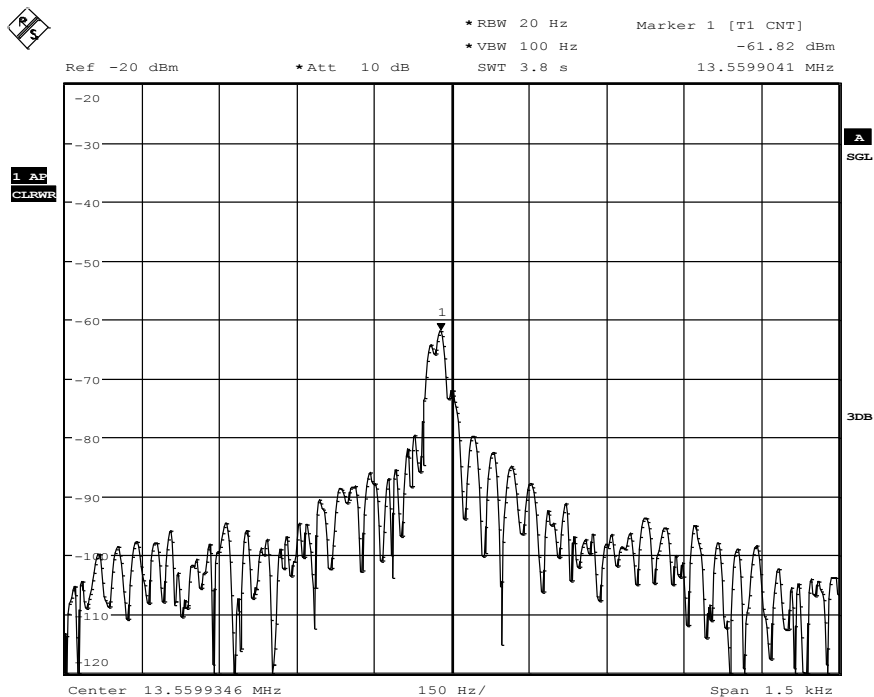
Date: 28.JUN.2016 11:16:44

## 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

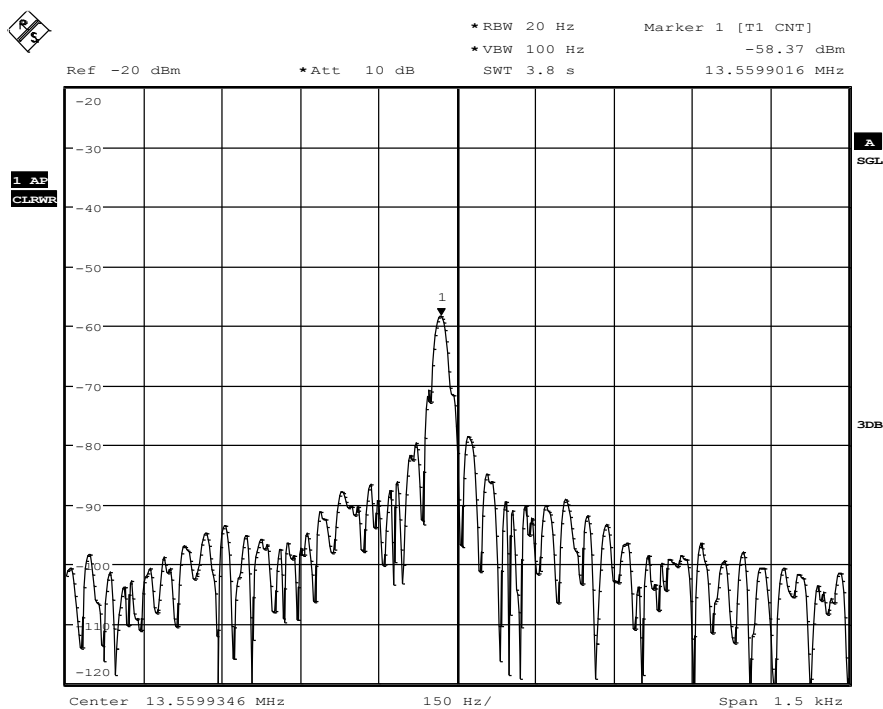
### On TX-Start Up



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

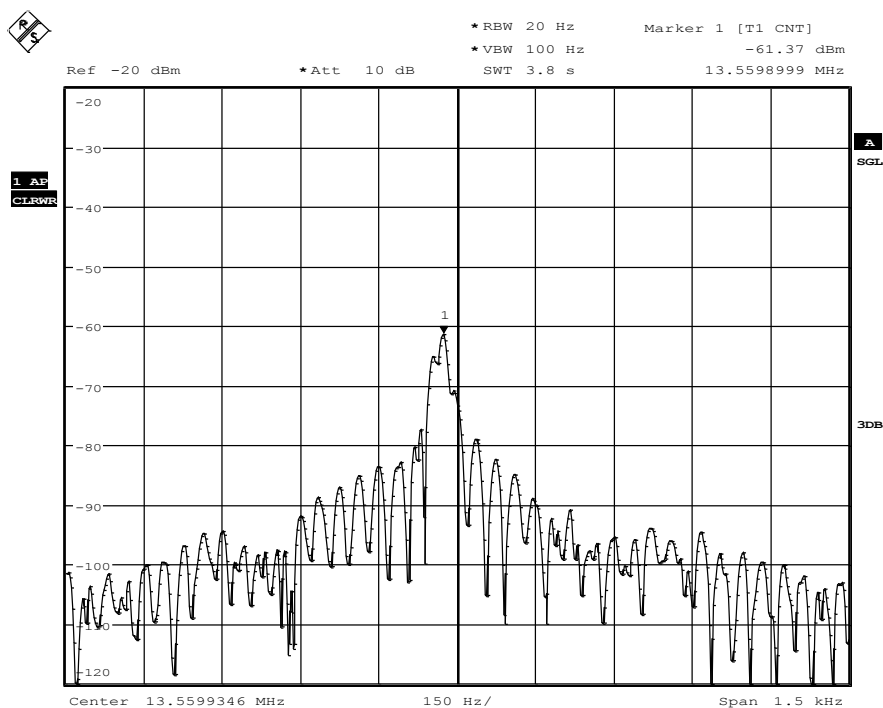
### On 2Minutes after TX-Start Up

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



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

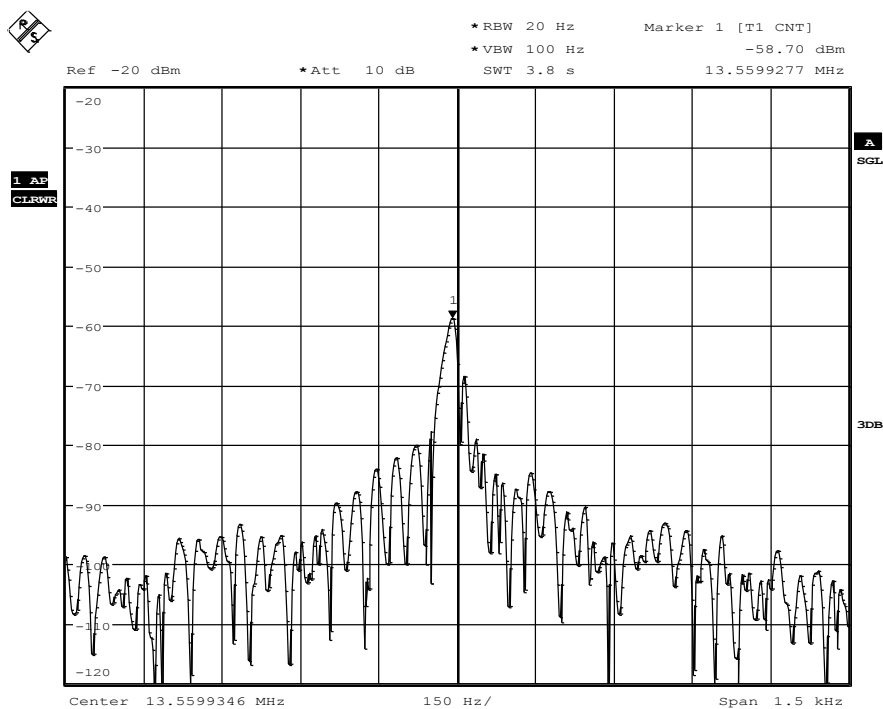
## On 5Minutes after TX-Start Up



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

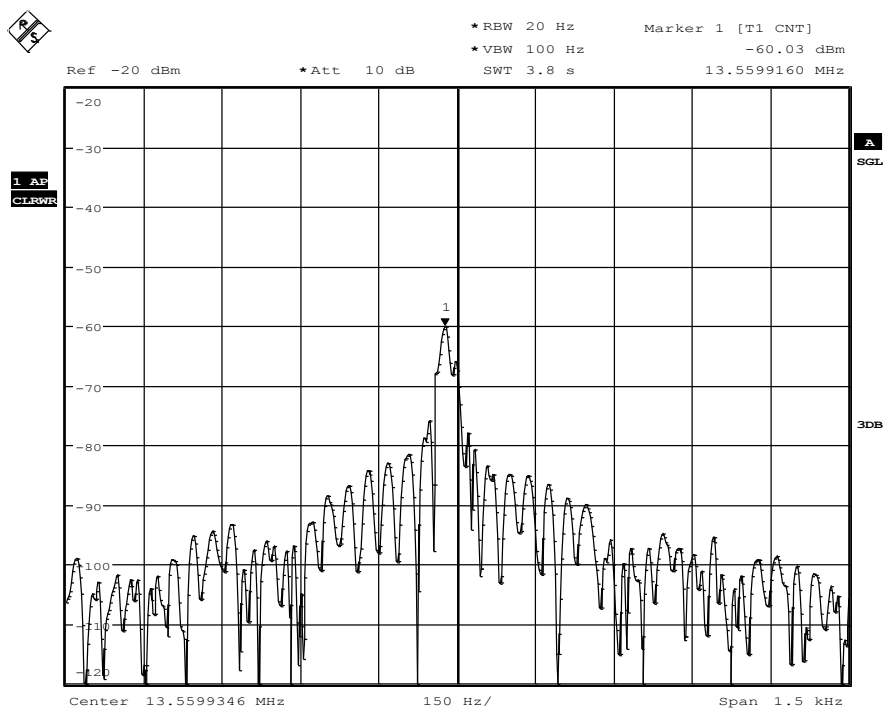
## On 10Minutes after TX-Start Up

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



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

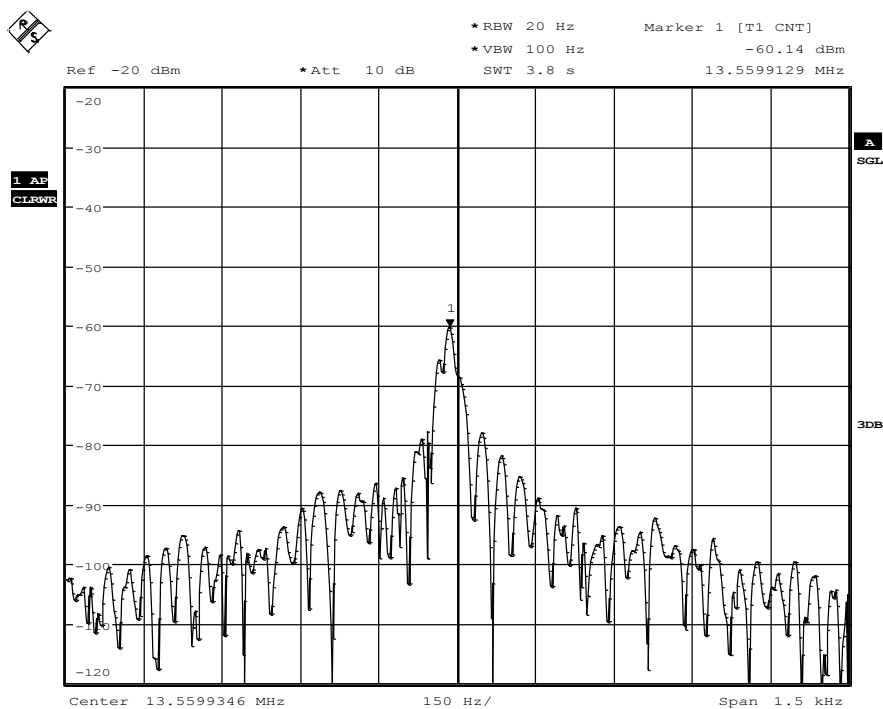
## On TX-Start Up



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

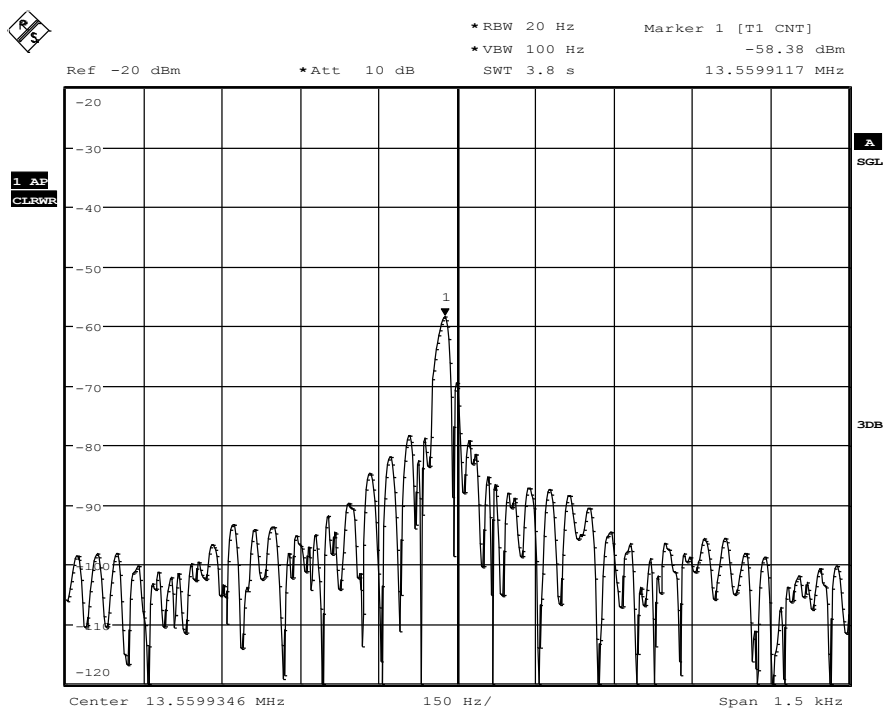
## On 2Minutes after TX-Start Up

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



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

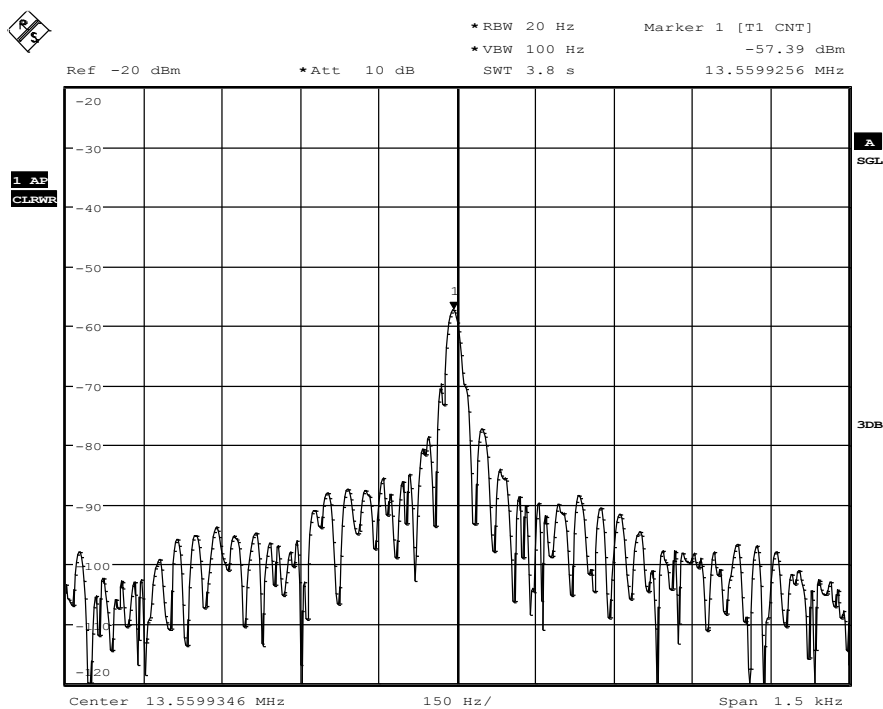
## On 5Minutes after TX-Start Up



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

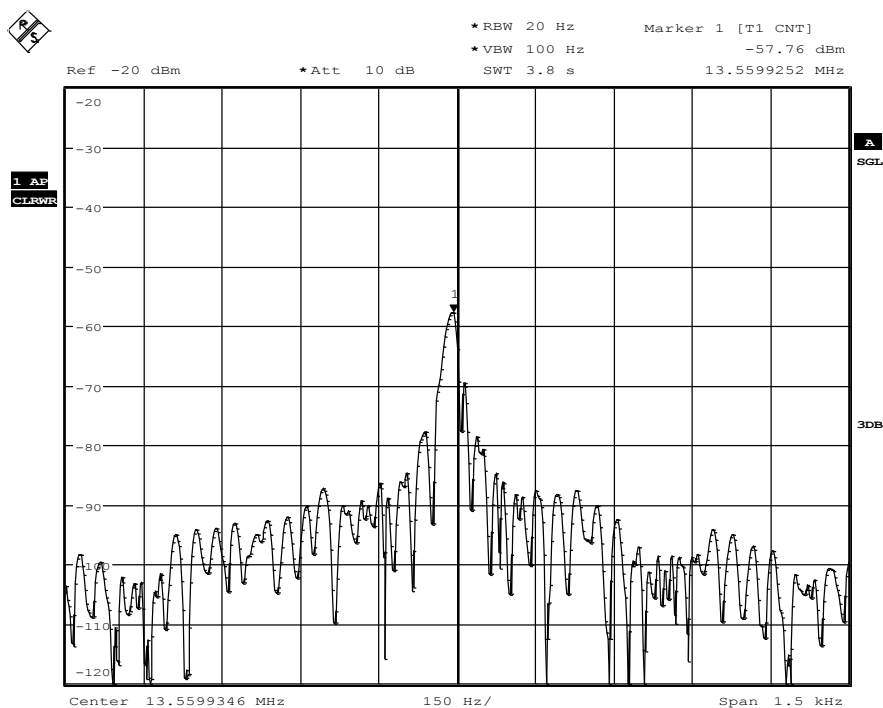
## On 10Minutes after TX-Start Up

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



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

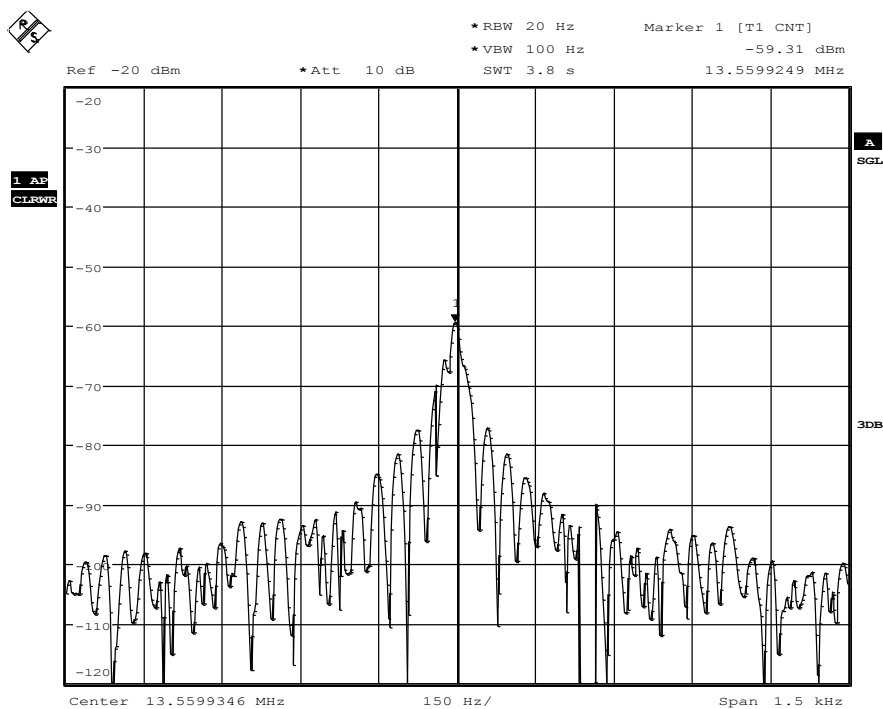
## On TX-Start Up



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

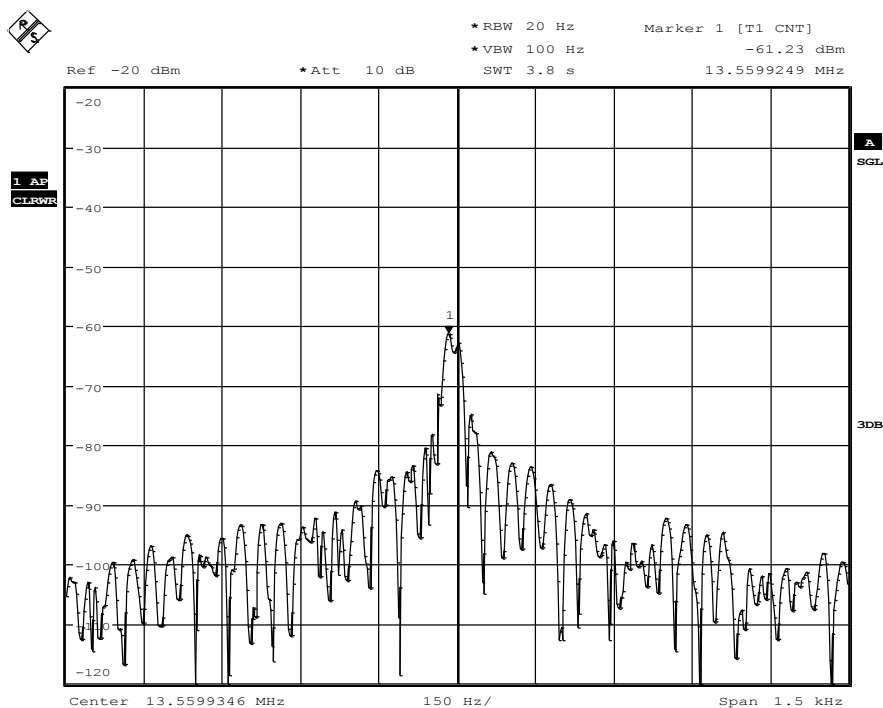
## On 2Minutes after TX-Start Up

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



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

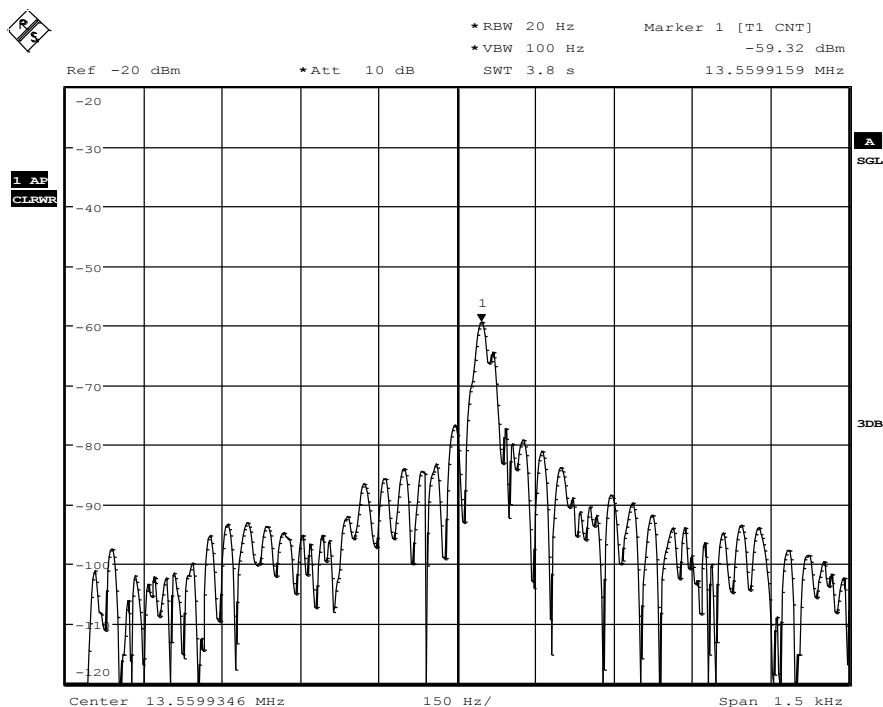
### On 5Minutes after TX-Start Up



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

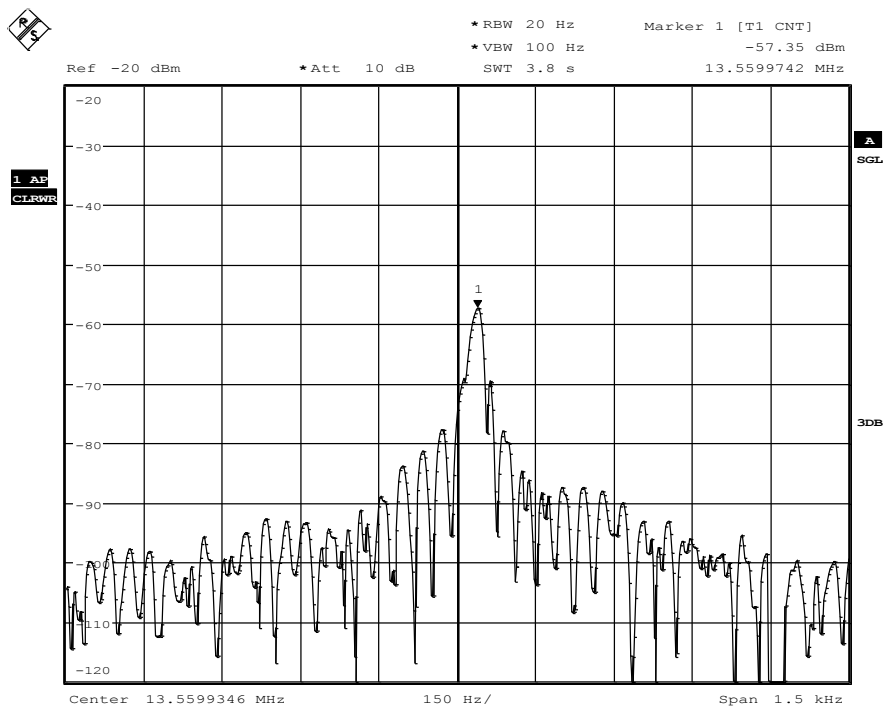
### On 10Minutes after TX-Start Up

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



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

## On TX-Start Up

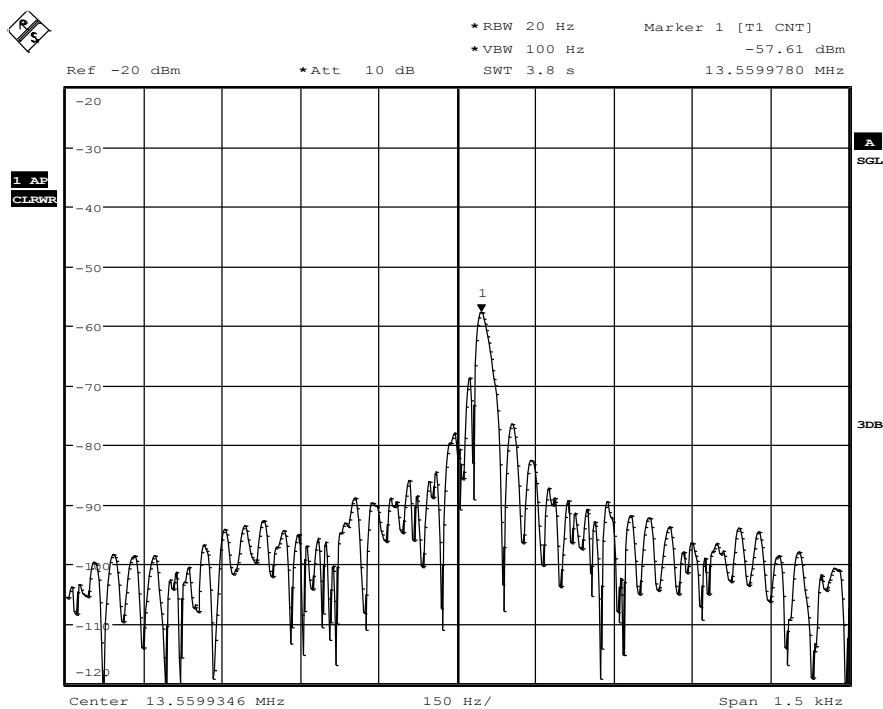


Date: 28.JUN.2016 15:53:48

## On 2Minutes after TX-Start Up

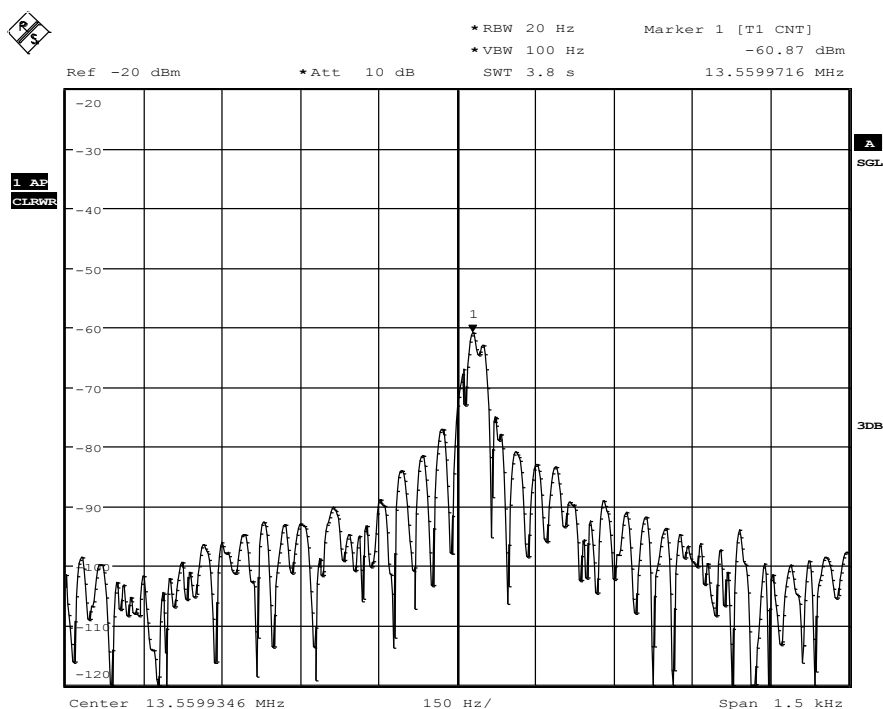


## Frequency Error for T= +10°C and Vnom= 12 V DC



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

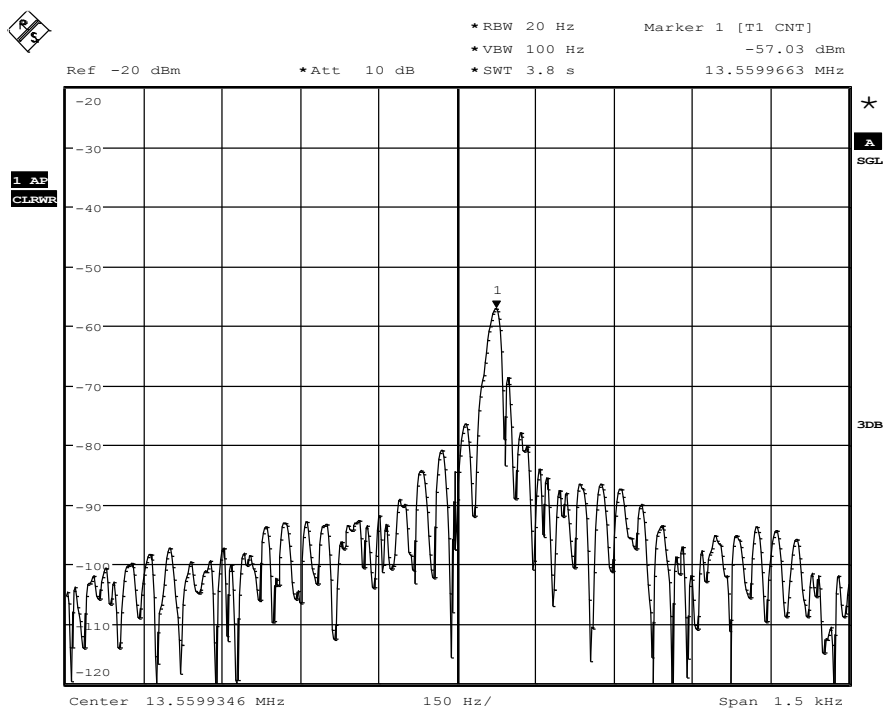
## On 5Minutes after TX-Start Up



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

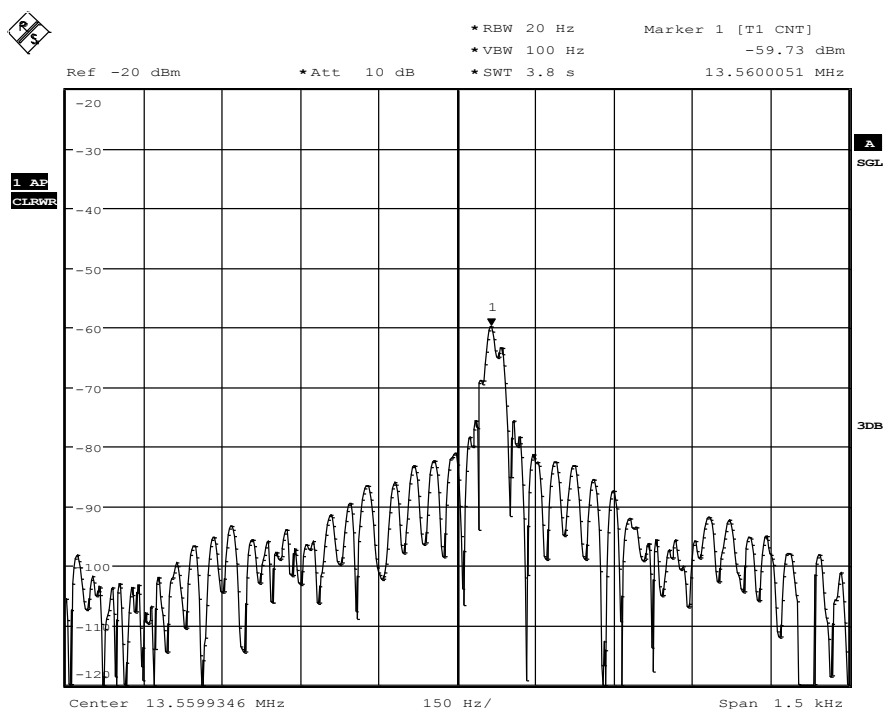
## On 10Minutes after TX-Start Up

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



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

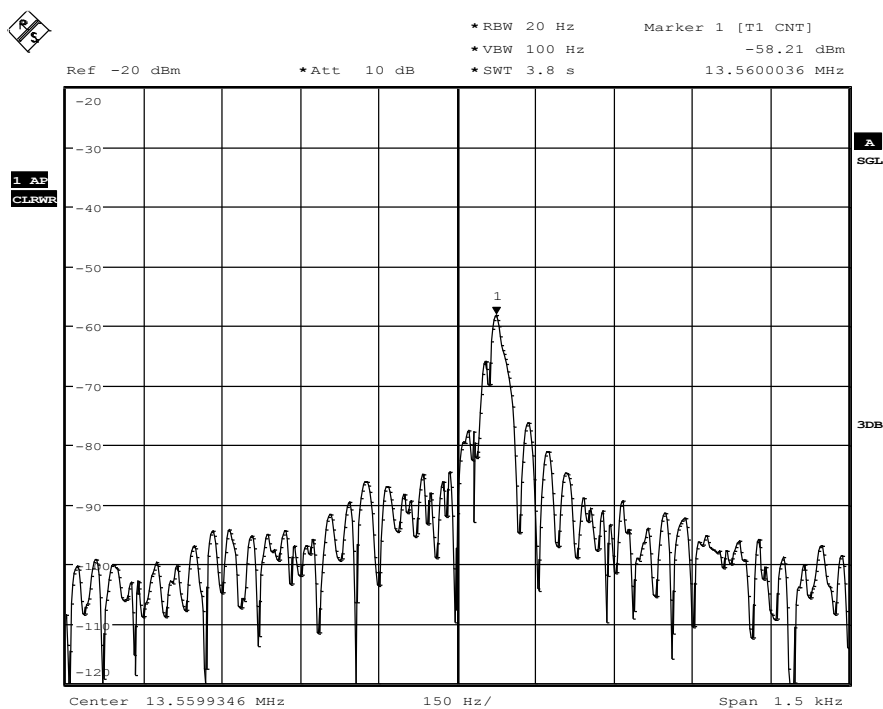
## On TX-Start Up



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

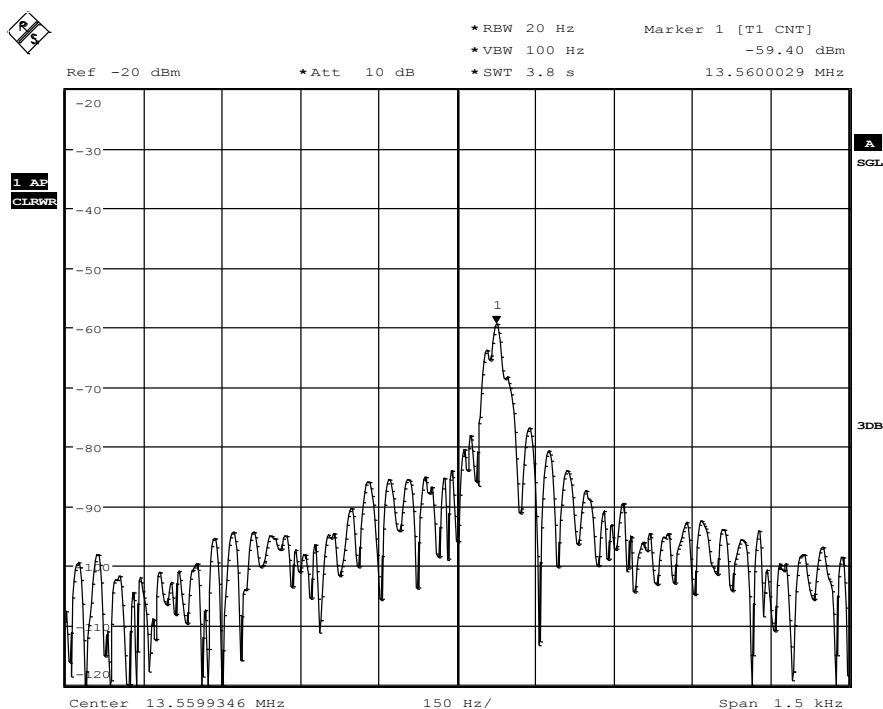
## On 2Minutes after TX-Start Up

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



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

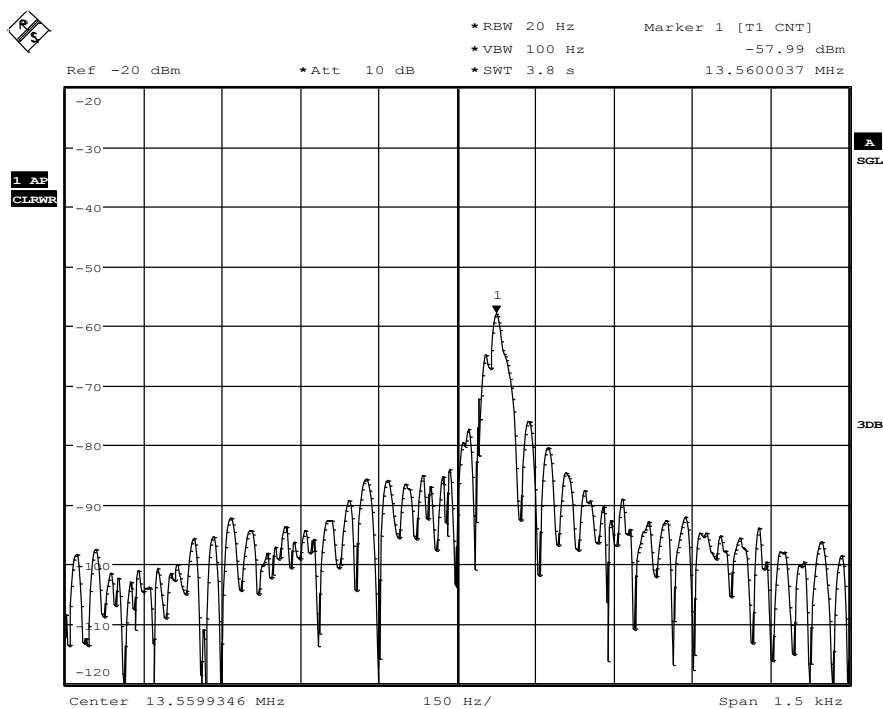
## On 5Minutes after TX-Start Up



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

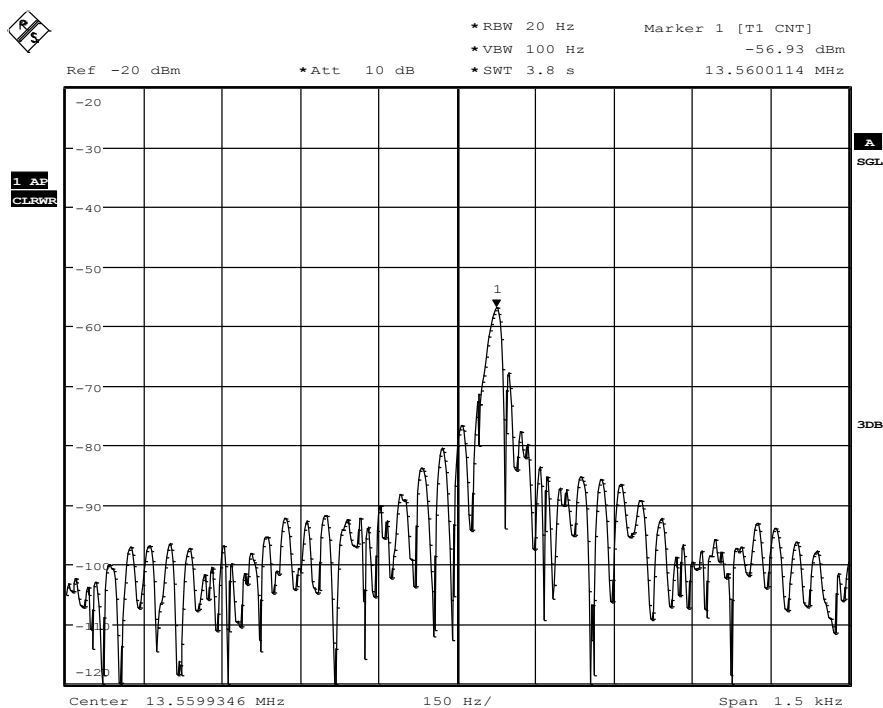
## On 10Minutes after TX-Start Up

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



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

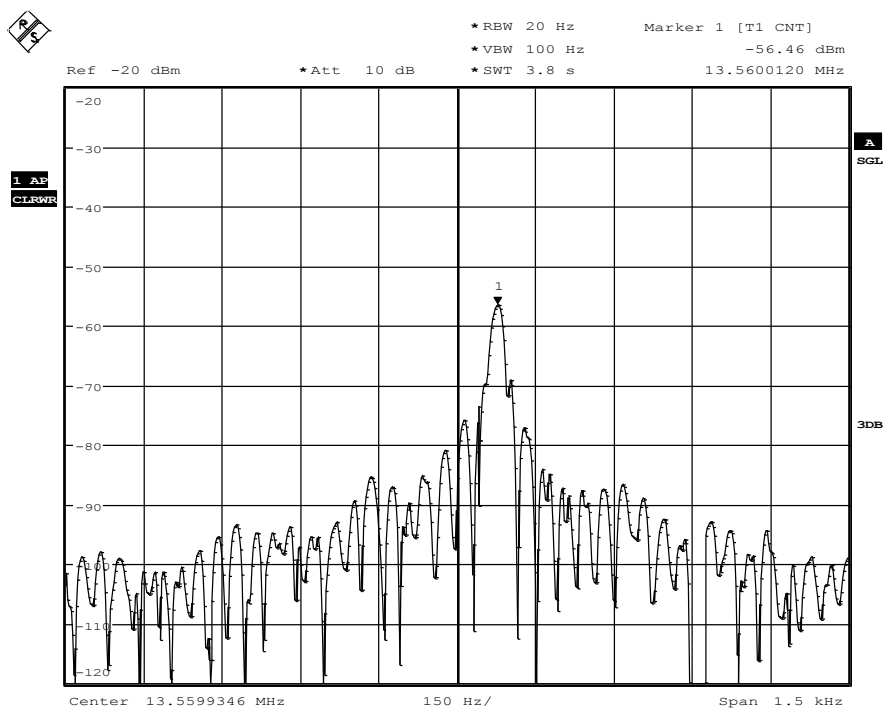
## On TX-Start Up



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

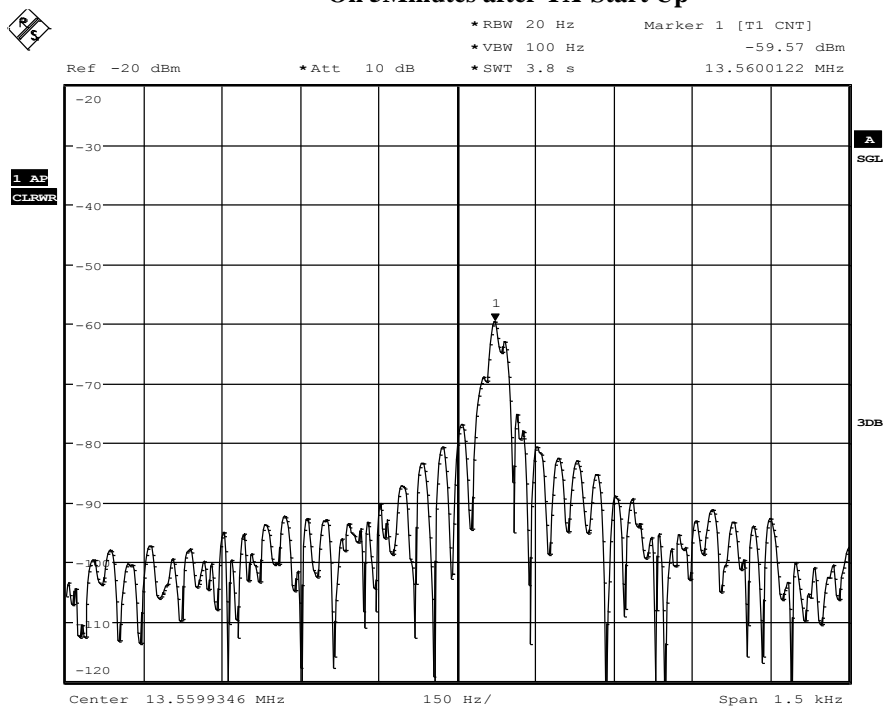
## On 2Minutes after TX-Start Up

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



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

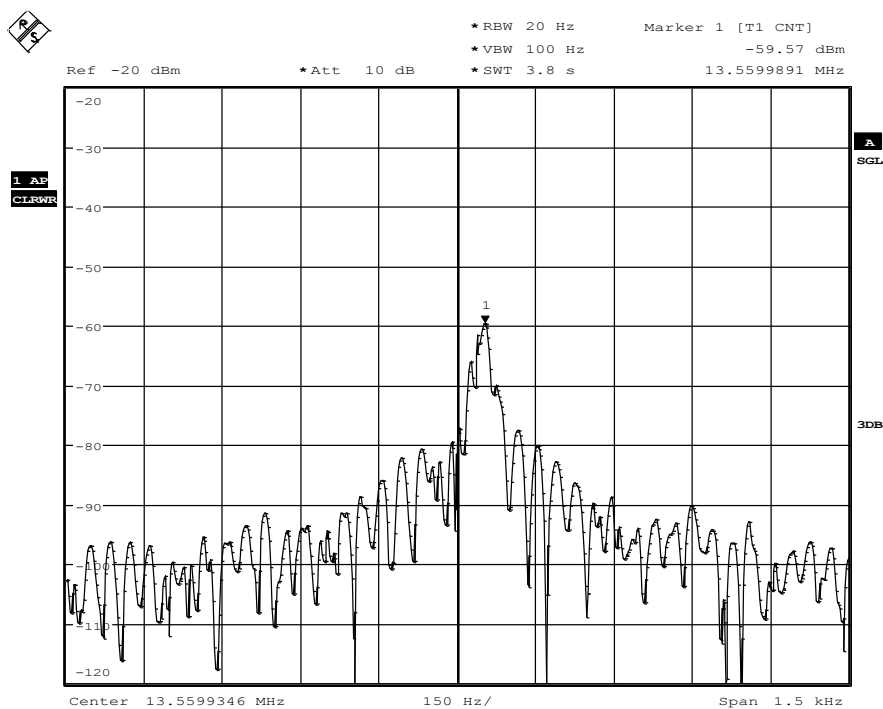
## On 5Minutes after TX-Start Up



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

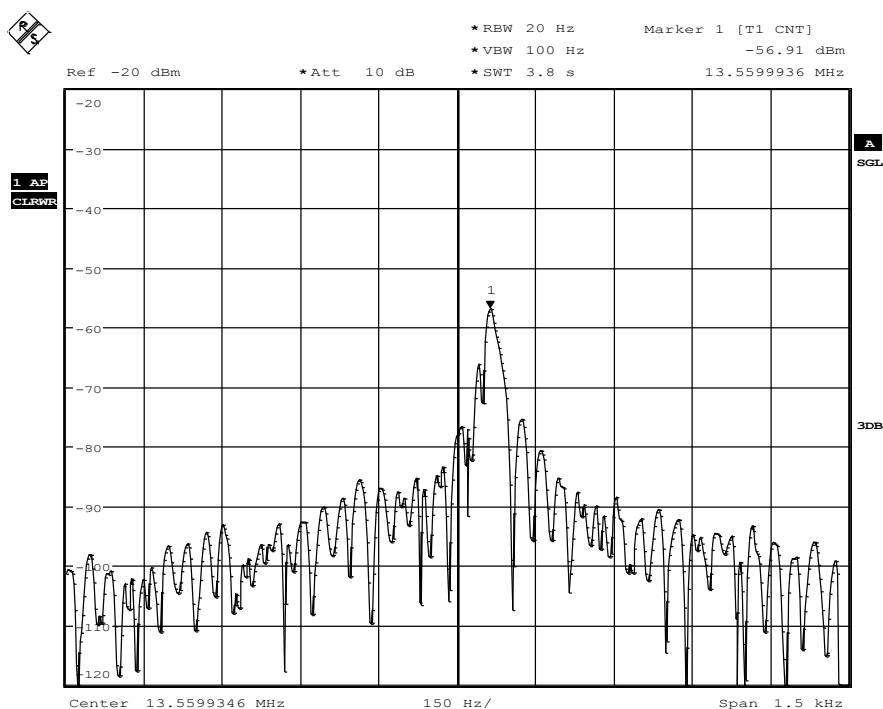
## On 10Minutes after TX-Start Up

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



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

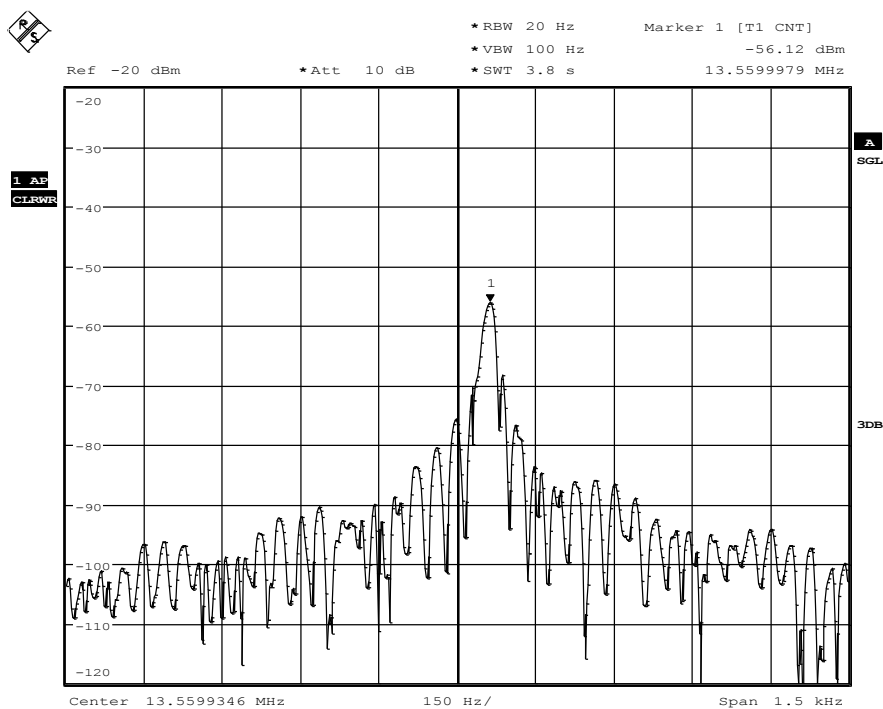
## On TX-Start Up



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

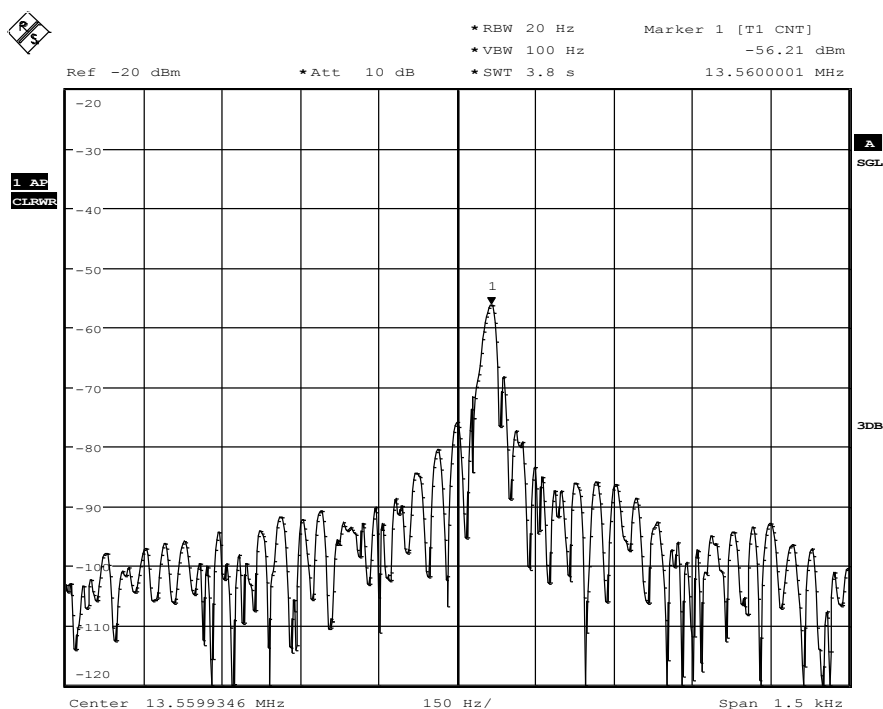
## On 2Minutes after TX-Start Up

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



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

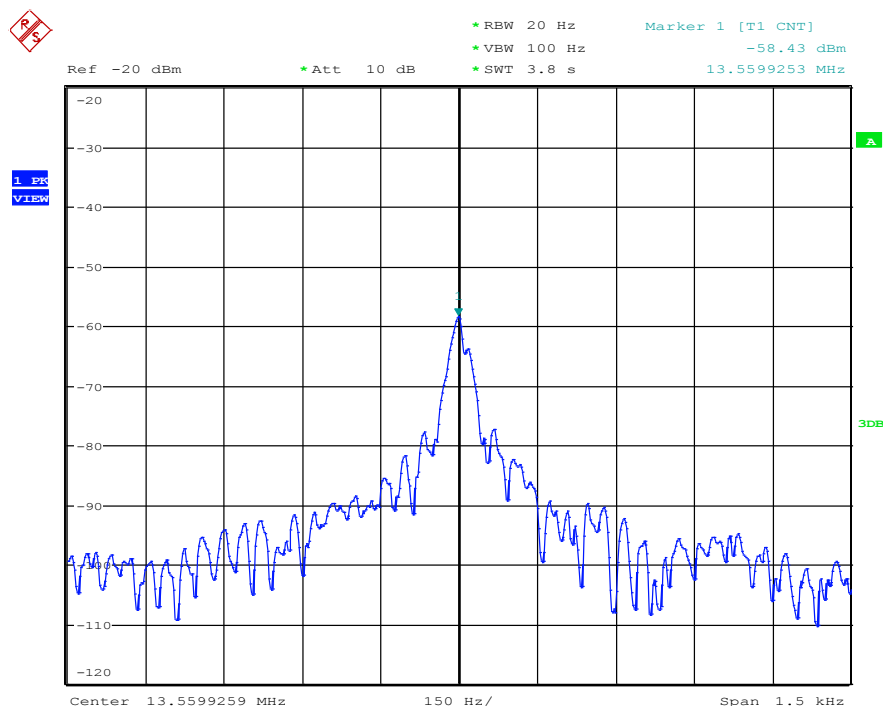
### On 5Minutes after TX-Start Up



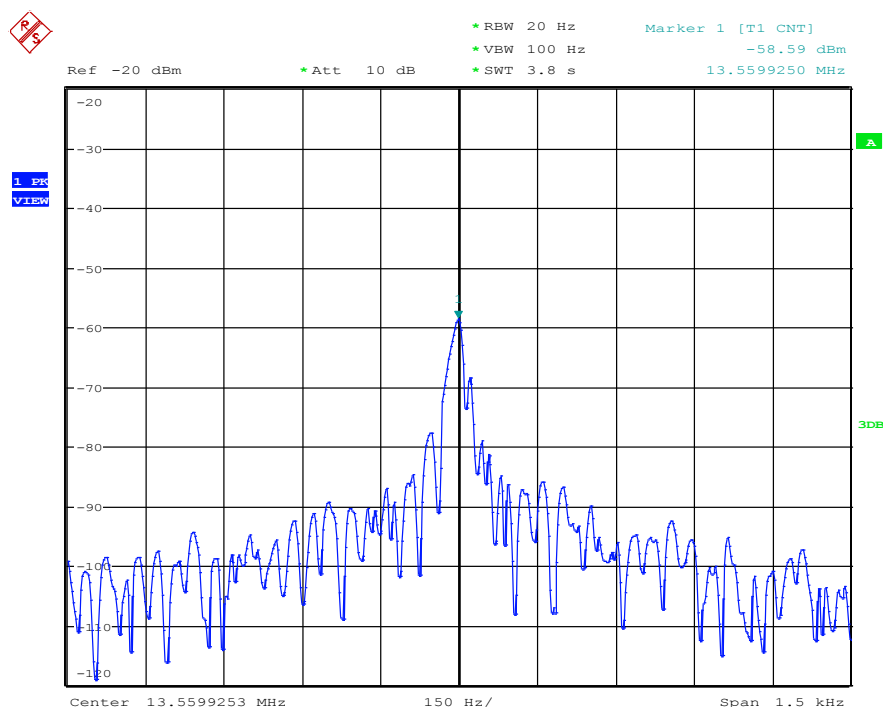
Date: 28.JUN.2016 19:10:33

### 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



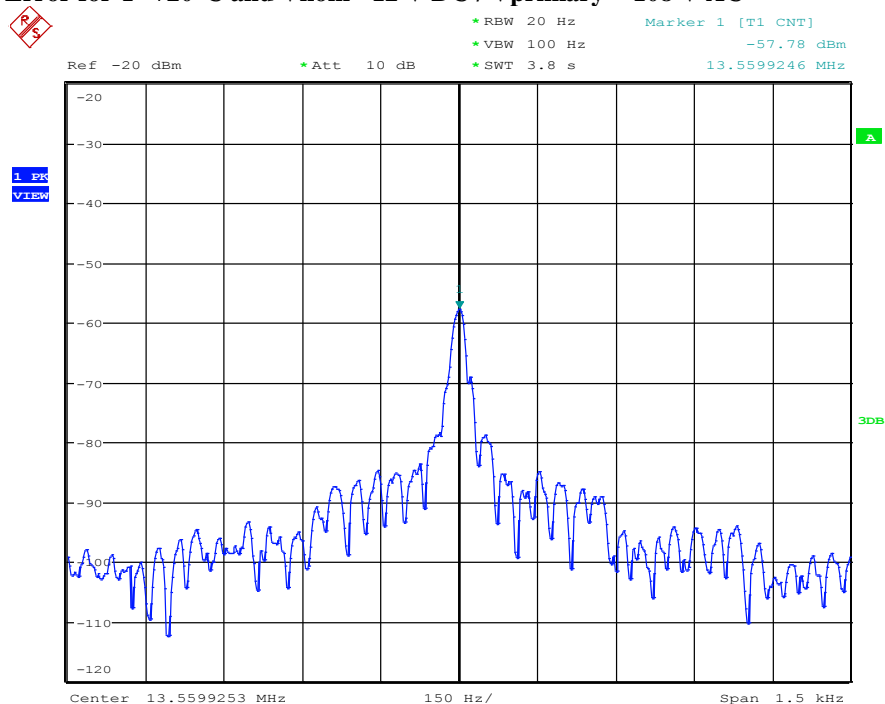
### On TX-Start Up



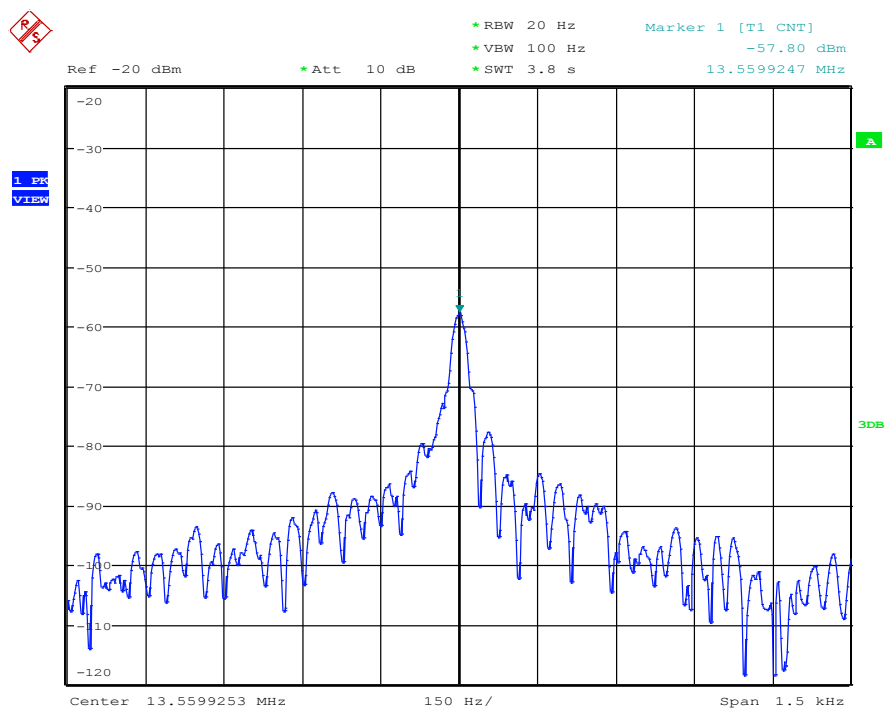
### On 2Minutes after TX-Start Up



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

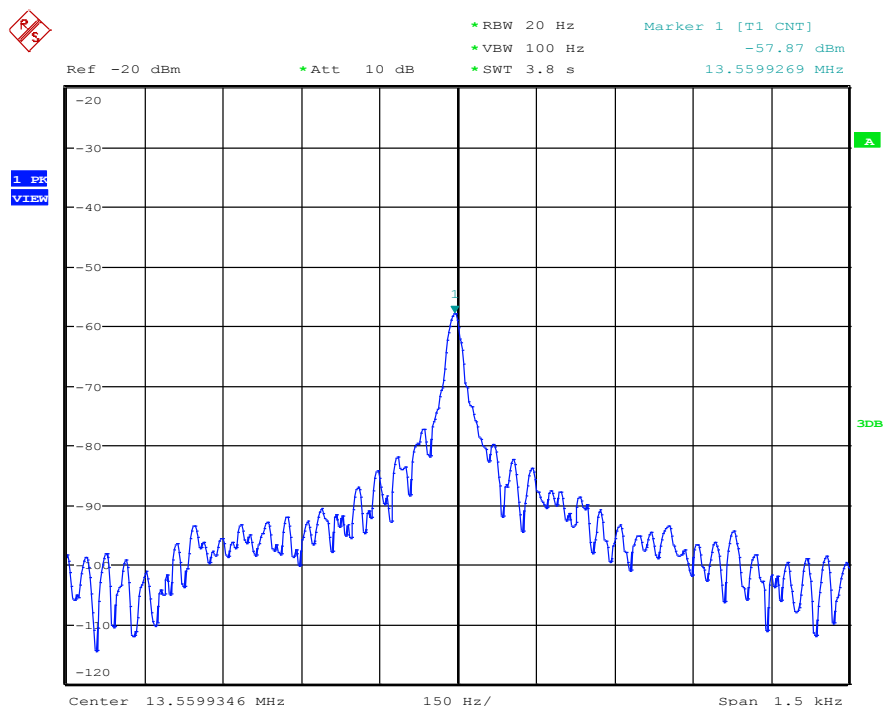


## On 5Minutes after TX-Start Up

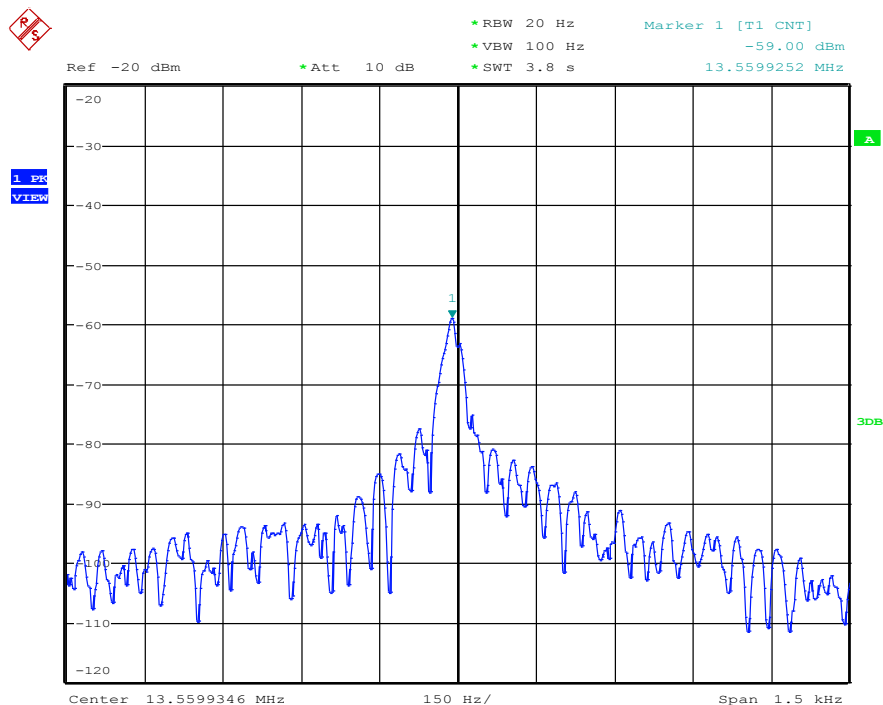


## On 10Minutes after TX-Start Up

# 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

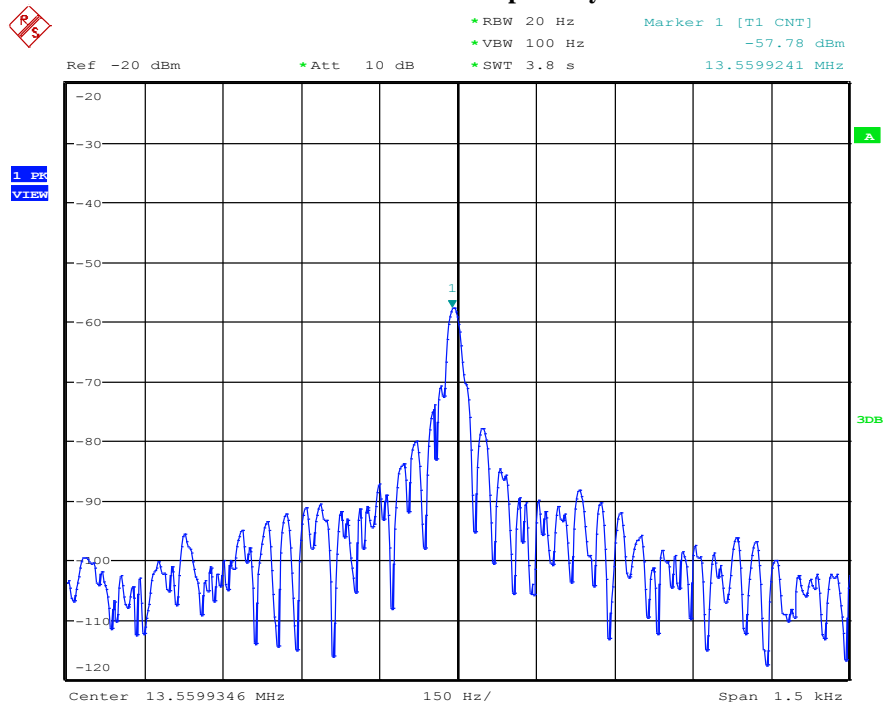


## On TX-Start Up

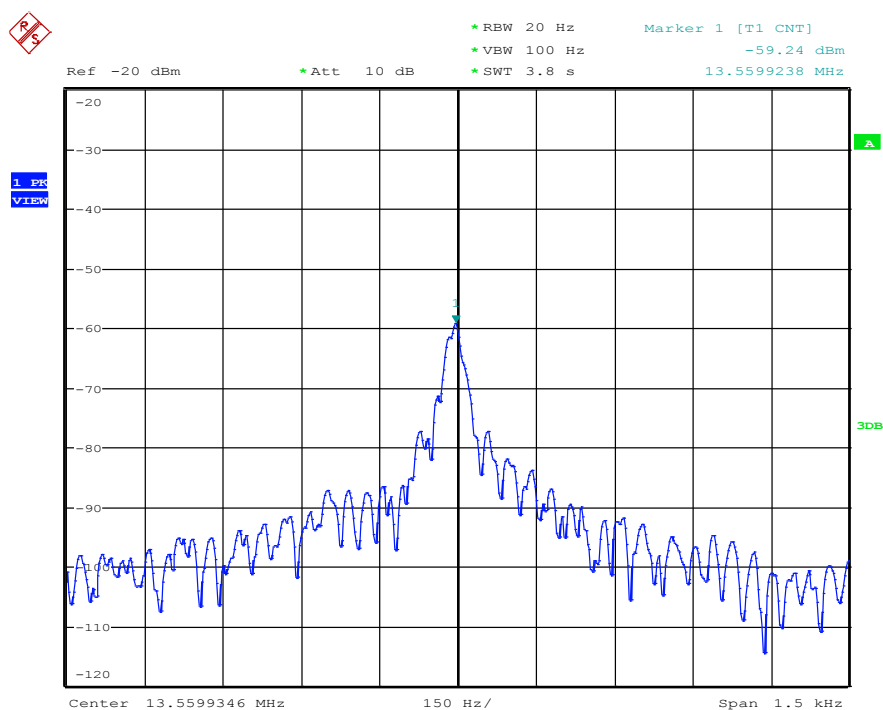


## On 2Minutes after TX-Start Up

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

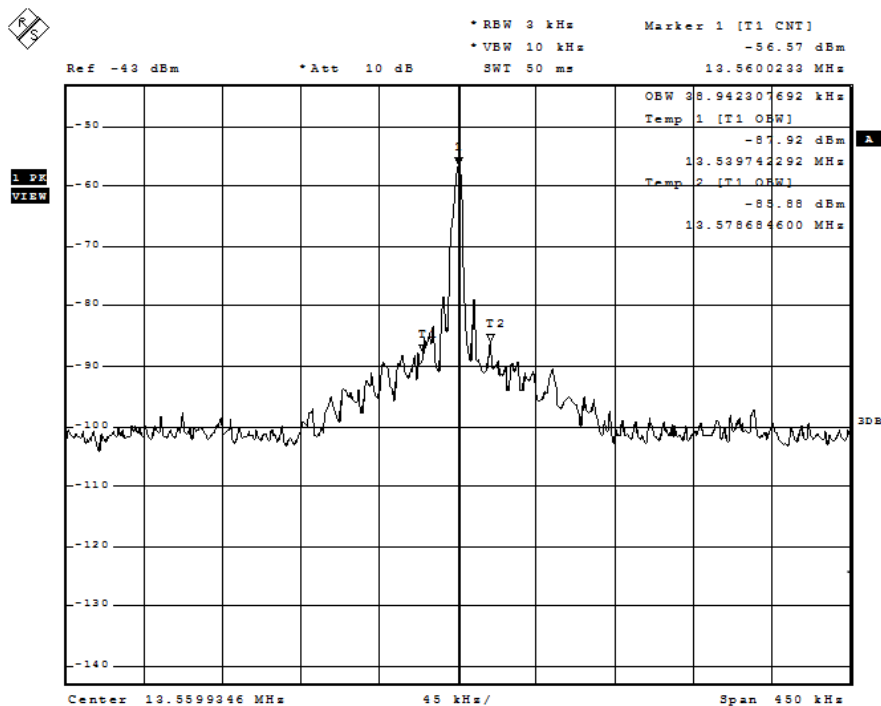


## On 5Minutes after TX-Start Up



## 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

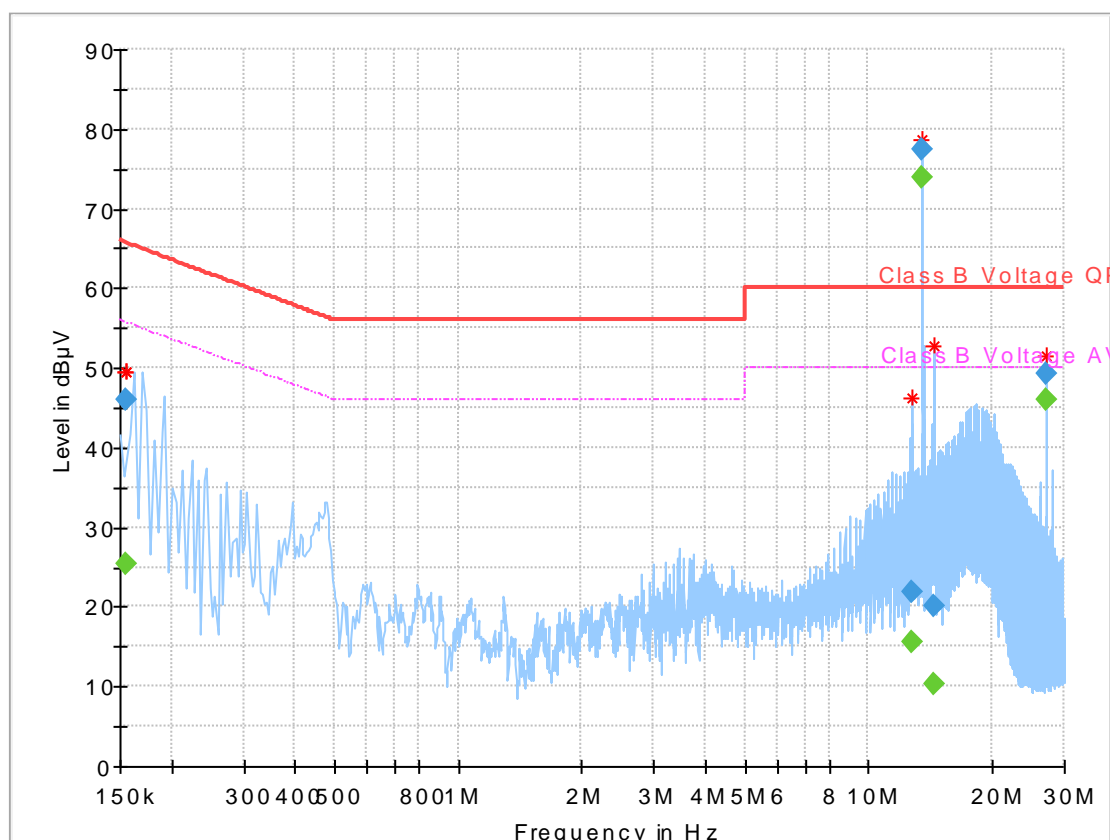
#### Common Information

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 $\Omega$

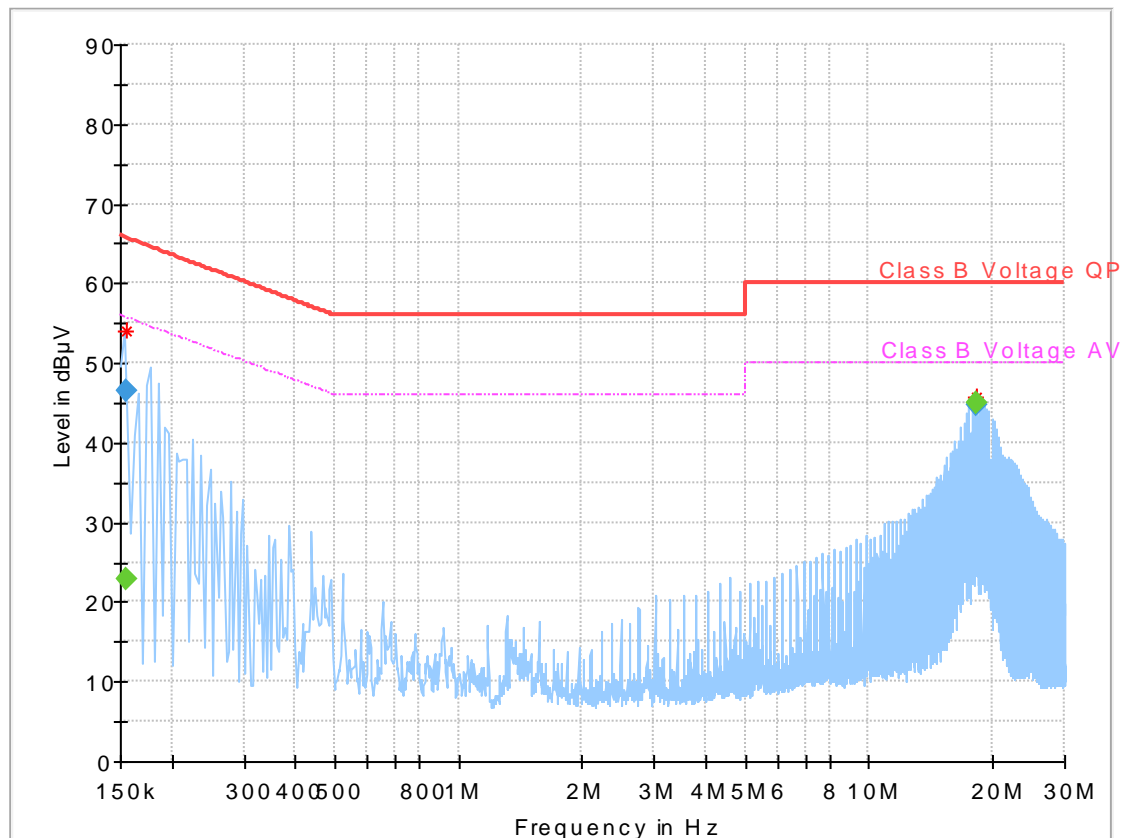
### Common Information

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 $\Omega$ impedance

### Full Spectrum



**Final\_Result**

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)
0.155000	---	22.92	55.73
0.155000	46.59	---	65.73
18.336094	---	45.11	50.00
18.336094	44.80	---	60.00