



## RF Test Report

Applicant : MANN HUMMEL FILTER TECHNOLOGY S.E.A. PTE. LTD.  
Product Type : Senzit  
Trade Name : SENZIT  
Model Number : Senzit  
Test Specification : FCC 47 CFR PART 22H  
FCC 47 CFR PART 24E  
ANSI/TIA-603-D 2010  
Receive Date : Apr. 26, 2017  
Test Period : Sep. 05 ~ Sep. 14, 2017  
Issue Date : Oct. 02, 2017

### Issue by

A Test Lab Techno Corp.  
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Taiwan Accreditation Foundation accreditation number: 1330

Test Firm MRA designation number: TW0010

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### **Revision History**

| Rev. | Issue Date    | Revisions                   | Revised By |
|------|---------------|-----------------------------|------------|
| 00   | Sep. 19, 2017 | Initial Issue               | Nina Lin   |
| 01   | Oct. 02, 2017 | Revised report information. | Nina Lin   |
|      |               |                             |            |
|      |               |                             |            |



## Verification of Compliance

Issued Date: Oct. 02, 2017

Applicant : MANN HUMMEL FILTER TECHNOLOGY S.E.A. PTE. LTD.  
Product Type : Senzit  
Trade Name : SENZIT  
Model Number : Senzit  
FCC ID : 2ANLX-SZT-1  
EUT Rated Voltage : DC 9V~32V  
Test Voltage : DC 10.2V / DC 12V / DC 13.8V  
Applicable Standard : FCC 47 CFR PART 22H  
FCC 47 CFR PART 24E  
ANSI/TIA-603-D 2010  
Test Result : Complied

Performing Lab. : A Test Lab Techno Corp.  
No. 140-1, Changan Street, Bade District,  
Taoyuan City 33465, Taiwan (R.O.C)  
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Taiwan Accreditation Foundation accreditation number: 1330  
<http://www.atl-lab.com.tw/e-index.htm>



A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By

: Fly Lu

(Manager)

(Fly Lu)

Reviewed By

: Eric Ou Yang

(Testing Engineer)

(Eric Ou Yang)

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# 1 General Information

## 1.1. EUT Description

|                     |                                                                                                                                                   |                    |                     |            |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------|------------|
| Applicant           | MANN HUMMEL FILTER TECHNOLOGY S.E.A. PTE. LTD.<br>Fusionopolis Symbiosis, #11-24, 3 Fusionopolis Way, S138633, Singapore                          |                    |                     |            |
| Manufacturer        | DAVISCOMMS (MALAYSIA) SDN.BHD.<br>PLOT 324A, LORONG PERINDUSTRIAN BUKIT MINYAK 20, MK13, PENANG<br>SCIENCE PARK,14100 SIMPANG AMPAT,PULAU PINANG. |                    |                     |            |
| Product Type        | Senzit                                                                                                                                            |                    |                     |            |
| Trade Name          | SENZIT                                                                                                                                            |                    |                     |            |
| Model Number        | Senzit                                                                                                                                            |                    |                     |            |
| FCC ID              | 2ANLX-SZT-1                                                                                                                                       |                    |                     |            |
| IMEI No.            | 357042067181280                                                                                                                                   |                    |                     |            |
| Mode                | Band                                                                                                                                              | UL Frequency (MHz) | DL Frequency (MHz)  | Modulation |
| GSM/GPRS/EGPRS      | 850                                                                                                                                               | 824.2 ~ 848.8      | 869.2 ~ 893.8       | GMSK/8PSK  |
|                     | 1900                                                                                                                                              | 1850.2 ~ 1909.8    | 1930.2 ~ 1989.8     | GMSK/8PSK  |
| Channel Control     | Auto                                                                                                                                              |                    |                     |            |
| Antenna information | Type                                                                                                                                              |                    | Max. Gain (dBi)     |            |
|                     | Chip Antenan                                                                                                                                      |                    | GSM/GPRS/EGPRS 850  | 3.3        |
|                     |                                                                                                                                                   |                    | GSM/GPRS/EGPRS 1900 | 3.64       |
| Operate Temp. Range | -25 ~ 80 °C                                                                                                                                       |                    |                     |            |

| Frequency Band | Max. RF Output Power (W) | E.R.P. / E.I.R.P. (W) |            |
|----------------|--------------------------|-----------------------|------------|
| GSM 850        | 1.791                    | 1.742                 | (E.R.P.)   |
| GPRS 850       | 1.714                    | 1.656                 | (E.I.R.P.) |
| EGPRS 850      | 0.995                    | 0.555                 | (E.I.R.P.) |
| GSM 1900       | 0.904                    | 0.664                 | (E.R.P.)   |
| GPRS 1900      | 0.871                    | 0.649                 | (E.I.R.P.) |
| EGPRS 1900     | 0.740                    | 0.383                 | (E.I.R.P.) |

| Frequency Band | Occupied Bandwidth (MHz) | Emission Designator |
|----------------|--------------------------|---------------------|
| GSM 850        | 0.24359                  | 244KGXW             |
| GPRS 850       | 0.25000                  | 250KG7W             |
| EGPRS 850      | 0.24519                  | 245KG7W             |
| GSM 1900       | 0.24679                  | 247KGXW             |
| GPRS 1900      | 0.24840                  | 248KG7W             |
| EGPRS 1900     | 0.24679                  | 247KG7W             |

## 1.2. Mode of Operation

ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

| Test Mode                    |
|------------------------------|
| Mode 1: GSM 850 Link Mode    |
| Mode 2: GSM 1900 Link Mode   |
| Mode 3: EGPRS 850 Link Mode  |
| Mode 4: EGPRS 1900 Link Mode |

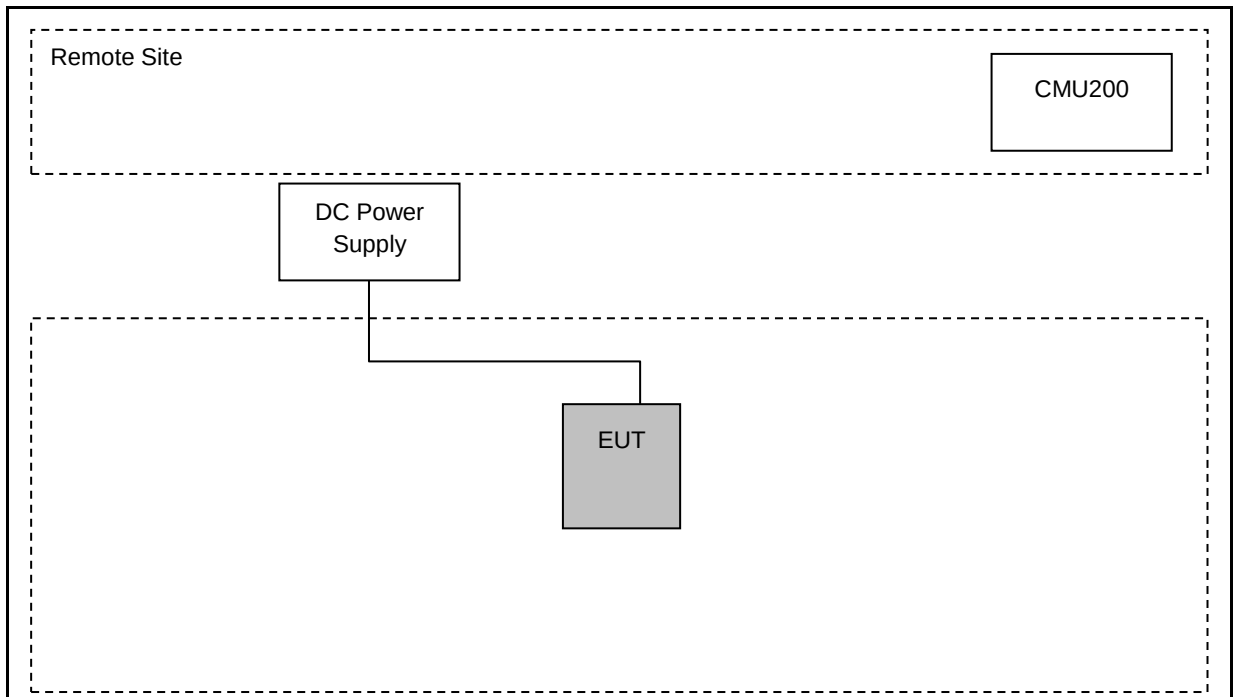
Note: Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.

By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "X axis" position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

## 1.3. EUT Exercise Software

|   |                                                          |
|---|----------------------------------------------------------|
| 1 | Setup the EUT and Base Station (CMU200) as shown on 1.4. |
| 2 | Turn on the power of all equipment.                      |

## 1.4. Configuration of Test System Details





## 1.5. Test Instruments

### For Conducted

| Equipment                            | Manufacturer | Model Number | Serial Number | Cal. Date  | Cal. Cycle |
|--------------------------------------|--------------|--------------|---------------|------------|------------|
| Universal Radio Communication Tester | R & S        | CMU200       | 112387        | 03/02/2017 | 1 year     |
| Spectrum Analyzer                    | Agilent      | N9030A       | MY53120541    | 12/22/2016 | 1 year     |
| Power divider                        | Agilent      | 87302C       | 3239A00760    | N.C.R.     | -----      |
| Temperature & Humidity Chamber       | TAICHY       | MHU-225LA    | 980729        | 04/17/2017 | 1 year     |
| Test Site                            | ATL          | TE05         | TE05          | N.C.R.     | -----      |

### For Spurious Radiation

| Equipment               | Manufacturer                   | Model Number        | Serial Number | Cal. Date  | Cal. Cycle |
|-------------------------|--------------------------------|---------------------|---------------|------------|------------|
| RF Pre-selector         | Agilent                        | N9039A              | MY46520256    | 04/24/2017 | 1 year     |
| Spectrum Analyzer       | Agilent                        | E4446A              | MY46180578    | 04/24/2017 | 1 year     |
| Pre Amplifier           | Agilent                        | 8449B               | 3008A02237    | 10/11/2016 | 1 year     |
| Pre Amplifier           | Agilent                        | 8447D               | 2944A11119    | 01/12/2017 | 1 year     |
| Broadband Antenna       | Schwarzbeck                    | VULB9168            | 416           | 10/13/2016 | 1 year     |
| Horn Antenna (1~18GHz)  | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA9120D           | 9120D-550     | 06/20/2017 | 1 year     |
| Horn Antenna (18~40GHz) | ETS                            | 3116                | 00086467      | 09/11/2017 | 1 year     |
| Microwave Cable         | EMCI                           | EMC102-KM-KM-14000  | 151001        | 02/20/2017 | 1 year     |
| Microwave Cable         | EMCI                           | EMC-104-SM-SM-14000 | 140202        | 02/20/2017 | 1 year     |
| Microwave Cable         | EMCI                           | EMC104-SM-SM-600    | 140301        | 02/20/2017 | 1 year     |
| Signal Generator        | Agilent                        | E8257D              | MY44320425    | 03/02/2017 | 1 year     |
| Test Site               | ATL                            | TE01                | 888001        | 08/29/2017 | 1 year     |

Note: N.C.R. = No Calibration Request.

## 1.6. Test Site Environment

| Items                      | Required (IEC 60068-1) | Actual |
|----------------------------|------------------------|--------|
| Temperature (°C)           | 15-35                  | 26     |
| Humidity (%RH)             | 25-75                  | 60     |
| Barometric pressure (mbar) | 860-1060               | 950    |

| Test Setting Condition |                    |          |
|------------------------|--------------------|----------|
| L.V.                   | Low Voltage        | DC 10.2V |
| N.V.                   | Normal Voltage     | DC 12V   |
| H.V.                   | High Voltage       | DC 13.8V |
| L.T.                   | Low Temperature    | -25 °C   |
| N.T.                   | Normal Temperature | +25 °C   |
| H.T.                   | High Temperature   | +80 °C   |

## 1.7. Summary of Test Result

| FCC Rule                         | Description                                   | Result |
|----------------------------------|-----------------------------------------------|--------|
| §2.1046                          | Conducted Output Power                        | Pass   |
| §22.913(a)(2)                    | Effective Radiated Power                      | Pass   |
| §24.232(c)                       | Equivalent Isotropic Radiated Power           | Pass   |
| §2.1049 §22.917(b)<br>§24.238(b) | Emission Bandwidth & Occupied Bandwidth       | Pass   |
| §2.1051 §22.917(a)<br>§24.238(a) | Band Edge Measurement                         | Pass   |
| §2.1051 §22.917(a)<br>§24.238(a) | Conducted Spurious Emission                   | Pass   |
| §2.1053 §22.917(a)<br>§24.238(a) | Field Strength of Spurious Radiation          | Pass   |
| §2.1055<br>§22.355<br>§24.235    | Frequency Stability for Temperature & Voltage | Pass   |

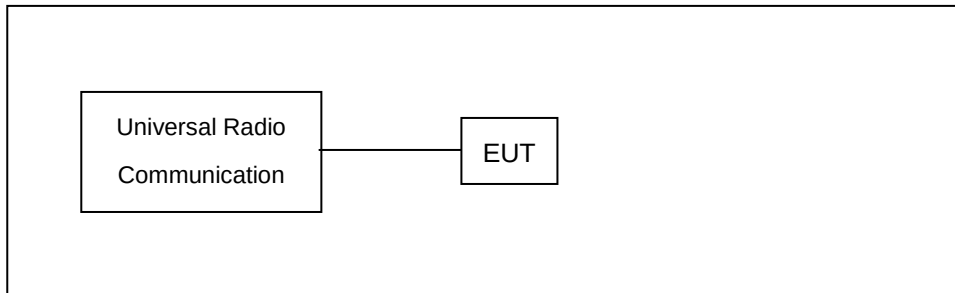
## 2 Test Results

### 2.1. RF Output Power Test

- **Limit**

N/A

- **Test Setup**



- **Test Procedure**

- The EUT was set up for the maximum power with with simulator.
- Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

- **Uncertainty**

The measurement uncertainty is defined as for RF output power measurement is 1.2 dB.

## 2.2. Effective Radiated Power / Equivalent Isotropic Radiated Power Test

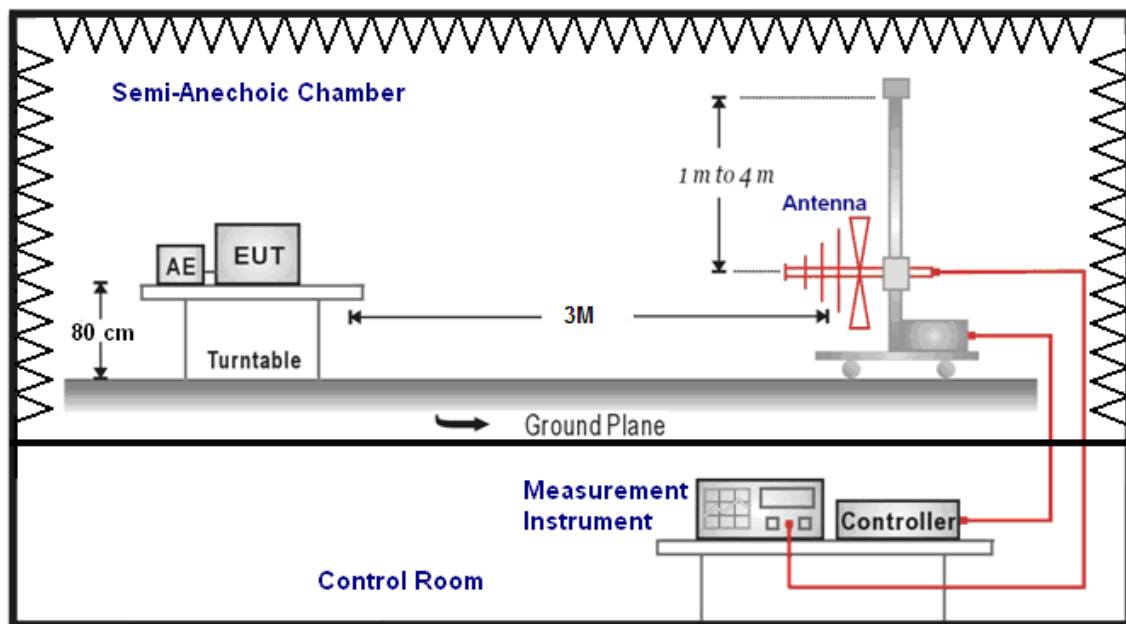
### ■ Limit

For FCC Part 22.913(a)(2): The E.R.P. of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

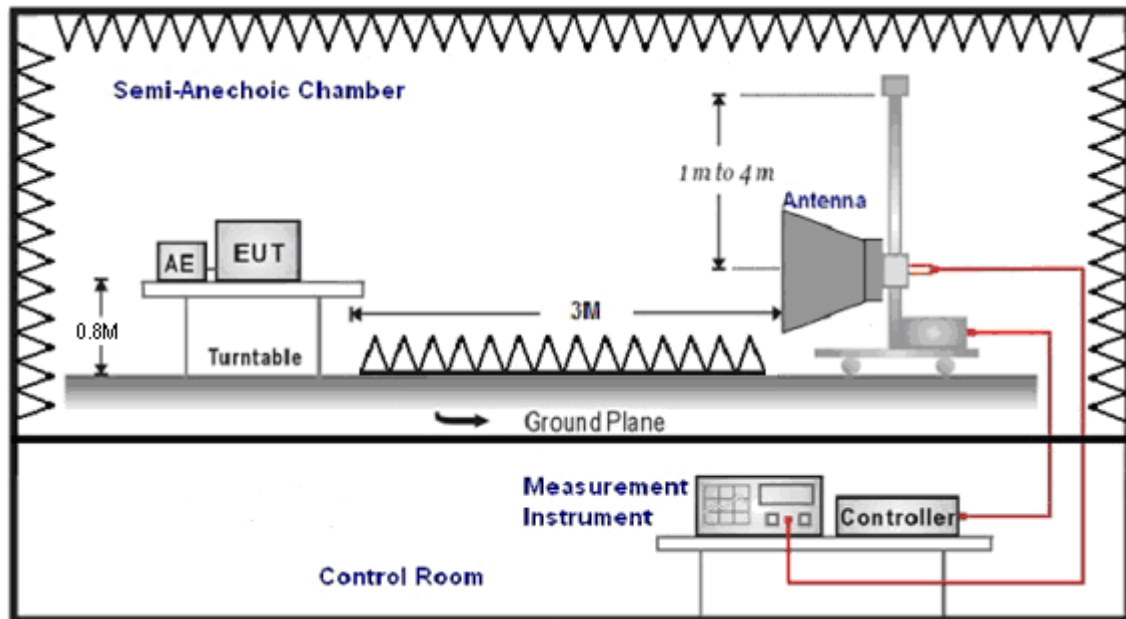
For FCC Part 24.232(c): The E.I.R.P. of mobile transmitters and auxiliary test transmitters must not exceed 2 Watts.

### ■ Setup

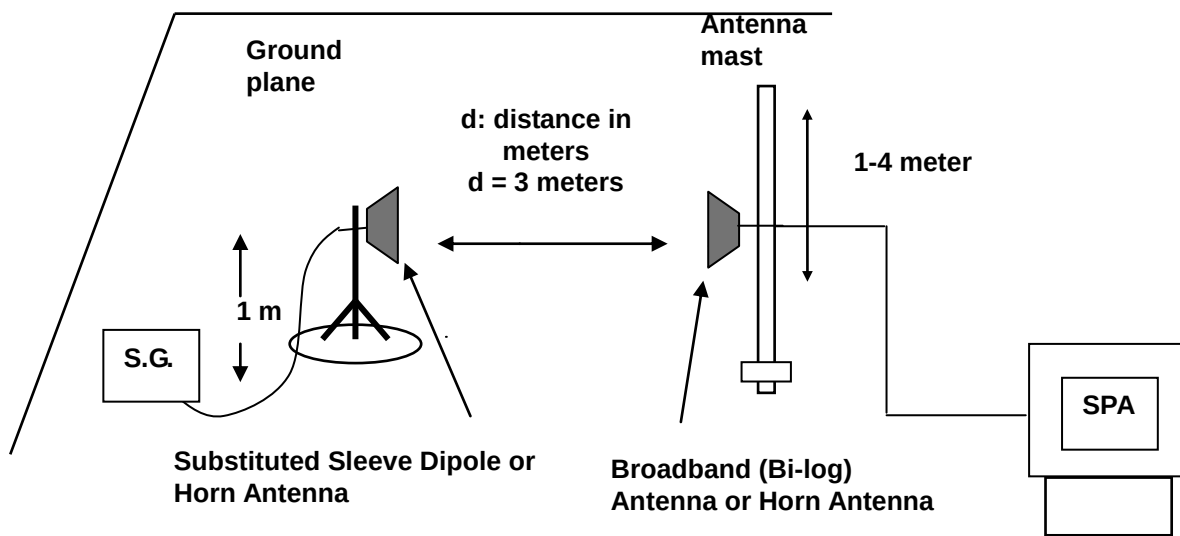
Below 1 GHz



Above 1 GHz



For Substituted Method Test Set-UP



## ■ Test Procedure

### For FCC

- a. The EUT was set up for the maximum power with wwan link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range).
- b. E.I.R.P power measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- c. The substitution antenna (Note:1 & 2) is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step a. Record the power level of S.G.
- d.  $E.I.R.P. = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$
- e.  $E.R.P. = E.I.R.P. - 2.15 \text{ dB}$

Note: 1. Below 1 GHz Substituted Method Test : Sleeve dipole antenna to Bi-Log Antenna

2. Above 1 GHz Substituted Method Test : Horn antenna to Horn Antenna

## ■ Uncertainty

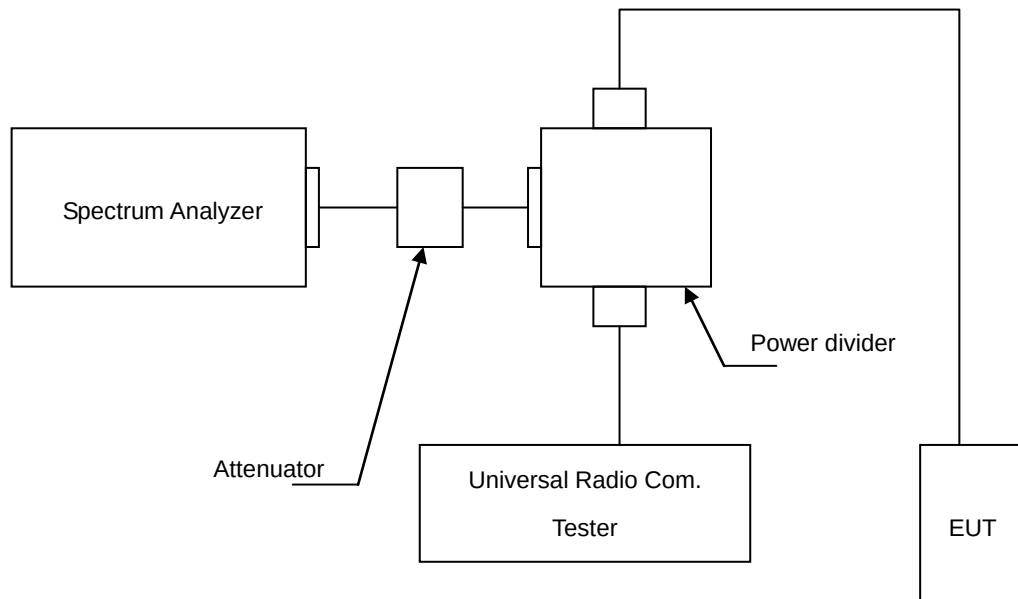
The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is  $\pm 3.072 \text{ dB}$ .

## 2.3. Emission Bandwidth & Occupied Bandwidth Test

### ■ Limit

The Occupied Bandwidth Limit:  
N/A.

### ■ Setup



### ■ Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via Power Divider.
2. The occupied bandwidth of middle channel for the highest and lowest RF powers was measured.

### ■ Uncertainty

The measurement uncertainty is defined as  $\pm 10\text{Hz}$

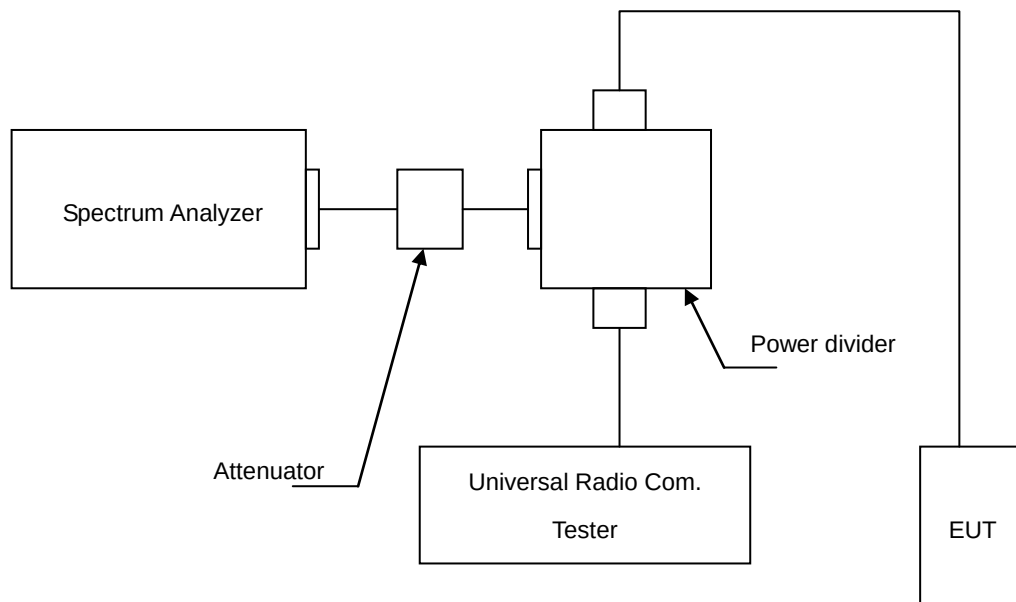
## 2.4. Band Edge Test

### ■ Limit

The Band Edge Limit:

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB.

### ■ Setup



### ■ Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via Power Divider.
2. The band edge of low and high channels for the highest RF powers within the transmitting frequency band were measured.

### ■ Uncertainty

The measurement uncertainty is defined as  $\pm 10$ Hz

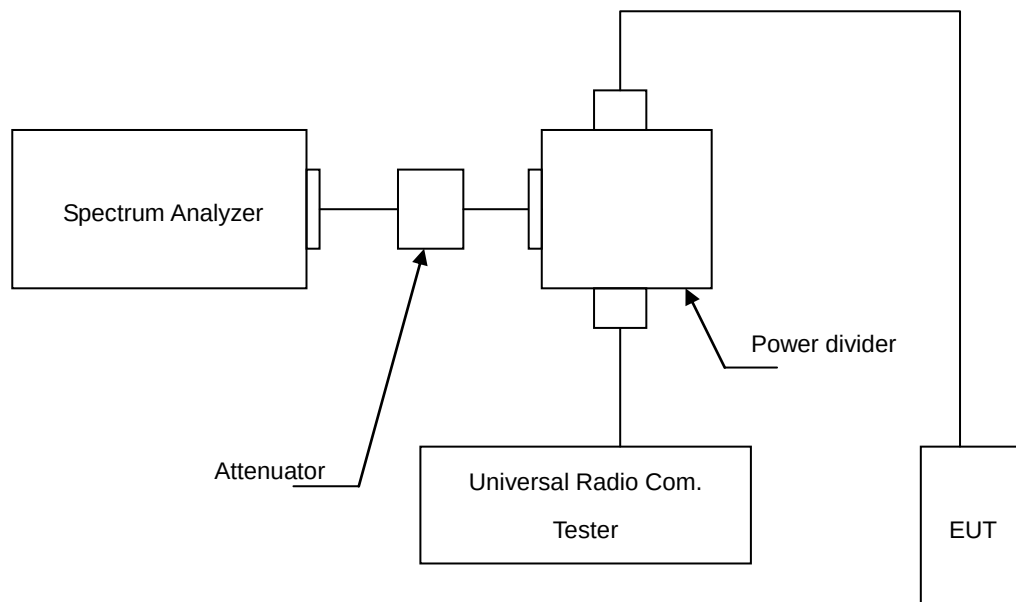
## 2.5. Conducted Spurious Emission Test

### ■ Limit

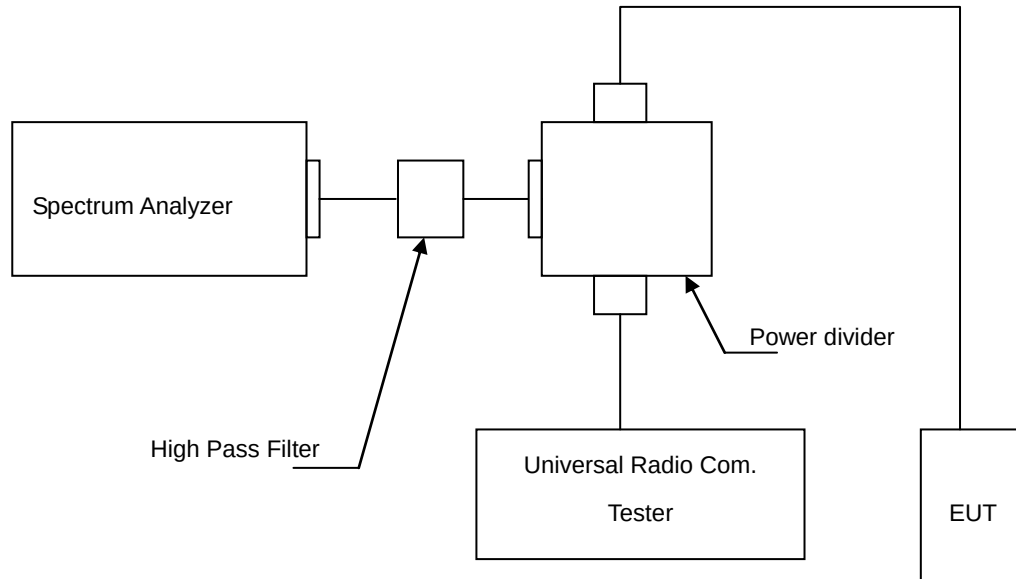
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB.

### ■ Setup

Below 2.8GHz



Above 2.8GHz



### ■ Test Procedure

1. The EUT was connected to Spectrum Analyzer and Base Station via Power Divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.

### ■ Uncertainty

The measurement uncertainty is evaluated as  $\pm 2.24$  dB.

## 2.6. Field Strength of Spurious Radiation Test

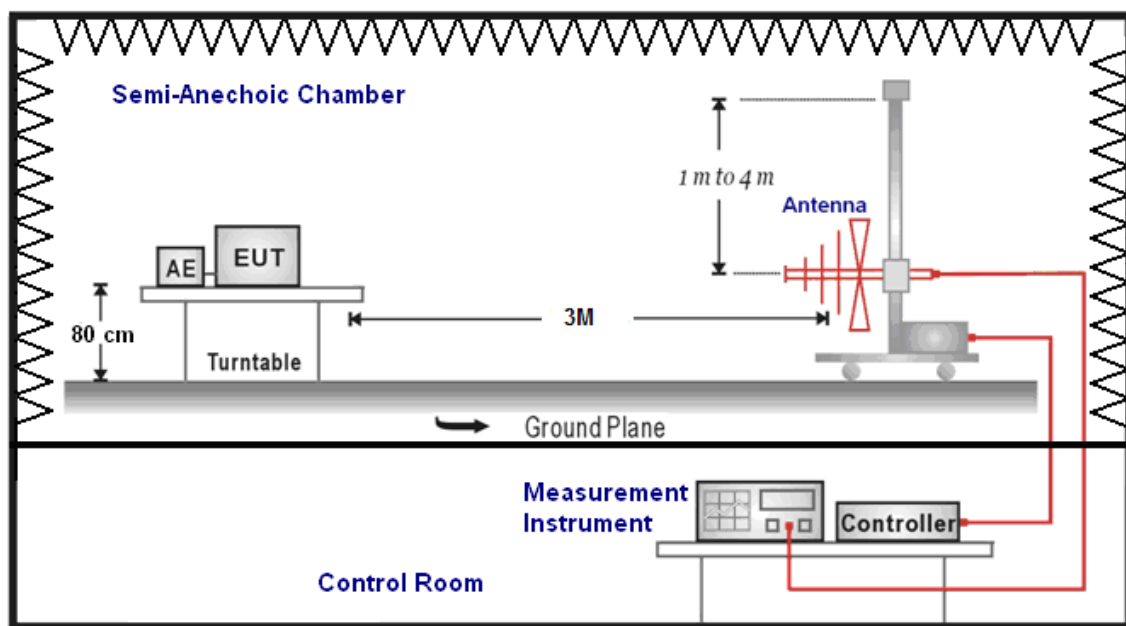
### ■ Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10\log(P)$  dB.

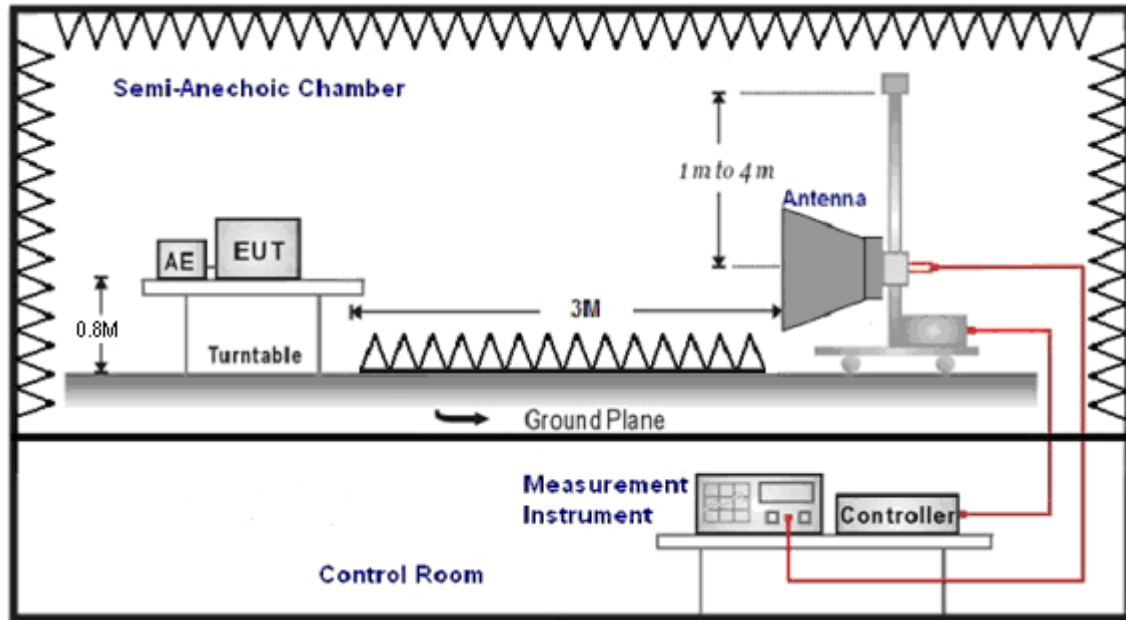
It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

### ■ Setup

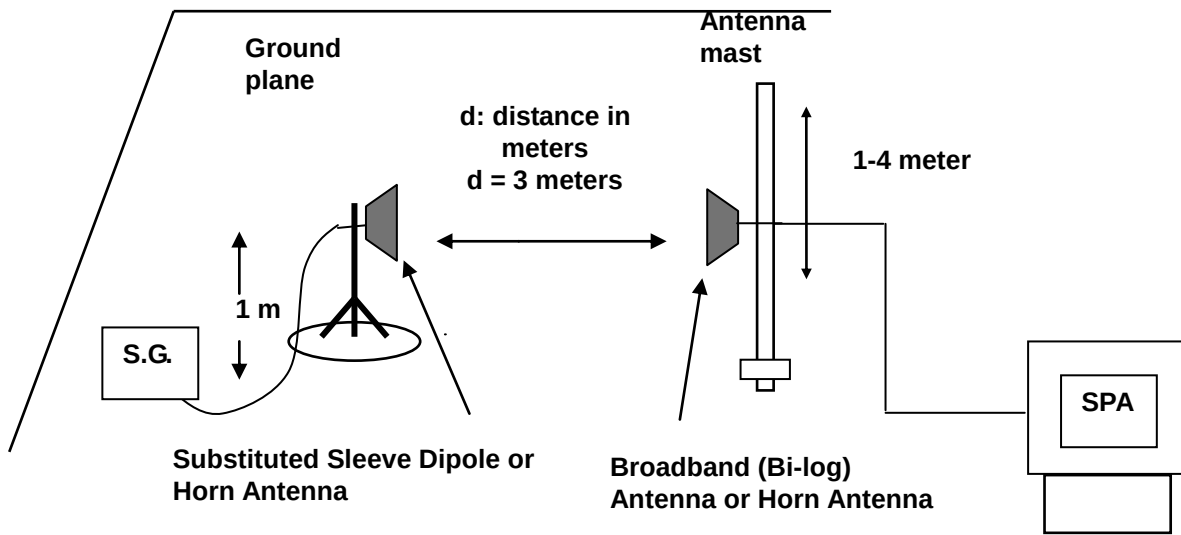
Below 1GHz



Above 1GHz



For Substituted Method Test Set-UP



## ■ Test Procedure

### For FCC

- a. The EUT was set up for the maximum power with wwan link data modulation. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high operational frequency range).
- b. E.I.R.P power measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution antenna (Note:1 & 2) is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
- d.  $E.I.R.P. = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$
- e.  $E.R.P. = E.I.R.P. - 2.15 \text{ dB}$

Note: 1. Below 1 GHz Substituted Method Test : Sleeve dipole antenna to Bi-Log Antenna

2. Above 1 GHz Substituted Method Test : Horn antenna to Horn Antenna

## ■ Uncertainty

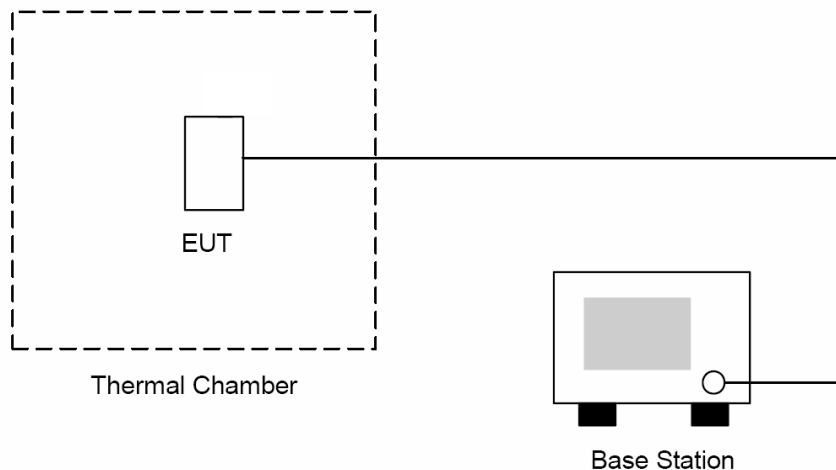
The measurement uncertainty is defined as for Field Strength of Spurious Radiation measurement is  $\pm 3.072 \text{ dB}$ .

## 2.7. Frequency Stability (Temperature & Voltage Variation) Test

### ■ Limit

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5\text{ppm}$ ) of the center frequency.

### ■ Setup



### ■ Test Procedure

1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to  $-30^{\circ}\text{C}$  and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.
3. With power OFF, the temperature was raised in  $10^{\circ}\text{C}$  steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The EUT was placed in a temperature chamber at  $25 \pm 5^{\circ}\text{C}$  and connected as the following section.
5. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
6. The temperature tests were performed for the worst case.
7. Test data was recorded.

### ■ Uncertainty

The measurement uncertainty is defined as for Frequency Stability (Temperature Variation) measurement is  $\pm 10\text{Hz}$ .



### 3 Test Results

| Test Mode | Test Modes description           |
|-----------|----------------------------------|
| GSM/TM1   | GSM system,GSM,GMSK modulation   |
| GSM/TM2   | GSM system,GPRS,GMSK modulation  |
| GSM/TM3   | GSM system,EGPRS,8PSK modulation |

## Appendix A: RF Output Power

| Bands                                                           | Modulation Type | Test Mode                   | Frequency (MHz) | Burst Average Power |       | Peak Power   |              |
|-----------------------------------------------------------------|-----------------|-----------------------------|-----------------|---------------------|-------|--------------|--------------|
|                                                                 |                 |                             |                 | (dBm)               | (W)   | (dBm)        | (W)          |
| GSM 850                                                         | GMSK            | 1Down1Up<br>Duty factor 1/8 | 824.2           | 32.34               | 1.714 | <b>32.53</b> | <b>1.791</b> |
|                                                                 |                 |                             | 836.6           | 32.29               | 1.694 | 32.46        | 1.762        |
|                                                                 |                 |                             | 848.8           | 32.31               | 1.702 | 32.49        | 1.774        |
| GPRS 850<br>Multi Class :12<br>Max Up:4<br>Max Down:4<br>Sum:5  | GMSK            | 4Down1Up<br>Duty factor 1/8 | 824.2           | 32.18               | 1.652 | <b>32.34</b> | <b>1.714</b> |
|                                                                 |                 |                             | 836.6           | 32.10               | 1.622 | 32.29        | 1.694        |
|                                                                 |                 |                             | 848.8           | 32.13               | 1.633 | 32.31        | 1.702        |
|                                                                 |                 | 3Down2Up<br>Duty factor 2/8 | 824.2           | 29.86               | 0.968 | 30.01        | 1.002        |
|                                                                 |                 |                             | 836.6           | 29.77               | 0.948 | 29.91        | 0.979        |
|                                                                 |                 |                             | 848.8           | 29.79               | 0.953 | 29.93        | 0.984        |
|                                                                 |                 | 2Down3Up<br>Duty factor 3/8 | 824.2           | 28.05               | 0.638 | 28.22        | 0.664        |
|                                                                 |                 |                             | 836.6           | 27.99               | 0.630 | 28.17        | 0.656        |
|                                                                 |                 |                             | 848.8           | 27.97               | 0.627 | 28.15        | 0.653        |
|                                                                 |                 | 1Down4Up<br>Duty factor 4/8 | 824.2           | 26.60               | 0.457 | 26.80        | 0.479        |
|                                                                 |                 |                             | 836.6           | 26.55               | 0.452 | 26.73        | 0.471        |
|                                                                 |                 |                             | 848.8           | 26.55               | 0.452 | 26.74        | 0.472        |
| EGPRS 850<br>Multi Class :12<br>Max Up:4<br>Max Down:4<br>Sum:5 | 8PSK            | 4Down1Up<br>Duty factor 1/8 | 824.2           | 26.72               | 0.470 | <b>29.98</b> | <b>0.995</b> |
|                                                                 |                 |                             | 836.6           | 26.67               | 0.465 | 29.92        | 0.982        |
|                                                                 |                 |                             | 848.8           | 26.62               | 0.459 | 29.88        | 0.973        |
|                                                                 |                 | 3Down2Up<br>Duty factor 2/8 | 824.2           | 23.98               | 0.250 | 27.22        | 0.527        |
|                                                                 |                 |                             | 836.6           | 23.94               | 0.248 | 27.19        | 0.524        |
|                                                                 |                 |                             | 848.8           | 23.87               | 0.244 | 27.12        | 0.515        |
|                                                                 |                 | 2Down3Up<br>Duty factor 3/8 | 824.2           | 22.26               | 0.168 | 25.50        | 0.355        |
|                                                                 |                 |                             | 836.6           | 22.19               | 0.166 | 25.46        | 0.352        |
|                                                                 |                 |                             | 848.8           | 22.16               | 0.164 | 25.44        | 0.350        |
|                                                                 |                 | 1Down4Up<br>Duty factor 4/8 | 824.2           | 20.84               | 0.121 | 24.13        | 0.259        |
|                                                                 |                 |                             | 836.6           | 20.69               | 0.117 | 23.94        | 0.248        |
|                                                                 |                 |                             | 848.8           | 20.71               | 0.118 | 23.97        | 0.249        |

Note: The peak power testing result was used peak detector.

| Bands                                                            | Modulation Type | Test Mode                   | Frequency (MHz) | Burst Average Power |       | Peak Power   |              |
|------------------------------------------------------------------|-----------------|-----------------------------|-----------------|---------------------|-------|--------------|--------------|
|                                                                  |                 |                             |                 | (dBm)               | (W)   | (dBm)        | (W)          |
| PCS 1900                                                         | GMSK            | 1Down1Up<br>Duty factor 1/8 | 1850.2          | 29.31               | 0.853 | 29.49        | 0.889        |
|                                                                  |                 |                             | 1880.0          | 29.36               | 0.863 | <b>29.56</b> | <b>0.904</b> |
|                                                                  |                 |                             | 1909.8          | 29.34               | 0.859 | 29.51        | 0.893        |
| GPRS 1900<br>Multi Class :12<br>Max Up:4<br>Max Down:4<br>Sum:5  | GMSK            | 4Down1Up<br>Duty factor 1/8 | 1850.2          | 29.15               | 0.822 | 29.32        | 0.855        |
|                                                                  |                 |                             | 1880.0          | 29.22               | 0.836 | <b>29.40</b> | <b>0.871</b> |
|                                                                  |                 |                             | 1909.8          | 29.17               | 0.826 | 29.34        | 0.859        |
|                                                                  |                 | 3Down2Up<br>Duty factor 2/8 | 1850.2          | 26.60               | 0.457 | 26.76        | 0.474        |
|                                                                  |                 |                             | 1880.0          | 26.62               | 0.459 | 26.78        | 0.476        |
|                                                                  |                 |                             | 1909.8          | 26.56               | 0.453 | 26.74        | 0.472        |
|                                                                  |                 | 2Down3Up<br>Duty factor 3/8 | 1850.2          | 24.79               | 0.301 | 24.96        | 0.313        |
|                                                                  |                 |                             | 1880.0          | 24.82               | 0.303 | 25.00        | 0.316        |
|                                                                  |                 |                             | 1909.8          | 24.75               | 0.299 | 24.94        | 0.312        |
|                                                                  |                 | 1Down4Up<br>Duty factor 4/8 | 1850.2          | 23.38               | 0.218 | 23.59        | 0.229        |
|                                                                  |                 |                             | 1880.0          | 23.43               | 0.220 | 23.63        | 0.231        |
|                                                                  |                 |                             | 1909.8          | 23.46               | 0.222 | 23.67        | 0.233        |
| EGPRS 1900<br>Multi Class :12<br>Max Up:4<br>Max Down:4<br>Sum:5 | 8PSK            | 4Down1Up<br>Duty factor 1/8 | 1850.2          | 25.46               | 0.352 | <b>28.69</b> | <b>0.740</b> |
|                                                                  |                 |                             | 1880.0          | 25.39               | 0.346 | 28.65        | 0.733        |
|                                                                  |                 |                             | 1909.8          | 25.43               | 0.349 | 28.68        | 0.738        |
|                                                                  |                 | 3Down2Up<br>Duty factor 2/8 | 1850.2          | 22.57               | 0.181 | 25.80        | 0.380        |
|                                                                  |                 |                             | 1880.0          | 22.46               | 0.176 | 25.69        | 0.371        |
|                                                                  |                 |                             | 1909.8          | 22.51               | 0.178 | 25.76        | 0.377        |
|                                                                  |                 | 2Down3Up<br>Duty factor 3/8 | 1850.2          | 20.87               | 0.122 | 24.13        | 0.259        |
|                                                                  |                 |                             | 1880.0          | 20.72               | 0.118 | 23.99        | 0.251        |
|                                                                  |                 |                             | 1909.8          | 20.83               | 0.121 | 24.11        | 0.258        |
|                                                                  |                 | 1Down4Up<br>Duty factor 4/8 | 1850.2          | 19.89               | 0.097 | 23.16        | 0.207        |
|                                                                  |                 |                             | 1880.0          | 19.84               | 0.096 | 23.12        | 0.205        |
|                                                                  |                 |                             | 1909.8          | 19.88               | 0.097 | 23.13        | 0.206        |

Note: The peak power testing result was used peak detector.

## Appendix B: Effective Radiated Power / Equivalent Isotropic Radiated Power

| Band     | Modulation | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | E.R.P.       |              | Limit (W) |
|----------|------------|-----------------|-------------|------------------|-------------------------|--------------|--------------|-----------|
|          |            |                 |             |                  |                         | (dBm)        | (W)          |           |
| GSM 850  | GMSK       | 824.2           | H           | 23.59            | 8.74                    | 32.33        | 1.710        | < 7       |
|          |            |                 | V           | 21.93            | 8.74                    | 30.67        | 1.167        | < 7       |
|          |            | 836.6           | H           | 23.34            | 8.95                    | 32.29        | 1.694        | < 7       |
|          |            |                 | V           | 21.43            | 8.95                    | 30.38        | 1.091        | < 7       |
|          |            | 848.8           | H           | 23.28            | 9.13                    | <b>32.41</b> | <b>1.742</b> | < 7       |
|          |            |                 | V           | 21.17            | 9.13                    | 30.30        | 1.072        | < 7       |
| Band     | Modulation | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | E.I.R.P.     |              | Limit (W) |
|          |            |                 |             |                  |                         | (dBm)        | (W)          |           |
| GSM 1900 | GMSK       | 1850.2          | H           | 20.14            | 8.01                    | 28.15        | 0.653        | < 2       |
|          |            |                 | V           | 18.56            | 8.01                    | 26.57        | 0.454        | < 2       |
|          |            | 1880.0          | H           | 20.01            | 8.12                    | 28.13        | 0.650        | < 2       |
|          |            |                 | V           | 18.19            | 8.12                    | 26.31        | 0.428        | < 2       |
|          |            | 1909.8          | H           | 19.97            | 8.25                    | <b>28.22</b> | <b>0.664</b> | < 2       |
|          |            |                 | V           | 17.95            | 8.26                    | 26.21        | 0.418        | < 2       |

| Band      | Modulation | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | E.R.P.       |              | Limit (W) |
|-----------|------------|-----------------|-------------|------------------|-------------------------|--------------|--------------|-----------|
|           |            |                 |             |                  |                         | (dBm)        | (W)          |           |
| GPRS 850  | GMSK       | 824.2           | H           | 23.32            | 8.74                    | 32.06        | 1.607        | < 7       |
|           |            |                 | V           | 21.21            | 8.74                    | 29.95        | 0.989        | < 7       |
|           |            | 836.6           | H           | 23.09            | 8.95                    | 32.04        | 1.600        | < 7       |
|           |            |                 | V           | 20.98            | 8.95                    | 29.93        | 0.984        | < 7       |
|           |            | 848.8           | H           | 23.06            | 9.13                    | <b>32.19</b> | <b>1.656</b> | < 7       |
|           |            |                 | V           | 20.91            | 9.13                    | 30.04        | 1.009        | < 7       |
| Band      | Modulation | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | E.I.R.P.     |              | Limit (W) |
|           |            |                 |             |                  |                         | (dBm)        | (W)          |           |
| GPRS 1900 | GMSK       | 1850.2          | H           | 20.02            | 8.01                    | 28.03        | 0.635        | < 2       |
|           |            |                 | V           | 18.38            | 8.01                    | 26.39        | 0.436        | < 2       |
|           |            | 1880.0          | H           | 19.90            | 8.12                    | 28.02        | 0.634        | < 2       |
|           |            |                 | V           | 18.00            | 8.12                    | 26.12        | 0.409        | < 2       |
|           |            | 1909.8          | H           | 19.86            | 8.26                    | <b>28.12</b> | <b>0.649</b> | < 2       |
|           |            |                 | V           | 17.82            | 8.26                    | 26.08        | 0.406        | < 2       |

| Band       | Modulation | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | E.R.P.       |              | Limit (W) |
|------------|------------|-----------------|-------------|------------------|-------------------------|--------------|--------------|-----------|
|            |            |                 |             |                  |                         | (dBm)        | (W)          |           |
| EGPRS 850  | 8PSK       | 824.2           | H           | 18.64            | 8.74                    | 27.38        | 0.547        | < 7       |
|            |            |                 | V           | 17.04            | 8.74                    | 25.78        | 0.378        | < 7       |
|            |            | 836.6           | H           | 18.48            | 8.95                    | 27.43        | 0.553        | < 7       |
|            |            |                 | V           | 16.72            | 8.95                    | 25.67        | 0.369        | < 7       |
|            |            | 848.8           | H           | 18.31            | 9.13                    | <b>27.44</b> | <b>0.555</b> | < 7       |
|            |            |                 | V           | 16.40            | 9.13                    | 25.53        | 0.357        | < 7       |
| Band       | Modulation | Frequency (MHz) | Ant. Polar. | Read Level (dBm) | Correction Factor (dBm) | E.I.R.P.     |              | Limit (W) |
|            |            |                 |             |                  |                         | (dBm)        | (W)          |           |
| EGPRS 1900 | 8PSK       | 1850.2          | H           | 17.82            | 8.01                    | <b>25.83</b> | <b>0.383</b> | < 2       |
|            |            |                 | V           | 15.91            | 8.01                    | 23.92        | 0.247        | < 2       |
|            |            | 1880.0          | H           | 17.04            | 8.12                    | 25.16        | 0.328        | < 2       |
|            |            |                 | V           | 15.43            | 8.12                    | 23.55        | 0.226        | < 2       |
|            |            | 1909.8          | H           | 17.29            | 8.26                    | 25.55        | 0.359        | < 2       |
|            |            |                 | V           | 14.99            | 8.26                    | 23.25        | 0.211        | < 2       |

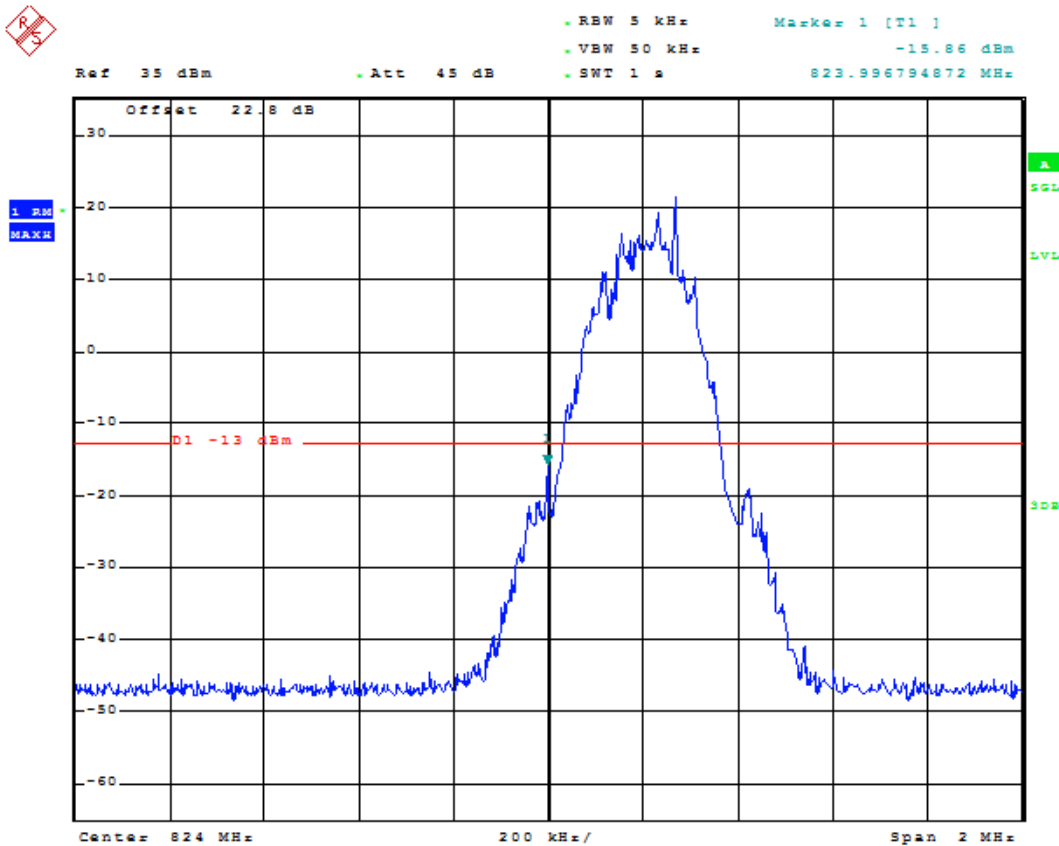
## Appendix C: Emission Bandwidth & Occupied Bandwidth

| Test Band | Test Mode | Test Channel | Occupied Bandwidth (KHZ) | Emission Bandwidth (KHZ) | Verdict |
|-----------|-----------|--------------|--------------------------|--------------------------|---------|
| GSM850    | GSM/TM1   | LCH          | 243.59                   | 298.08                   | PASS    |
|           |           | MCH          | 243.59                   | 298.08                   | PASS    |
|           |           | HCH          | 241.99                   | 298.08                   | PASS    |
|           | GSM/TM2   | LCH          | 248.40                   | 306.09                   | PASS    |
|           |           | MCH          | 250.00                   | 312.50                   | PASS    |
|           |           | HCH          | 243.59                   | 314.10                   | PASS    |
|           | GSM/TM3   | LCH          | 245.19                   | 301.28                   | PASS    |
|           |           | MCH          | 241.99                   | 296.47                   | PASS    |
|           |           | HCH          | 243.59                   | 302.88                   | PASS    |

| Test Band | Test Mode | Test Channel | Occupied Bandwidth (KHZ) | Emission Bandwidth (KHZ) | Verdict |
|-----------|-----------|--------------|--------------------------|--------------------------|---------|
| GSM1900   | GSM/TM1   | LCH          | 245.19                   | 312.50                   | PASS    |
|           |           | MCH          | 245.19                   | 312.50                   | PASS    |
|           |           | HCH          | 246.79                   | 314.10                   | PASS    |
|           | GSM/TM2   | LCH          | 248.40                   | 317.31                   | PASS    |
|           |           | MCH          | 245.19                   | 310.90                   | PASS    |
|           |           | HCH          | 245.19                   | 296.47                   | PASS    |
|           | GSM/TM3   | LCH          | 246.79                   | 304.49                   | PASS    |
|           |           | MCH          | 245.19                   | 302.88                   | PASS    |
|           |           | HCH          | 243.59                   | 299.68                   | PASS    |

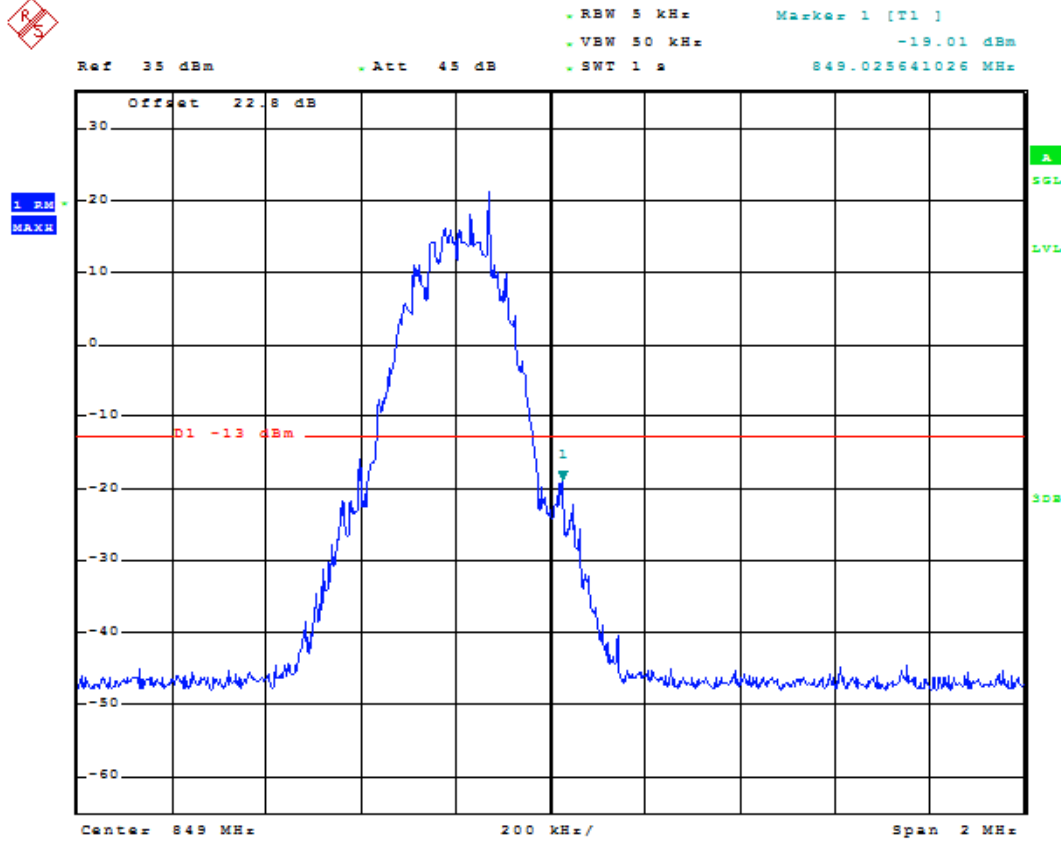
## Appendix D: Band Edge

- 1 For GSM
- 1.1 Test Band=GSM850
- 1.1.1 Test Mode=GSM/TM1
- 1.1.1.1 Test Channel=LCH



Date: 3.OCT.2017 12:49:20

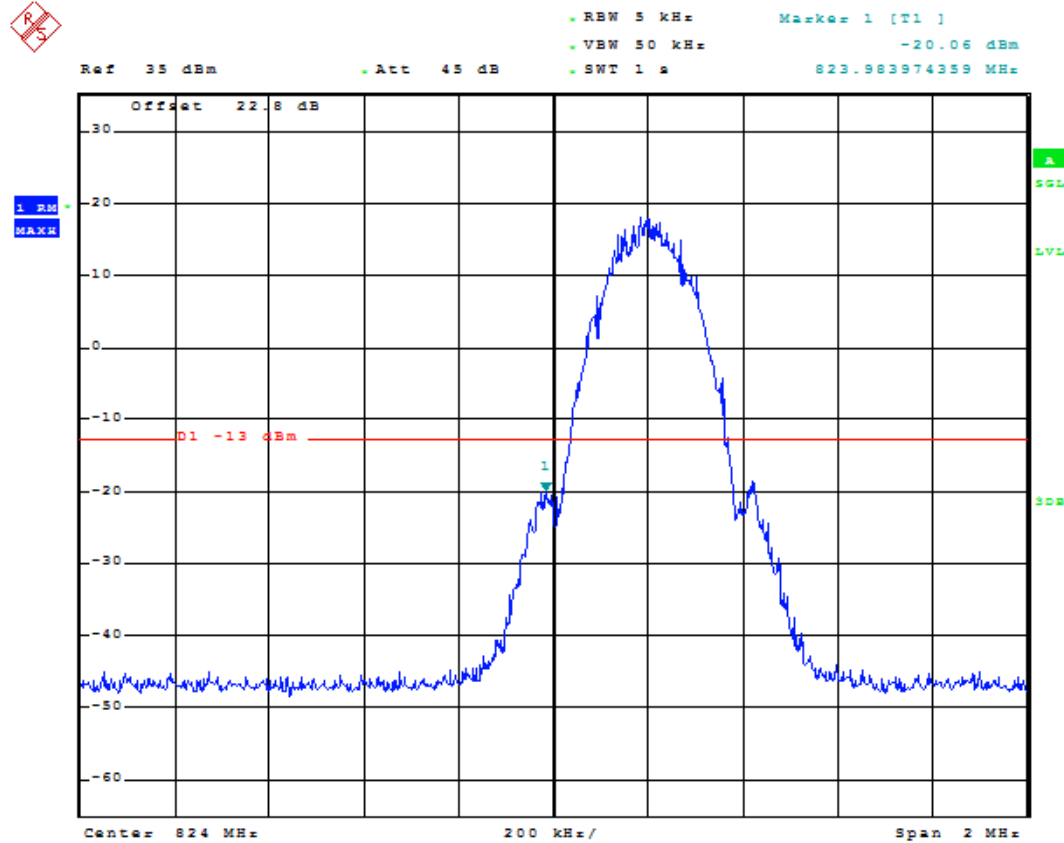
### 1.1.1.2 Test Channel=HCH



Date: 3.OCT.2017 12:49:52

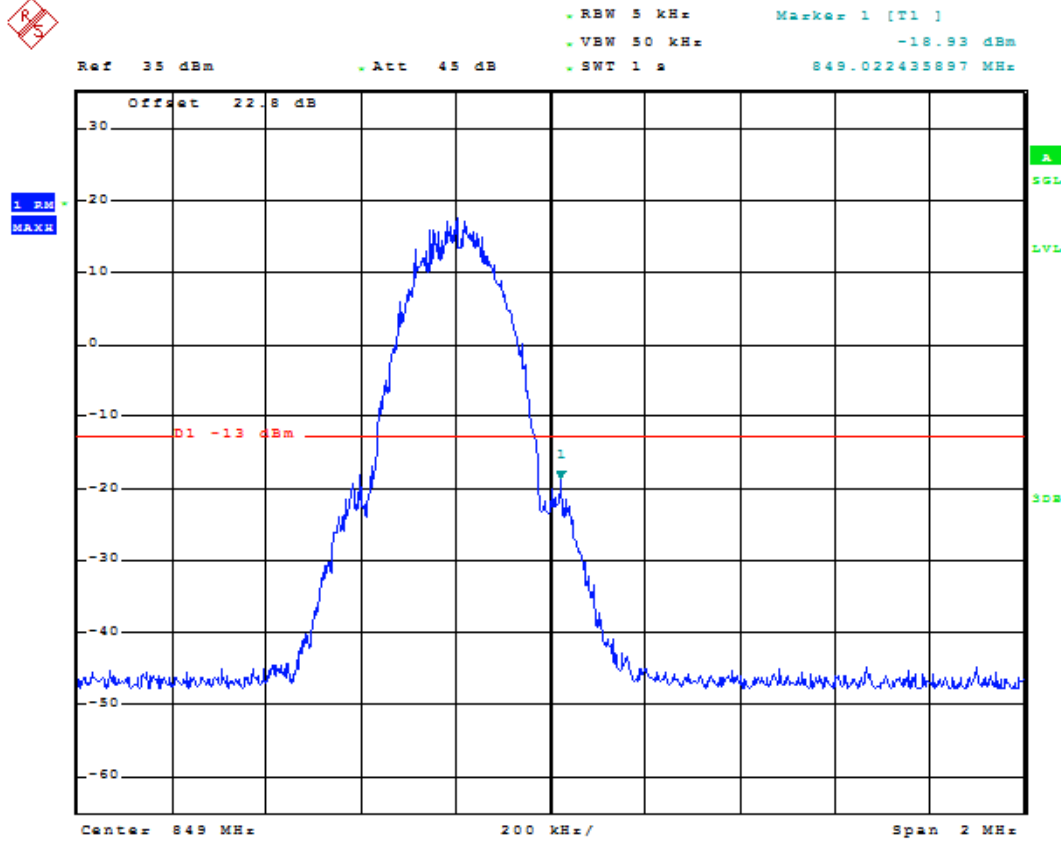
## 1.1.2 Test Mode=GSM/TM2

### 1.1.2.1 Test Channel=LCH



Date: 3.OCT.2017 13:35:52

### 1.1.2.2 Test Channel=HCH

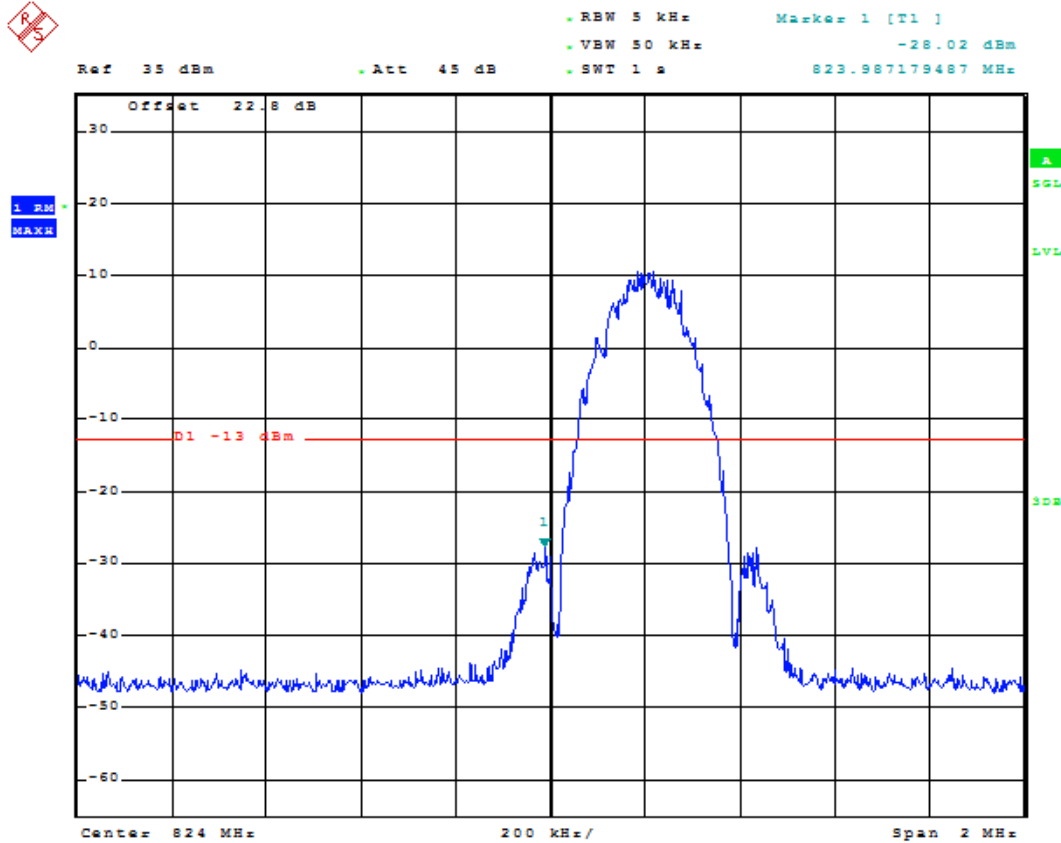


Date: 3.OCT.2017 13:36:28



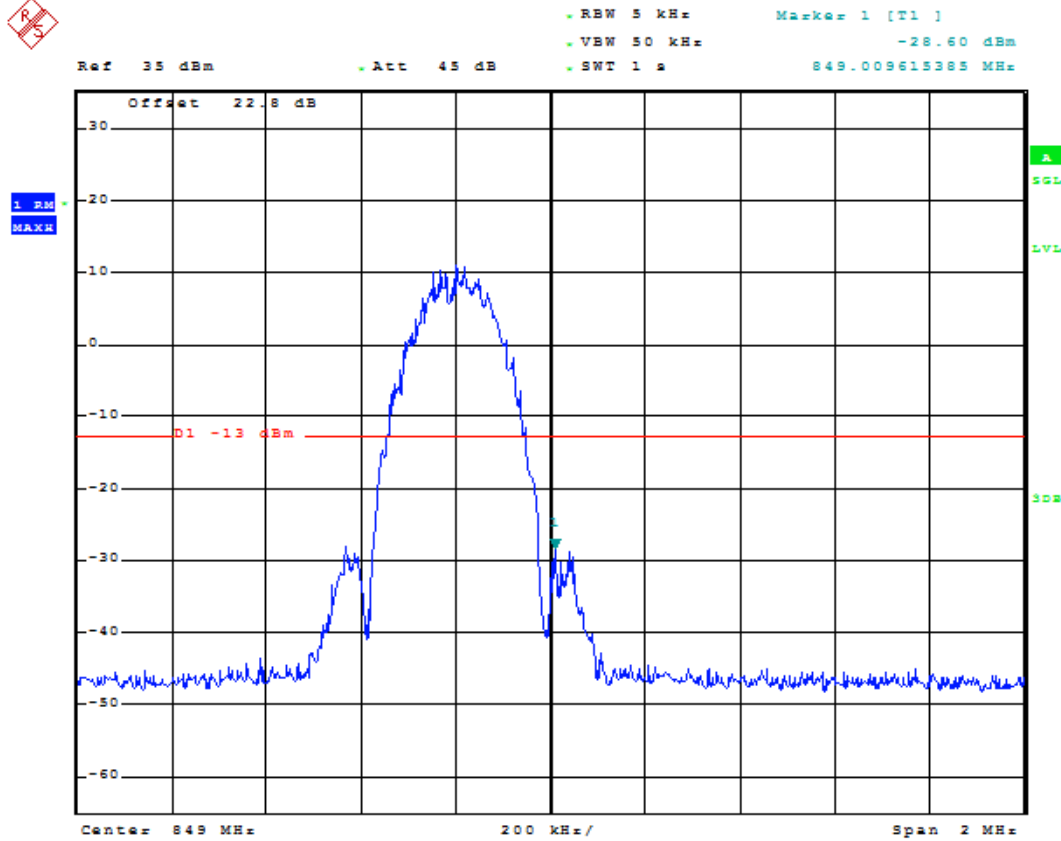
### 1.1.3 Test Mode=GSM/TM3

#### 1.1.3.1 Test Channel=LCH



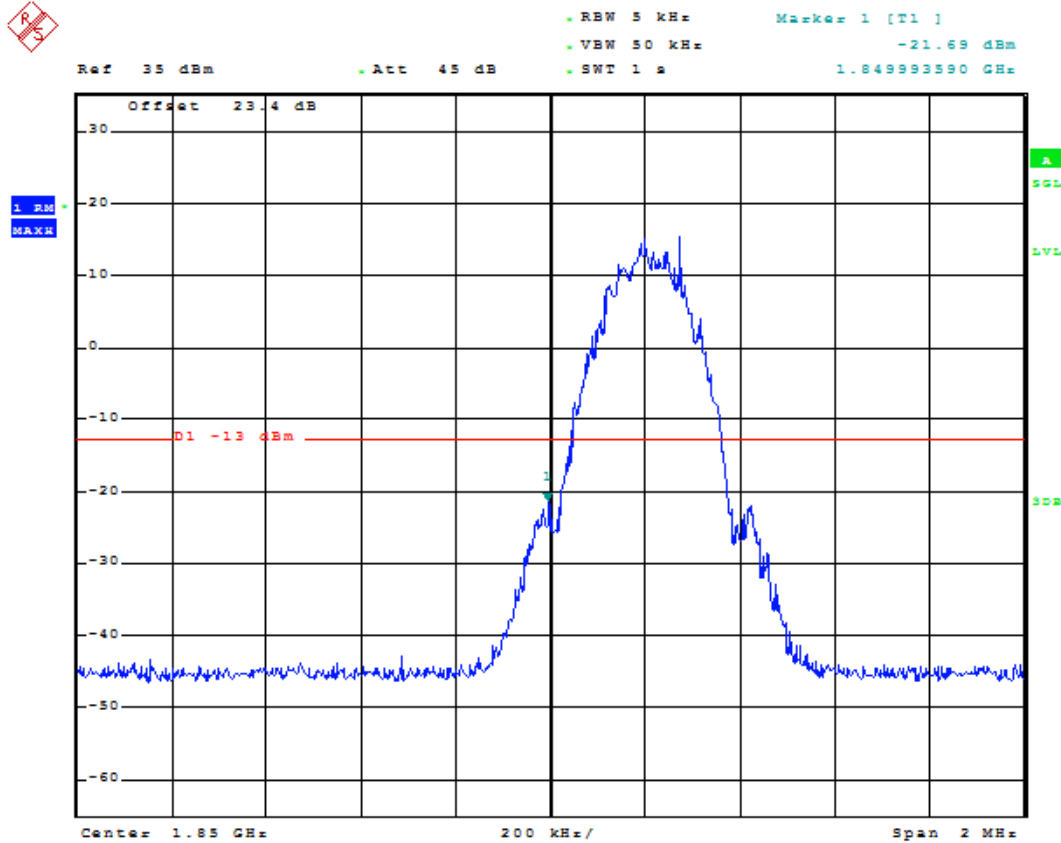
Date: 3.OCT.2017 14:07:13

### 1.1.3.2 Test Channel=HCH



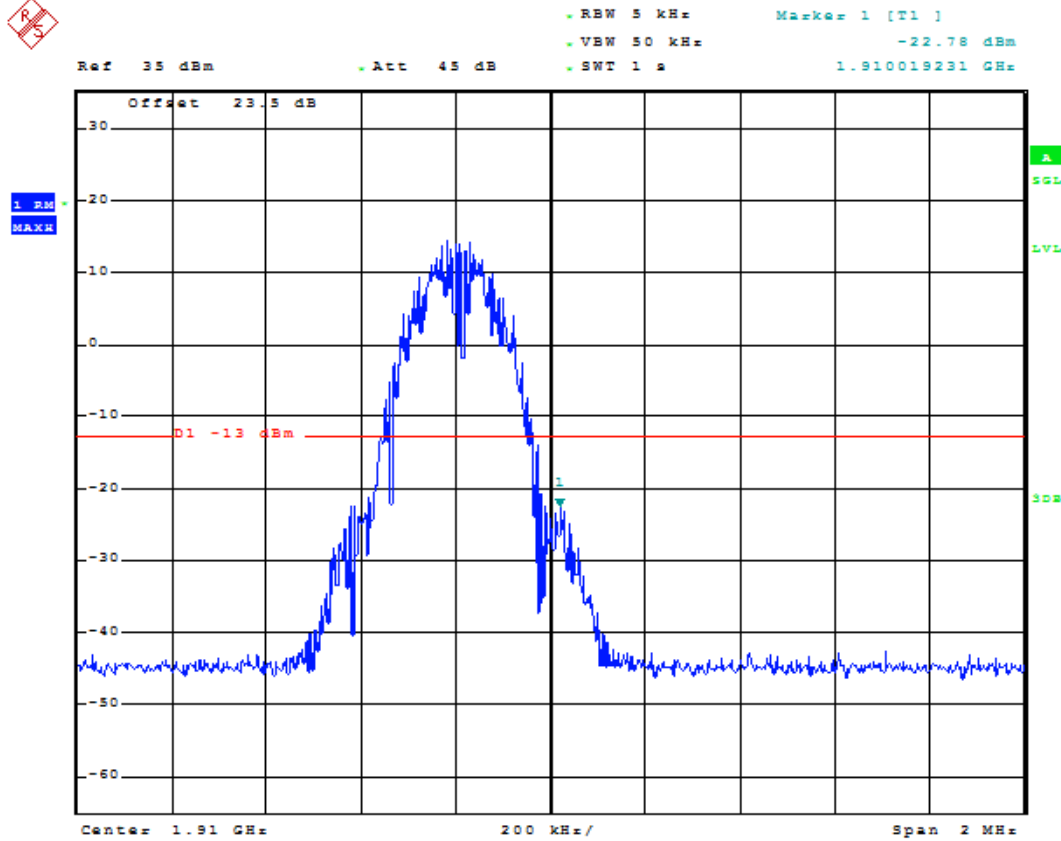
Date: 3.OCT.2017 14:07:49

1.2 Test Band=GSM1900  
1.2.1 Test Mode=GSM/TM1  
1.2.1.1 Test Channel=LCH



Date: 3.OCT.2017 13:01:57

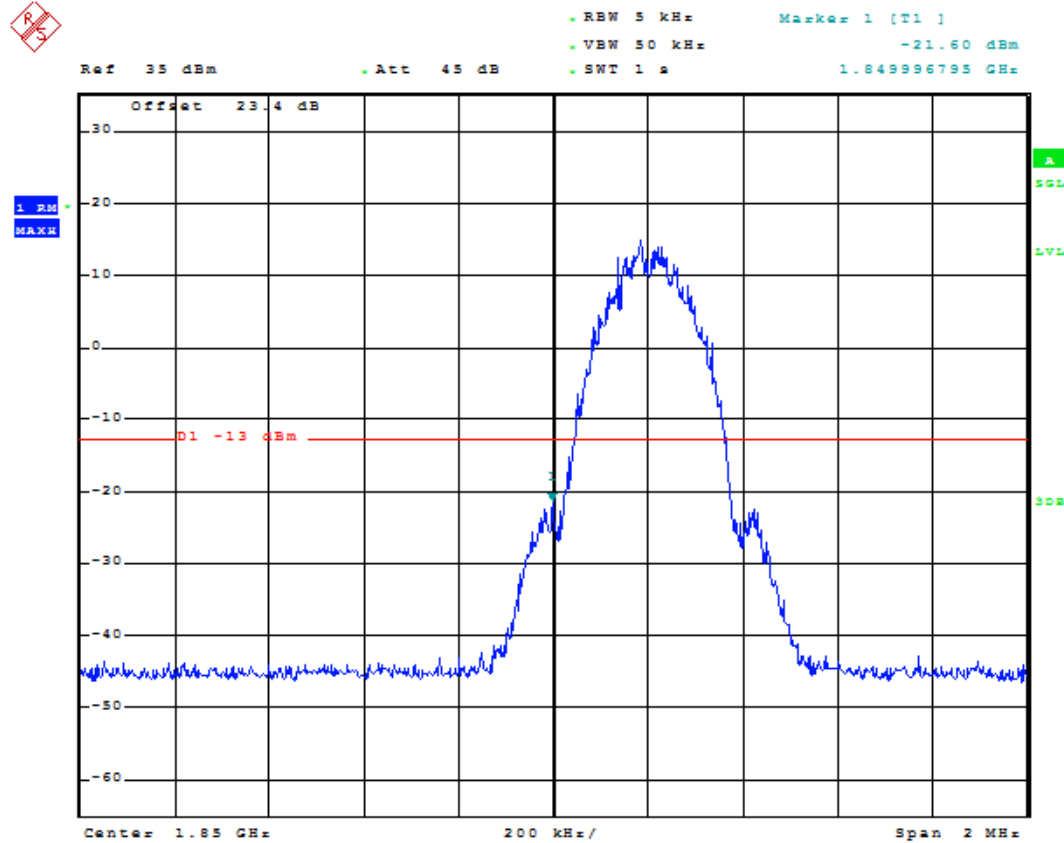
### 1.2.1.2 Test Channel=HCH



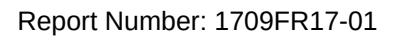
Date: 3.OCT.2017 13:02:29

## 1.2.2 Test Mode=GSM/TM2

### 1.2.2.1 Test Channel=LCH



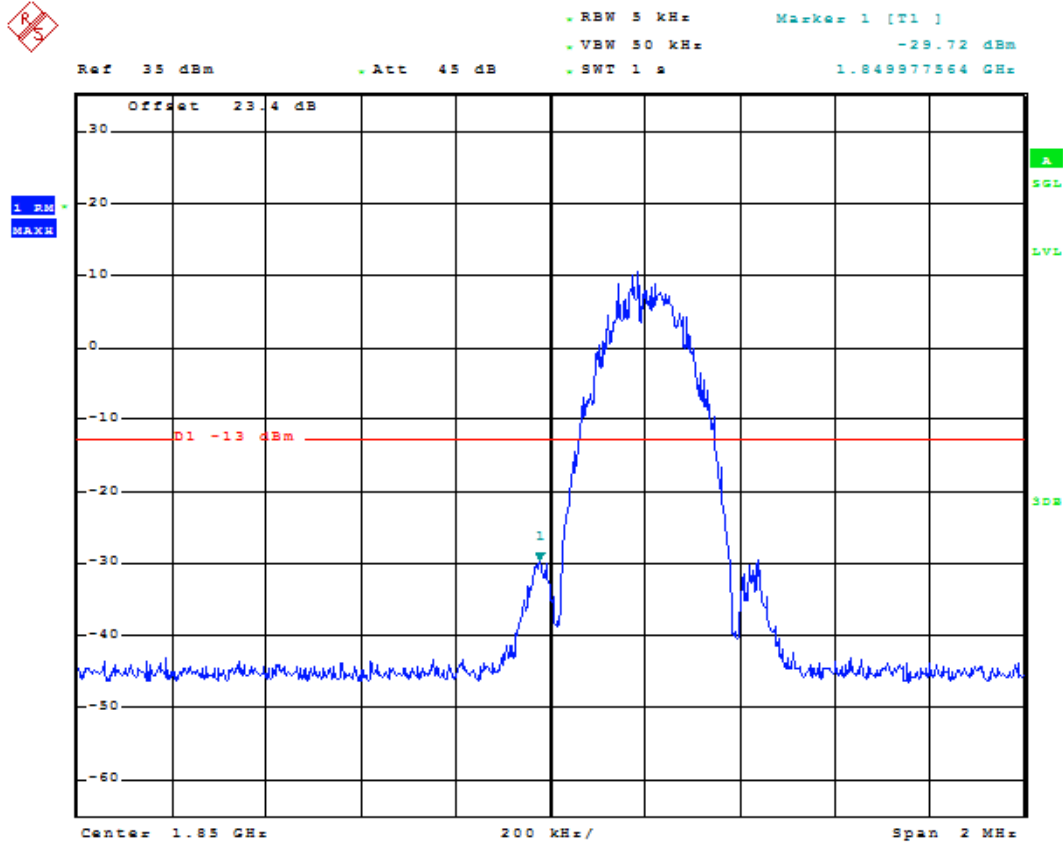
Date: 3.OCT.2017 13:50:33



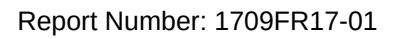


### 1.2.3 Test Mode=GSM/TM3

#### 1.2.3.1 Test Channel=LCH

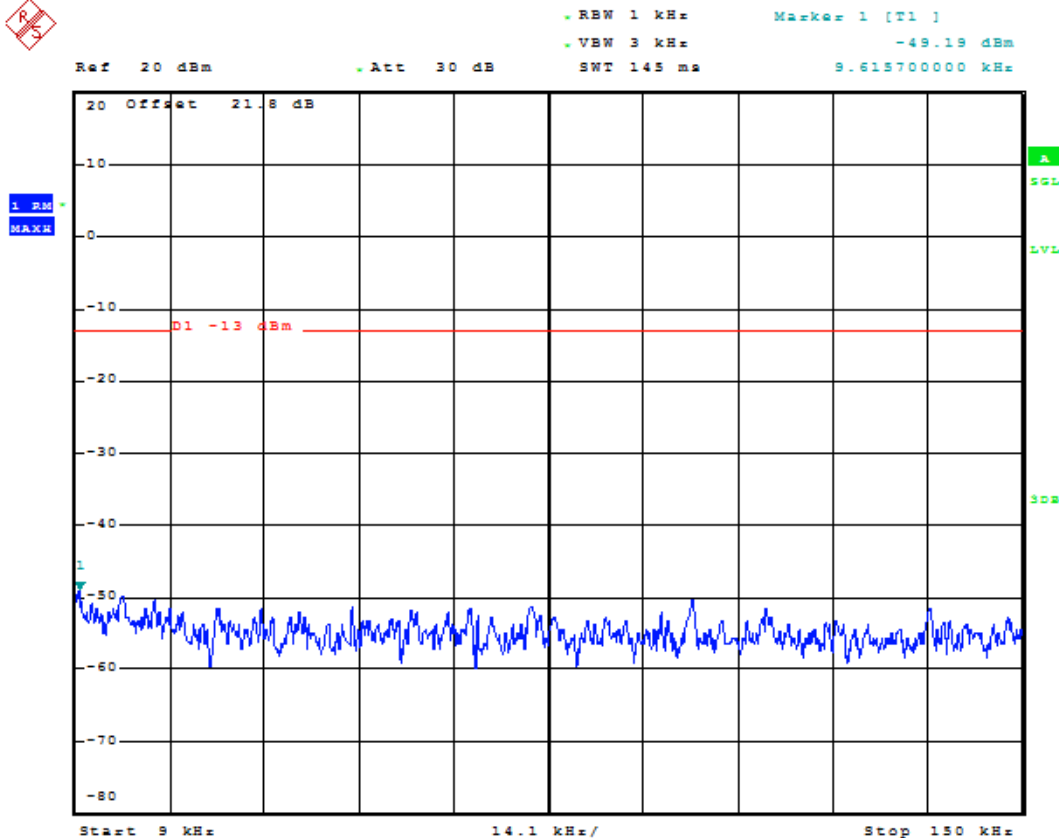


Date: 3.OCT.2017 14:21:26

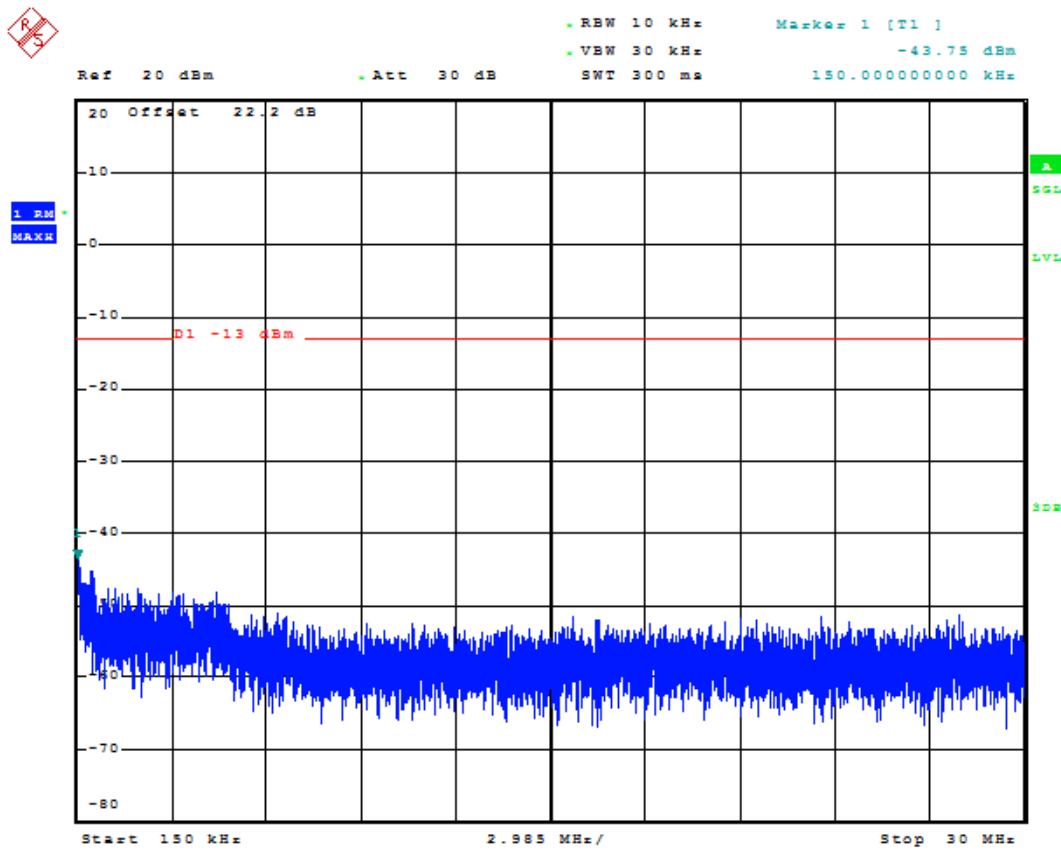


## Appendix E: Conducted Spurious Emission

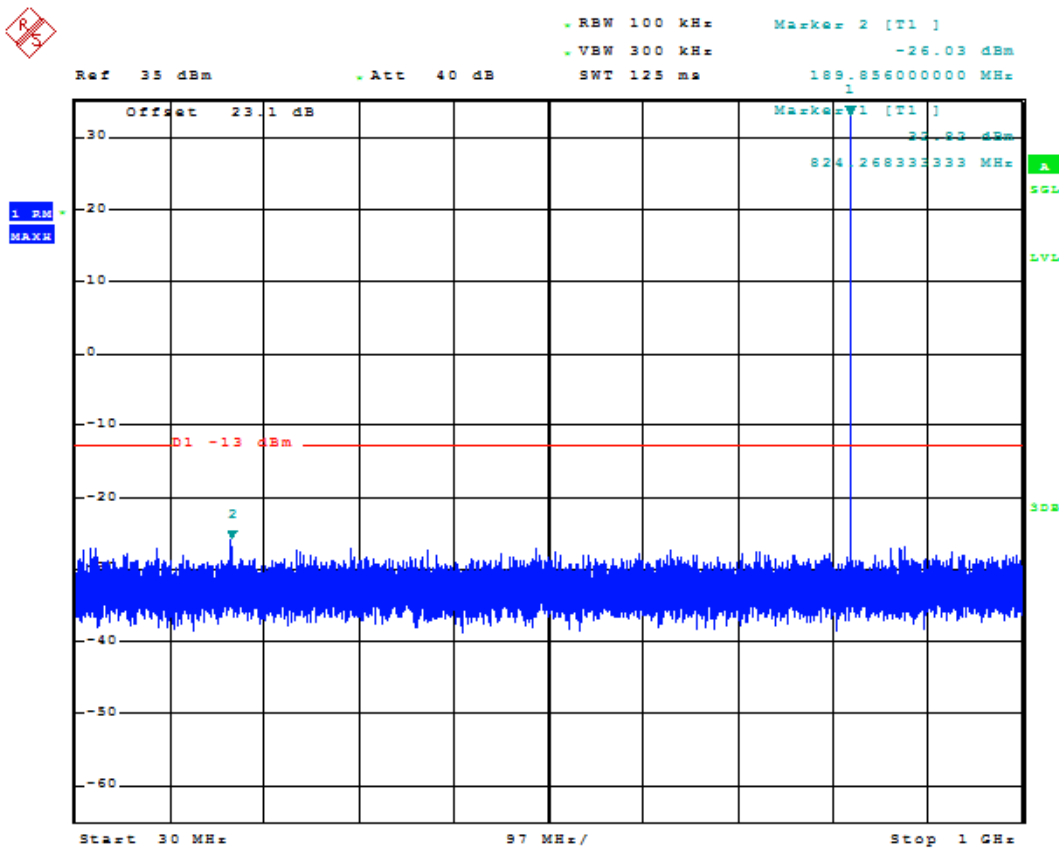
- 1 For GSM
- 1.1 Test Band=GSM850
- 1.1.1 Test Mode=GSM/TM1
- 1.1.1.1 Test Channel=LCH



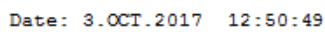
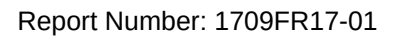
Date: 3.OCT.2017 12:50:18



Date: 3.OCT.2017 12:50:28

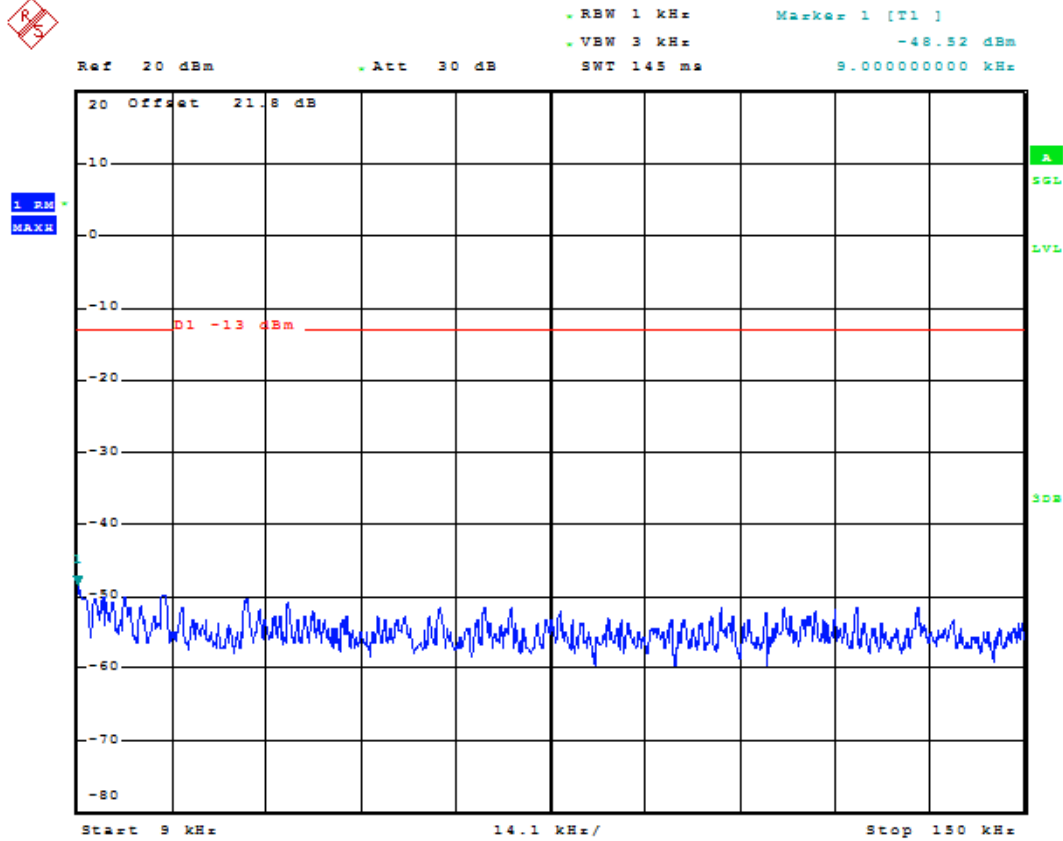


Date: 3.OCT.2017 12:50:39





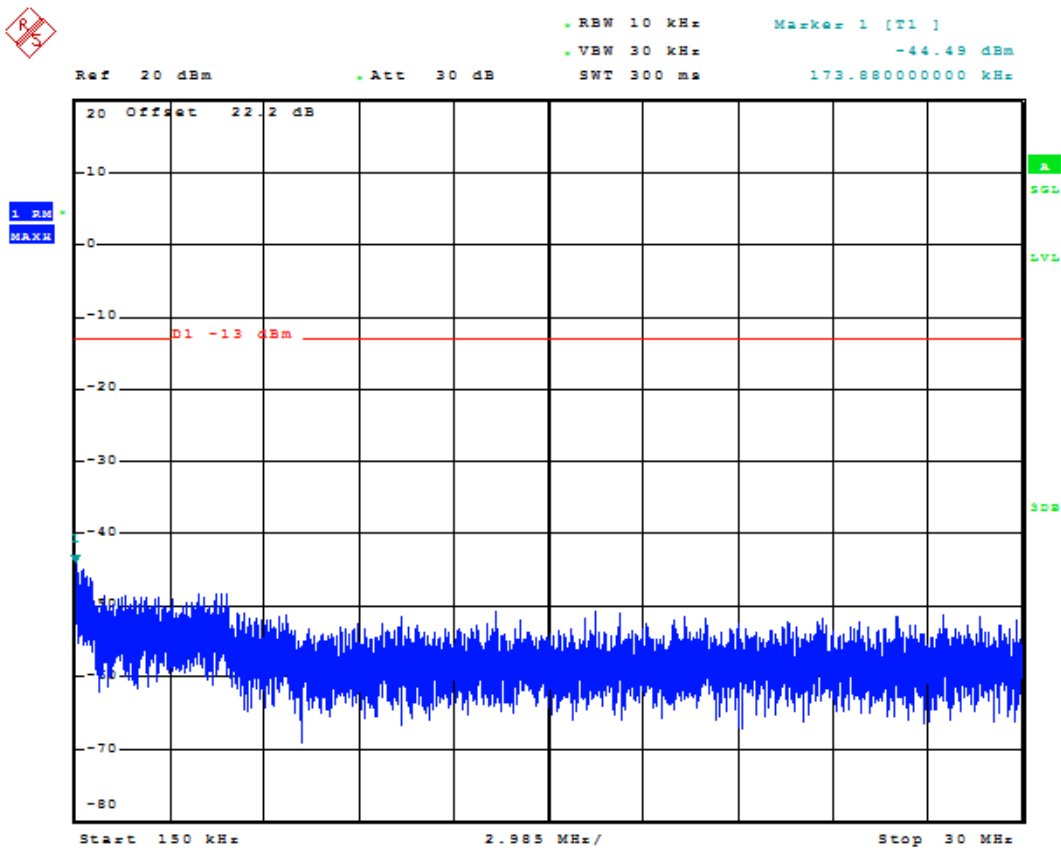
### 1.1.1.2 Test Channel=MCH



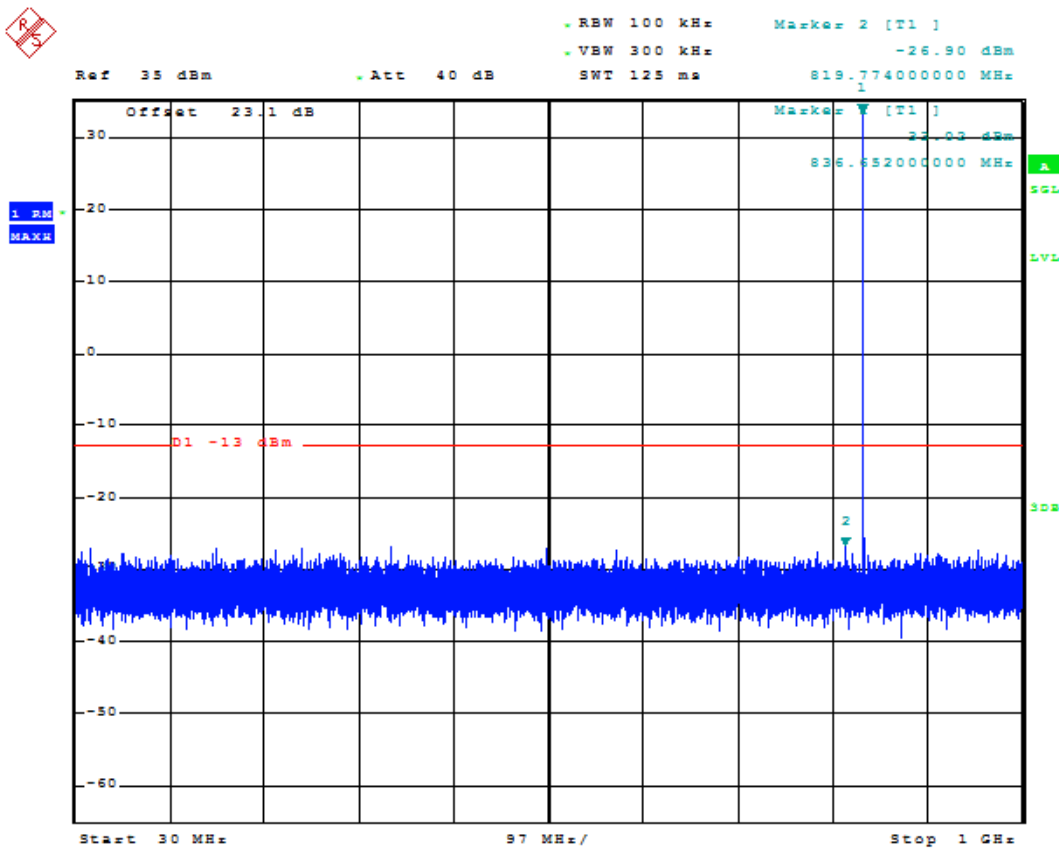
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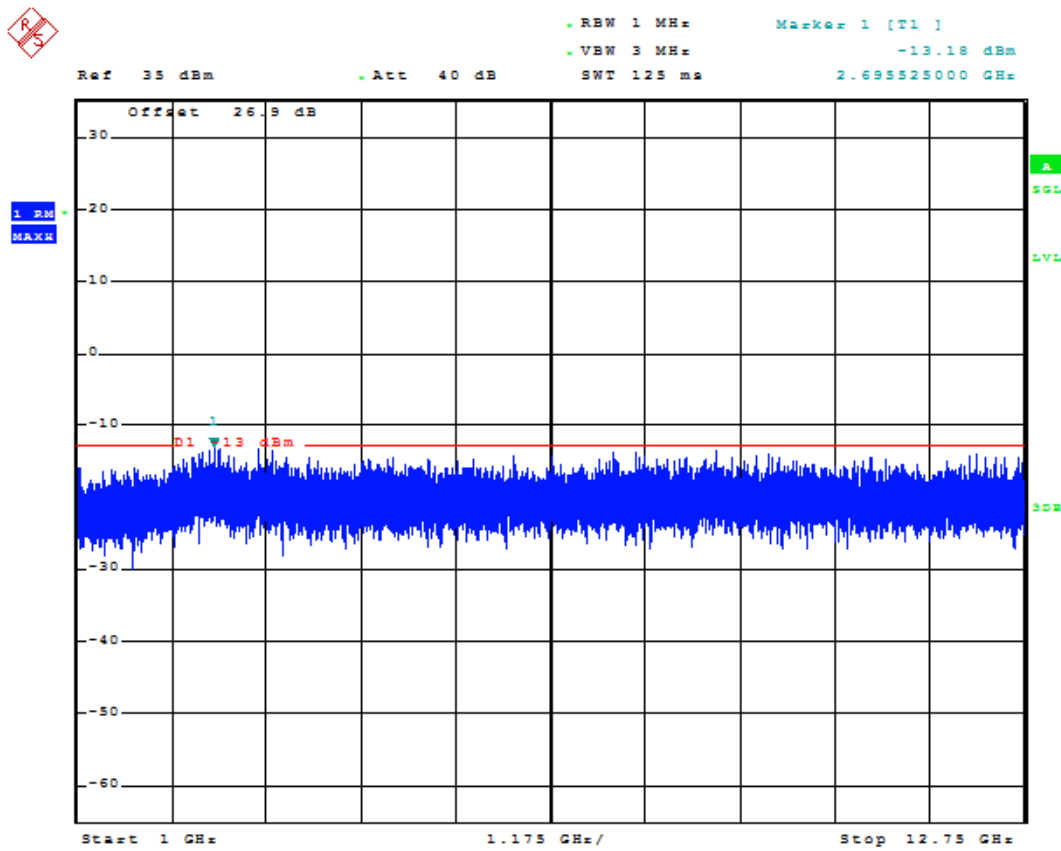
Report Number: 1709FR17-01



Date: 3.OCT.2017 12:51:16



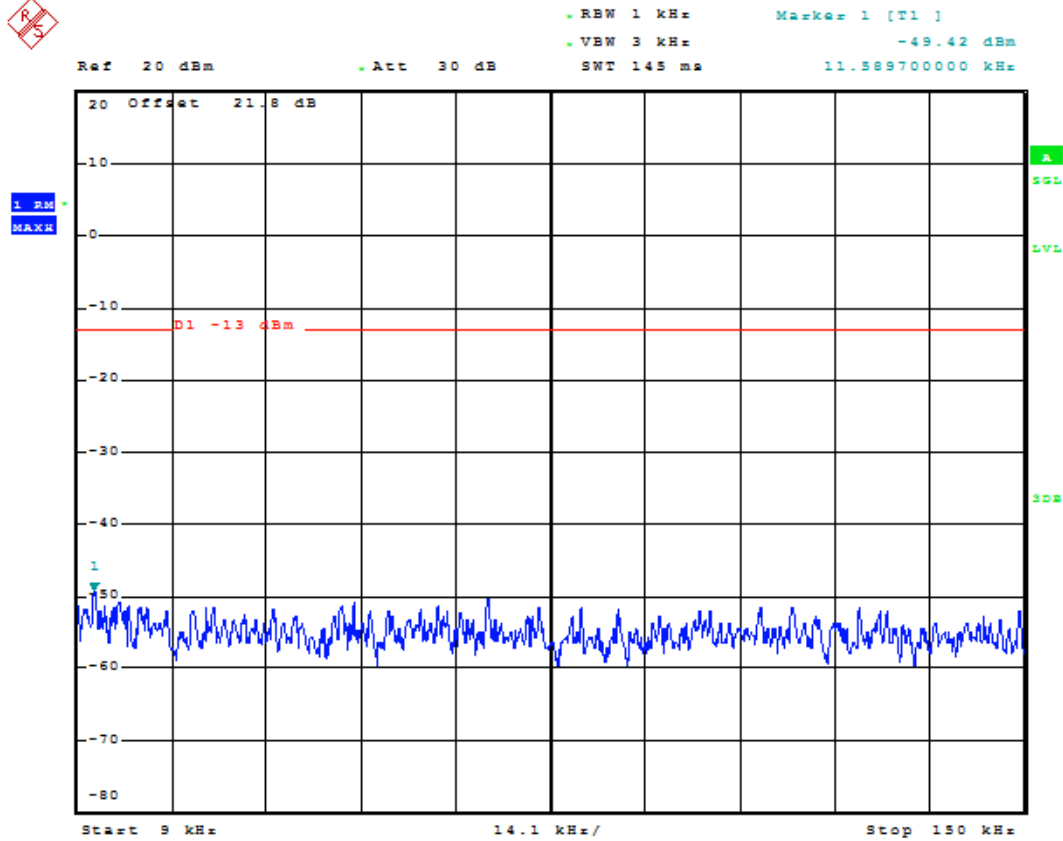
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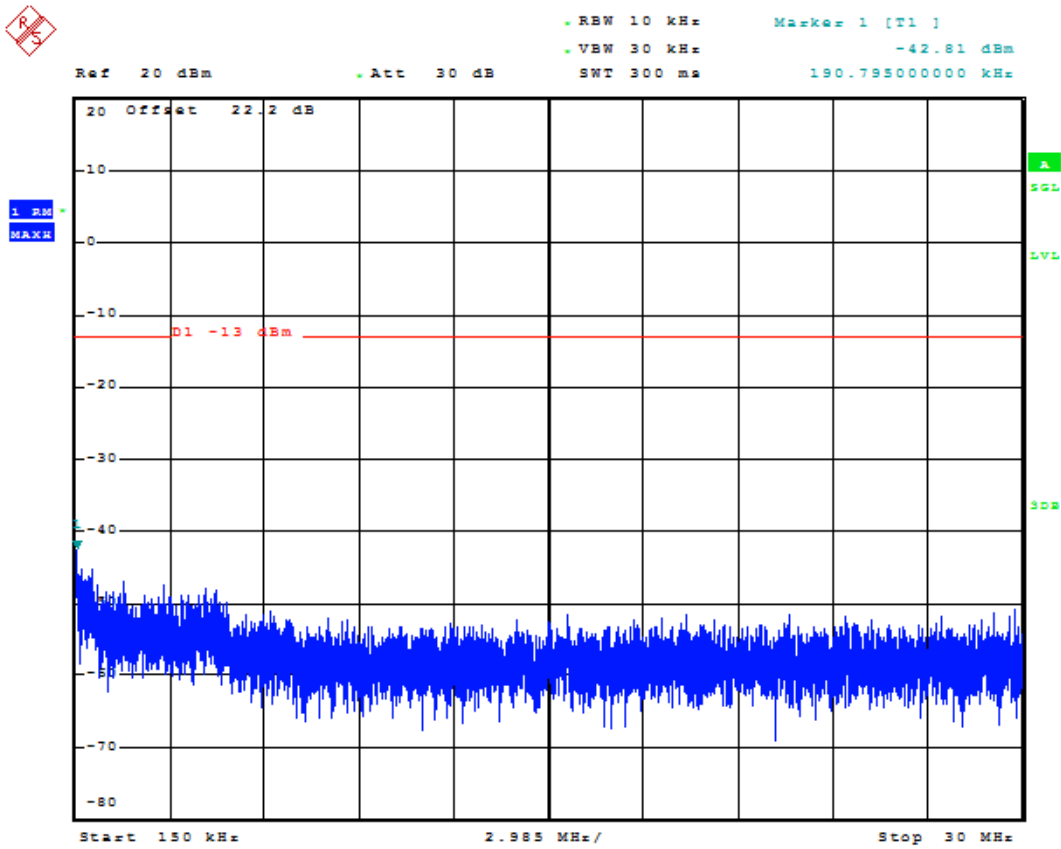
Date: 3.OCT.2017 12:51:38



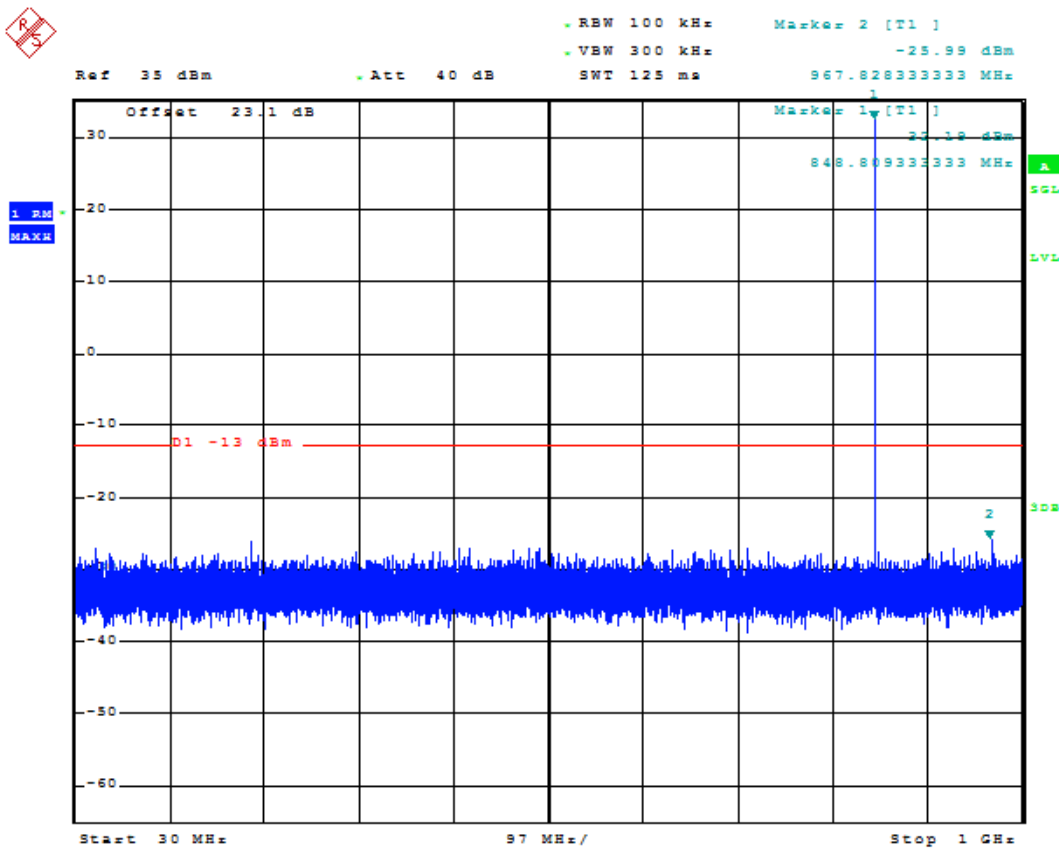
### 1.1.1.3 Test Channel=HCH



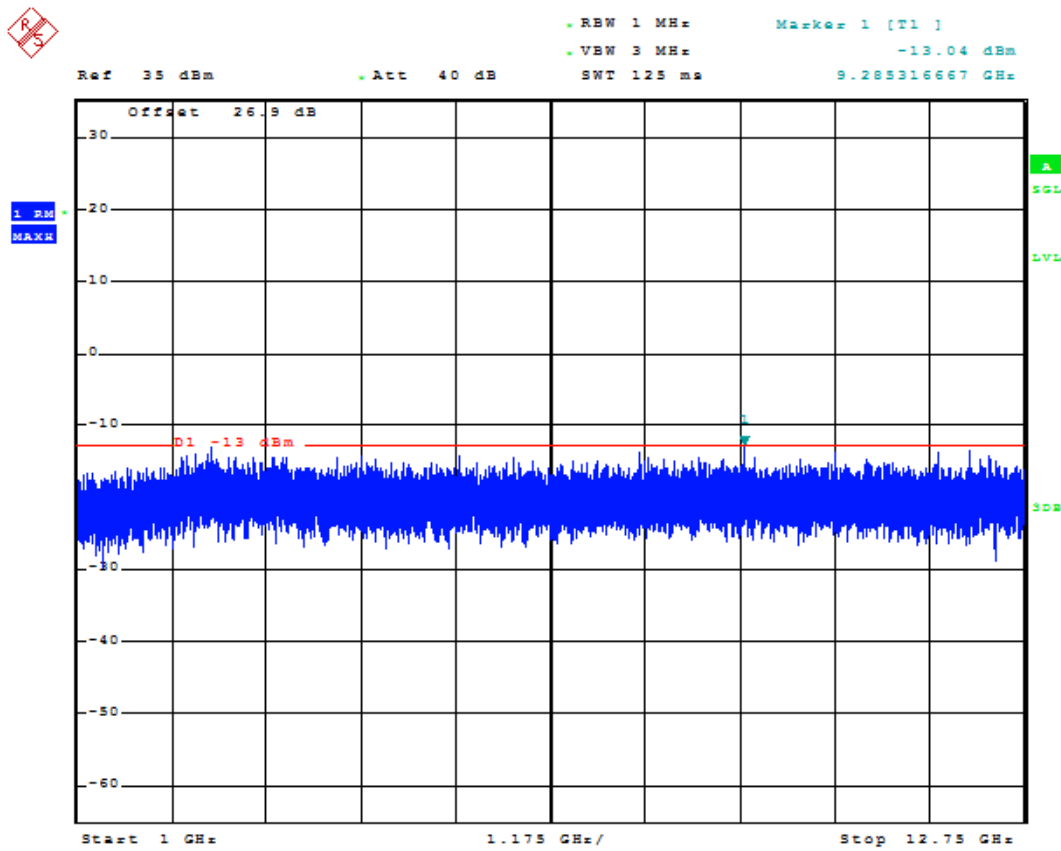
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Date: 3.OCT.2017 12:52:05



Date: 3.OCT.2017 12:52:16

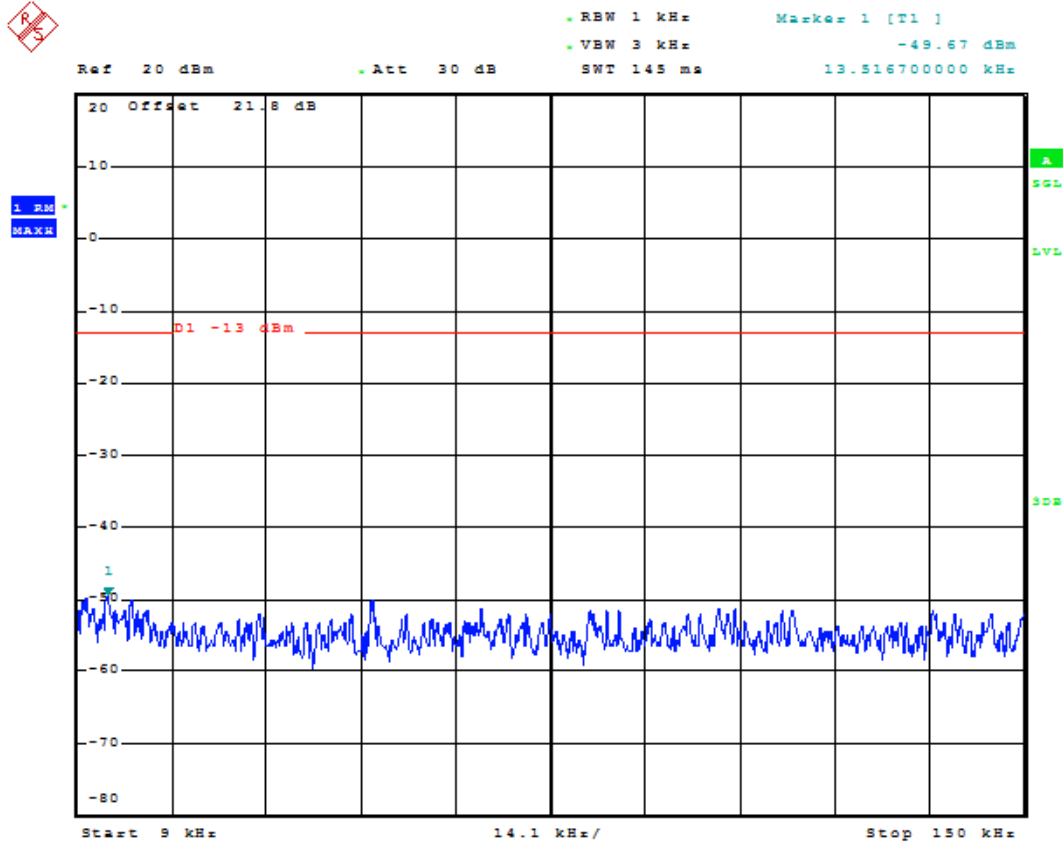


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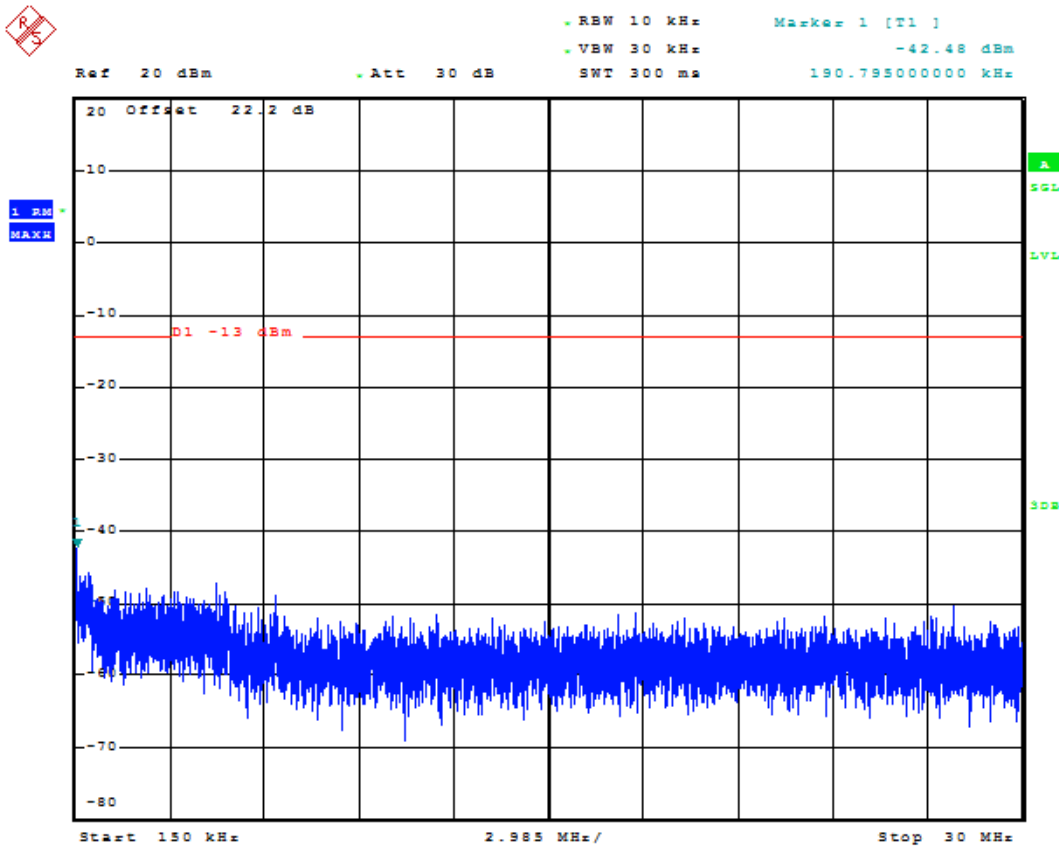


## 1.1.2 Test Mode=GSM/TM2

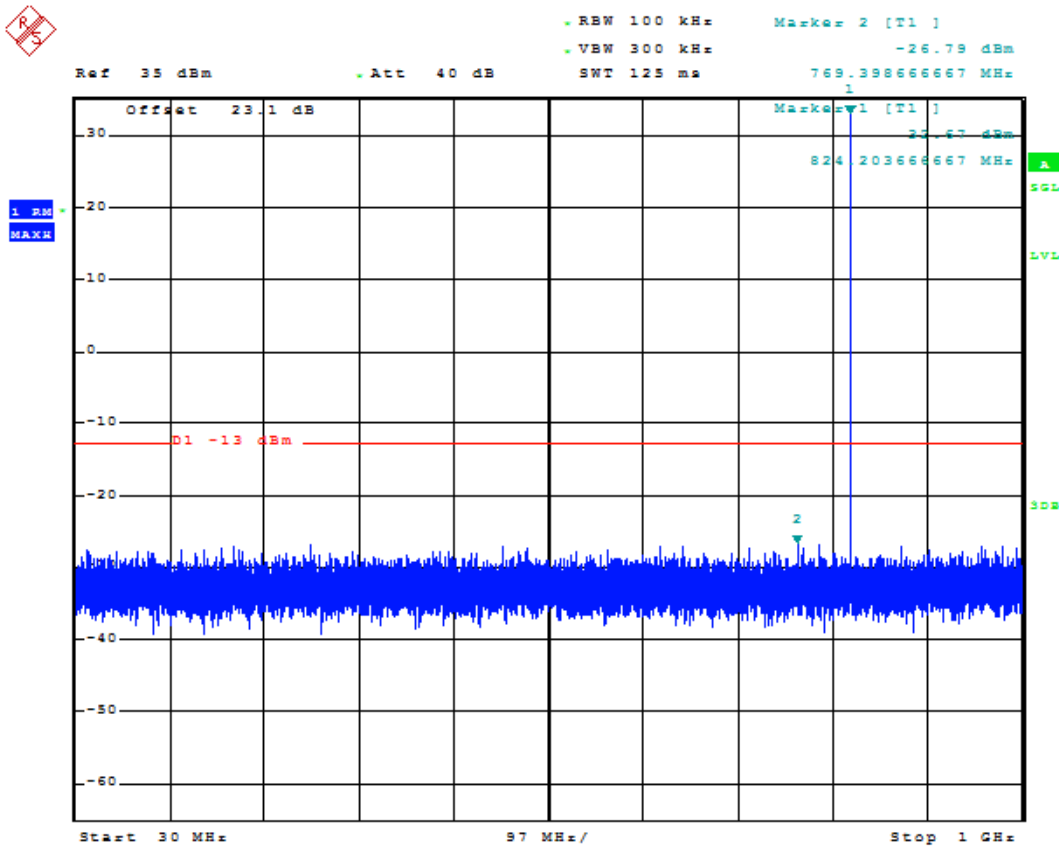
### 1.1.2.1 Test Channel=LCH



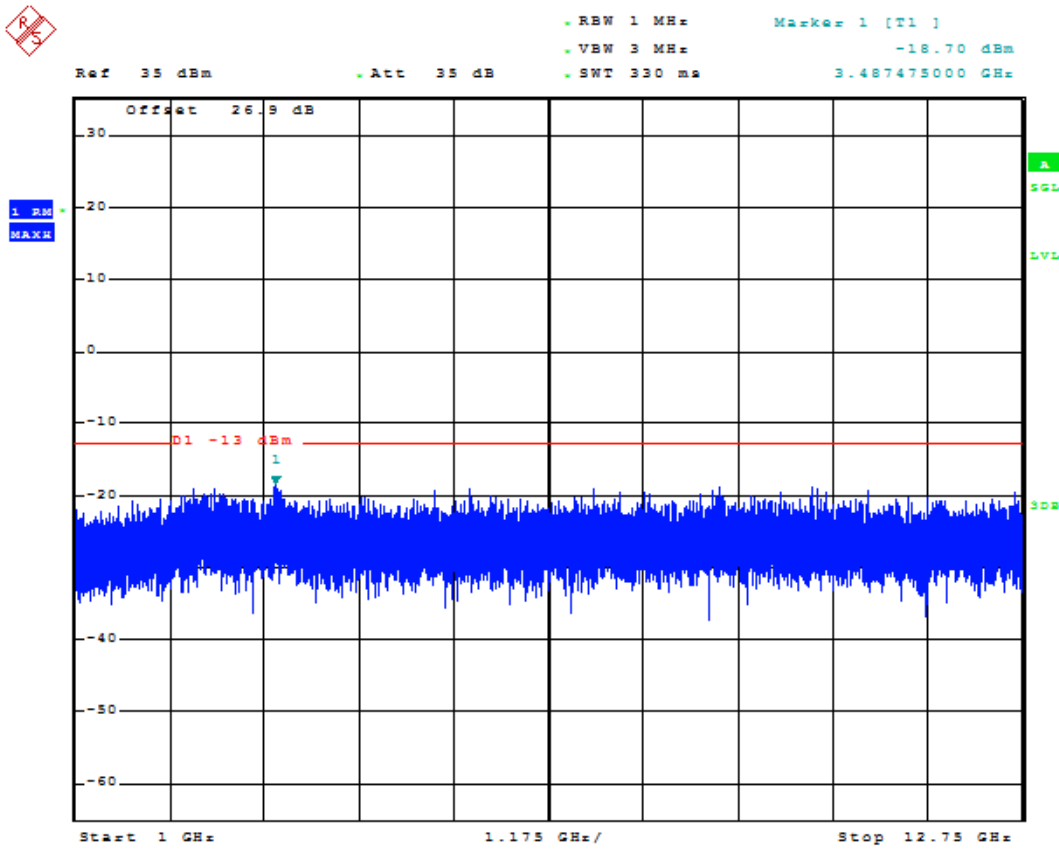
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Date: 3.OCT.2017 13:37:04



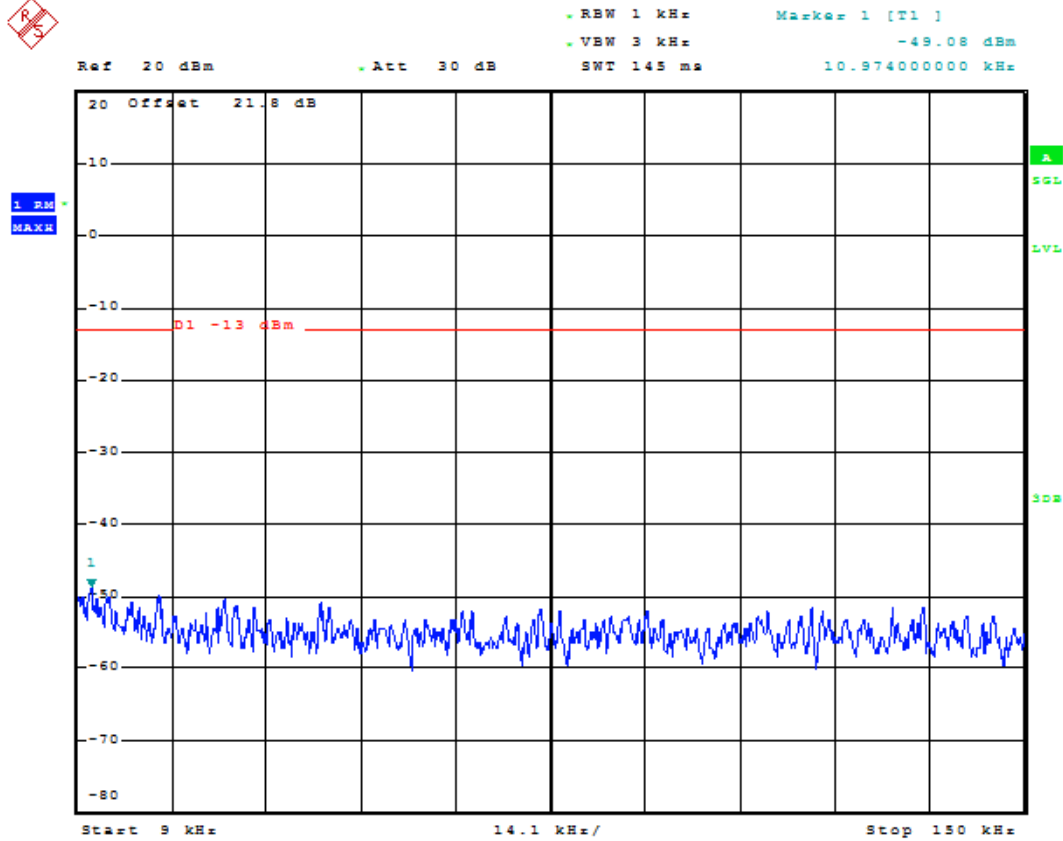
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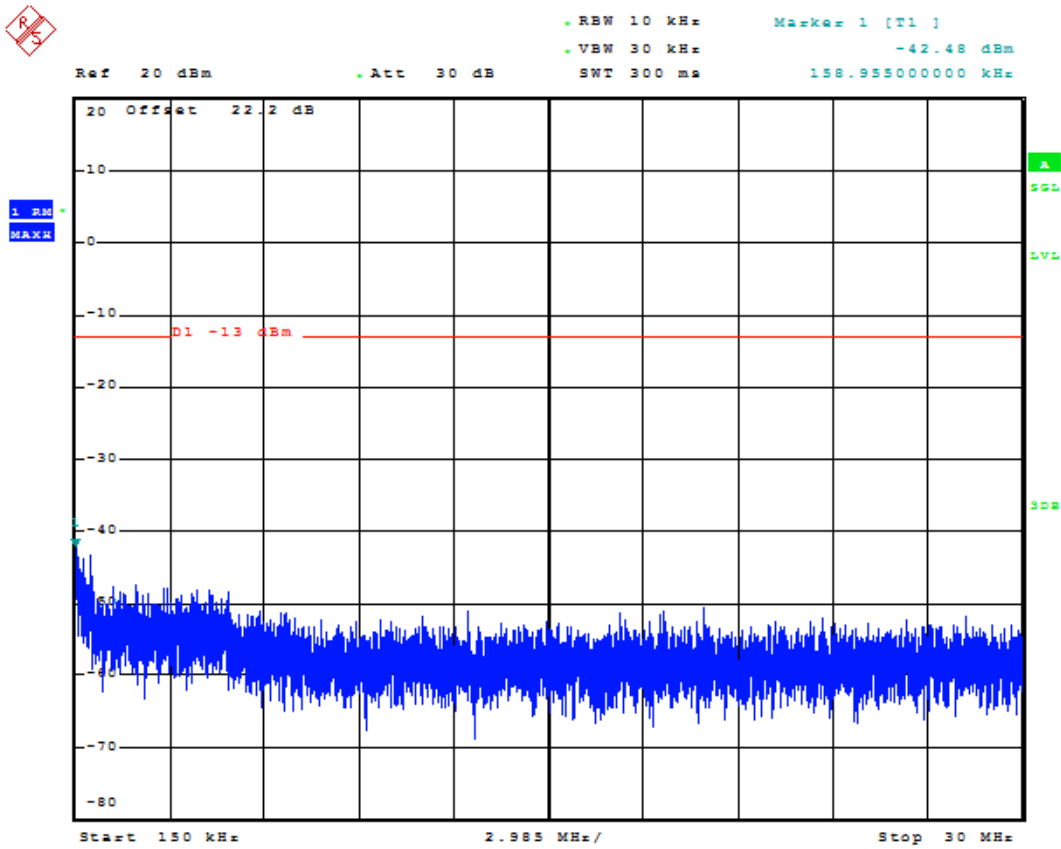
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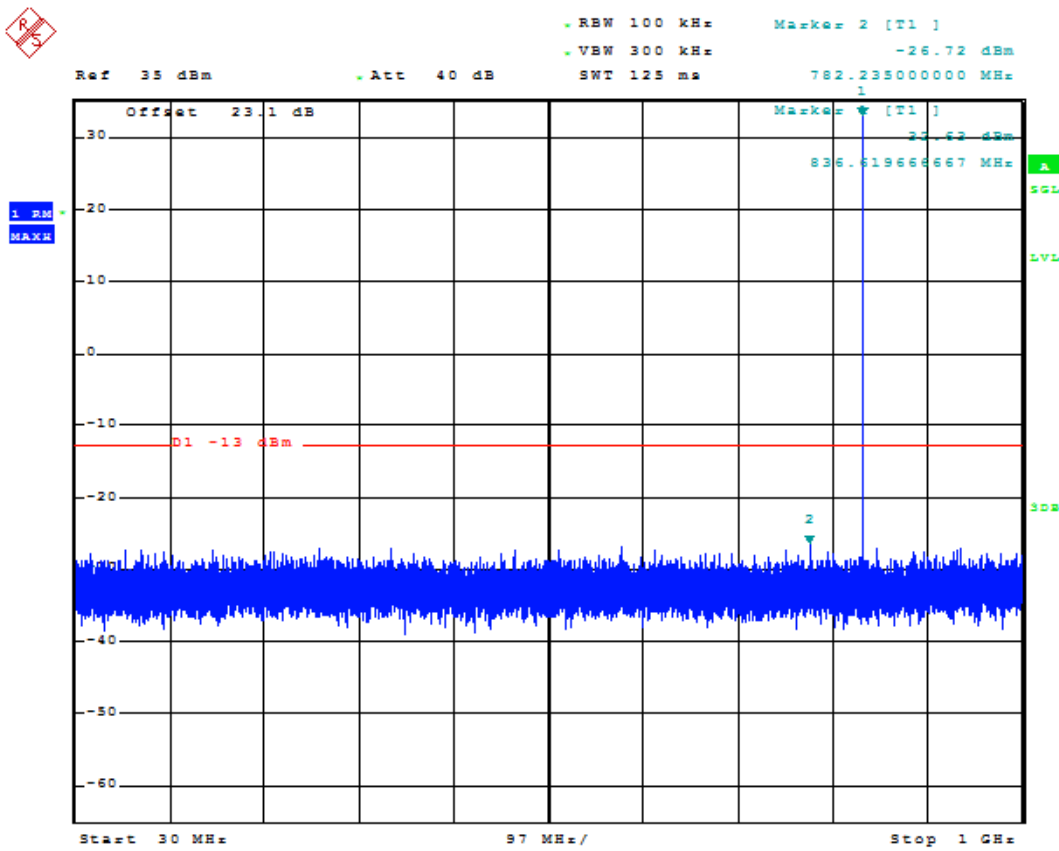
### 1.1.2.2 Test Channel=MCH



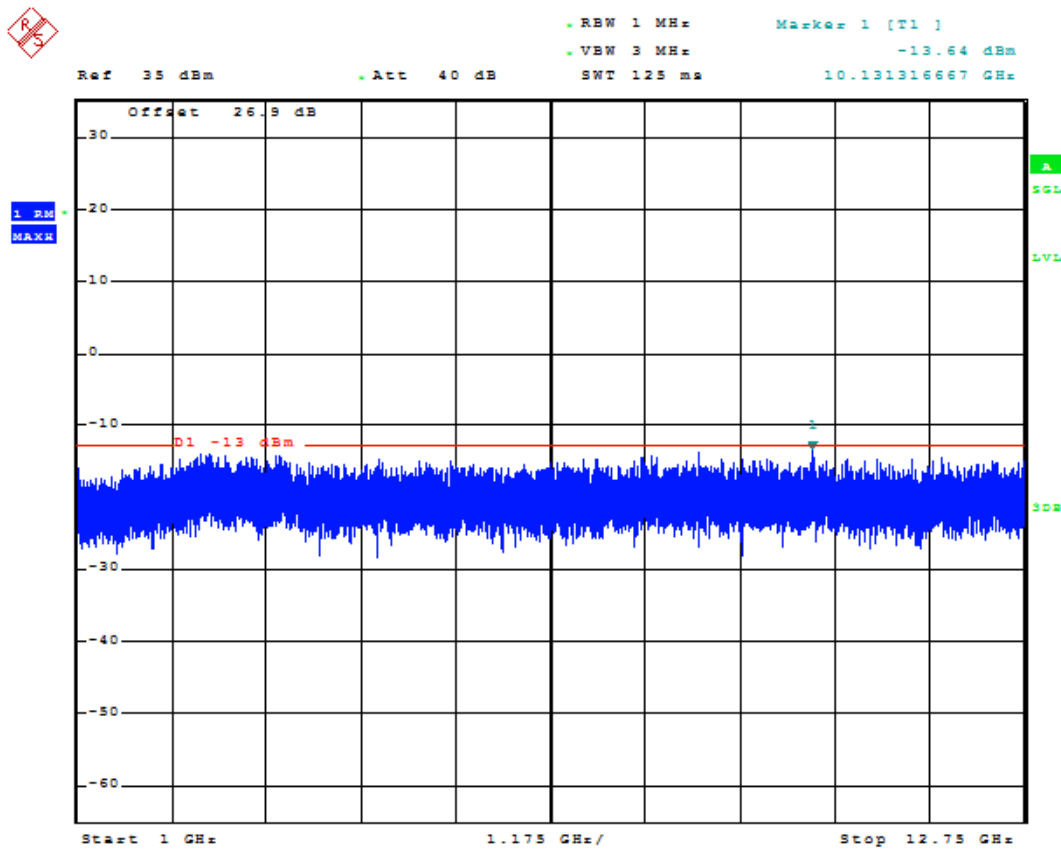
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Date: 3.OCT.2017 13:37:59



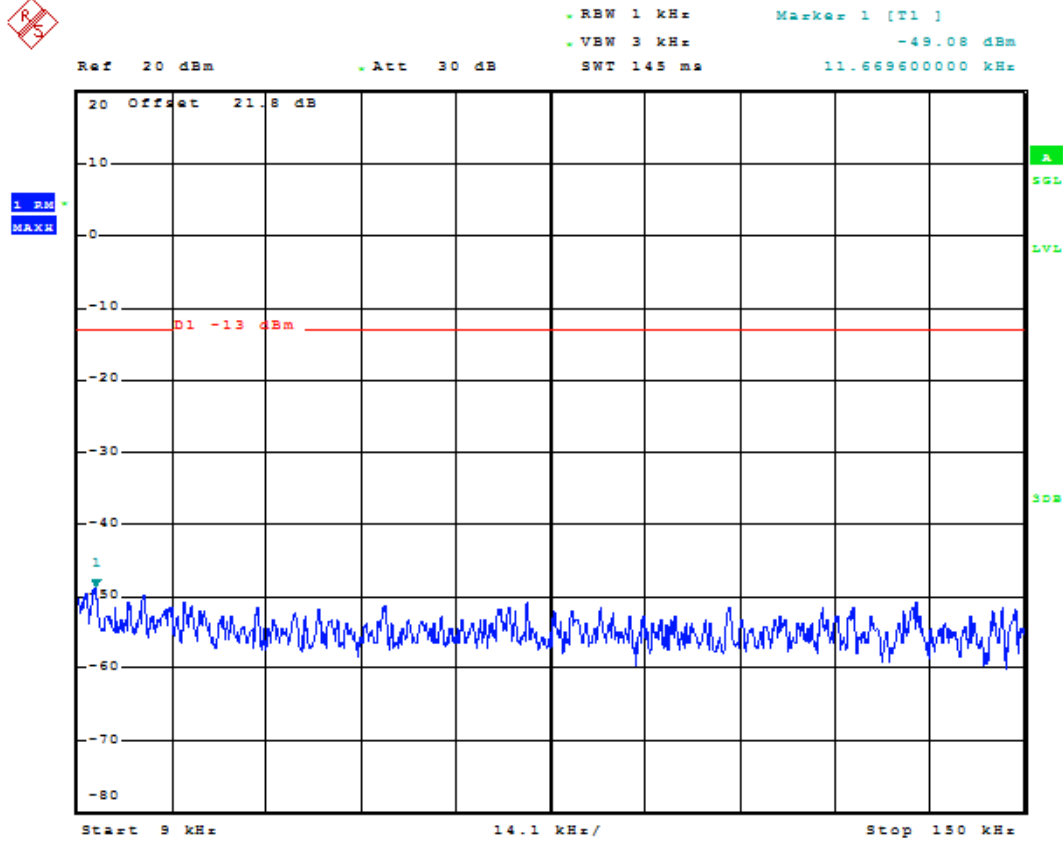
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Date: 3.OCT.2017 13:38:18



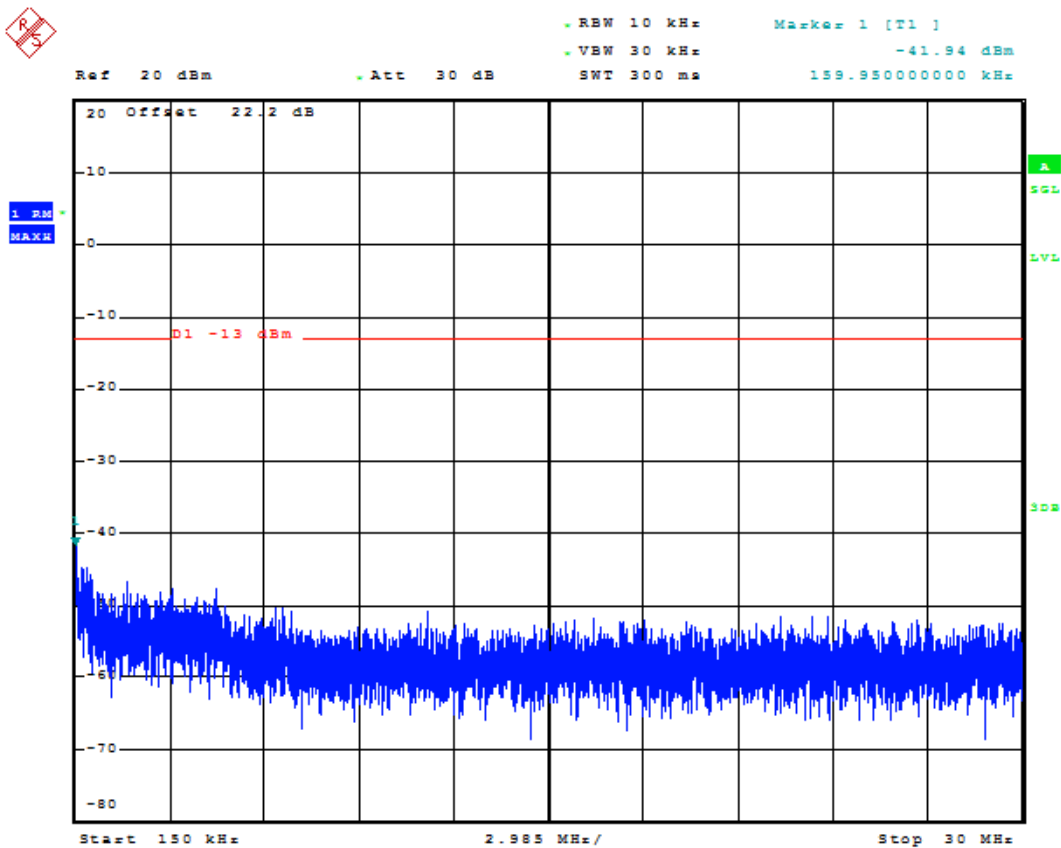
### 1.1.2.3 Test Channel=HCH



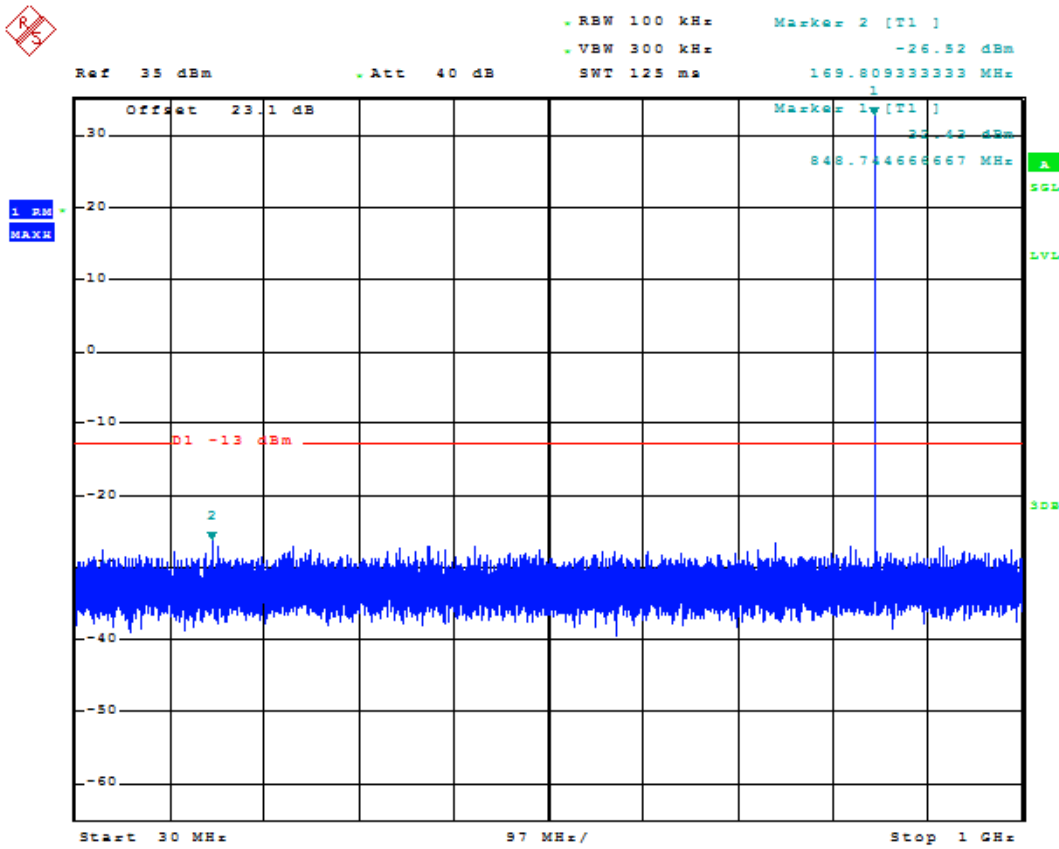
Date: 3.OCT.2017 13:38:35



Report Number: 1709FR17-01



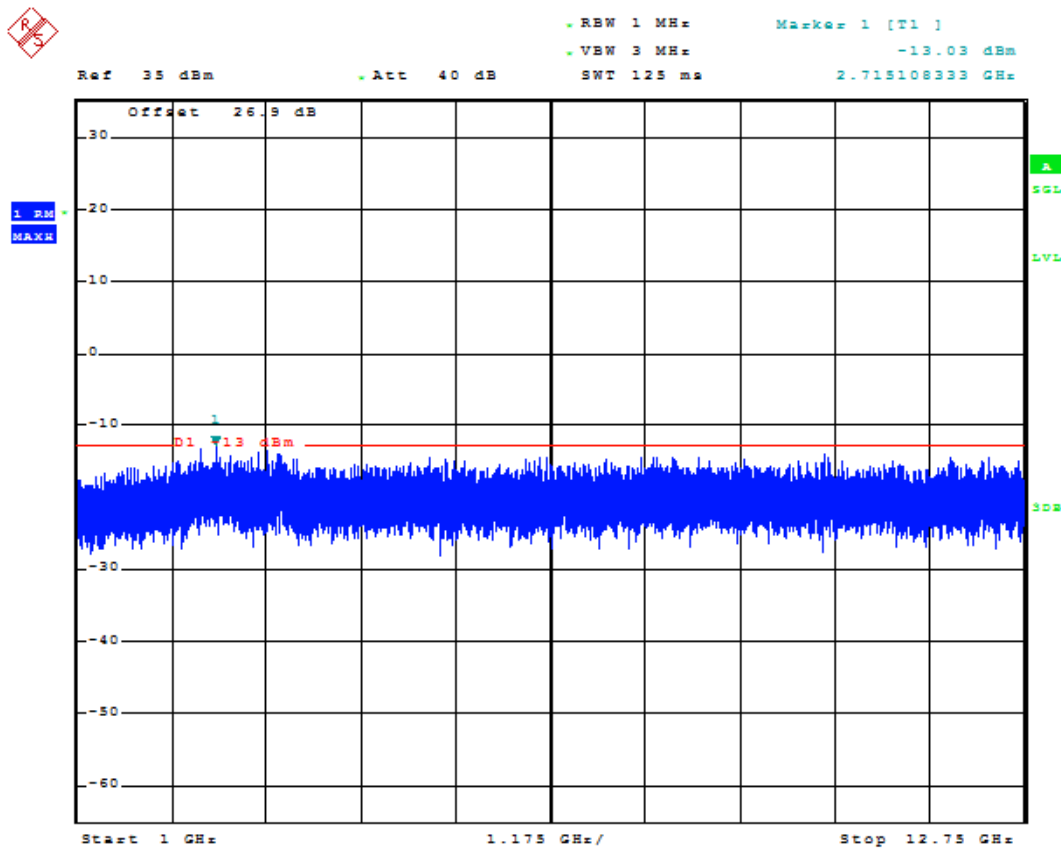
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Date: 3.OCT.2017 13:38:54



Report Number: 1709FR17-01

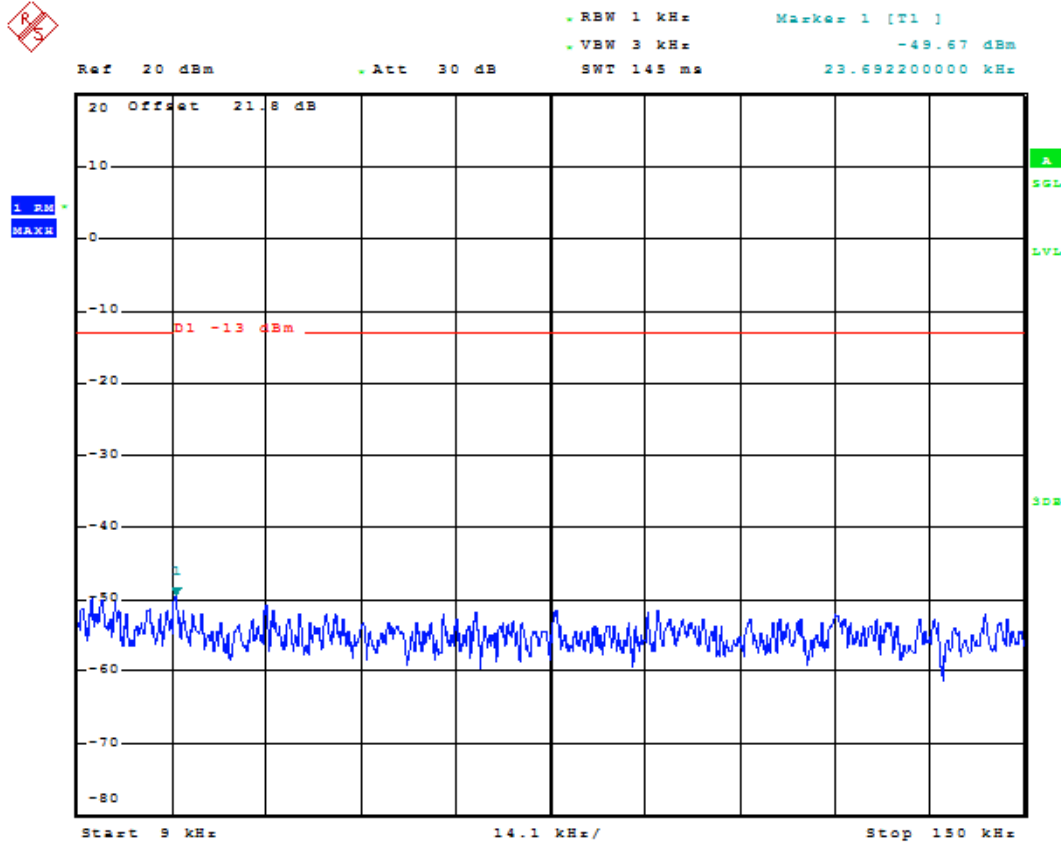


Date: 3.OCT.2017 13:39:03



### 1.1.3 Test Mode=GSM/TM3

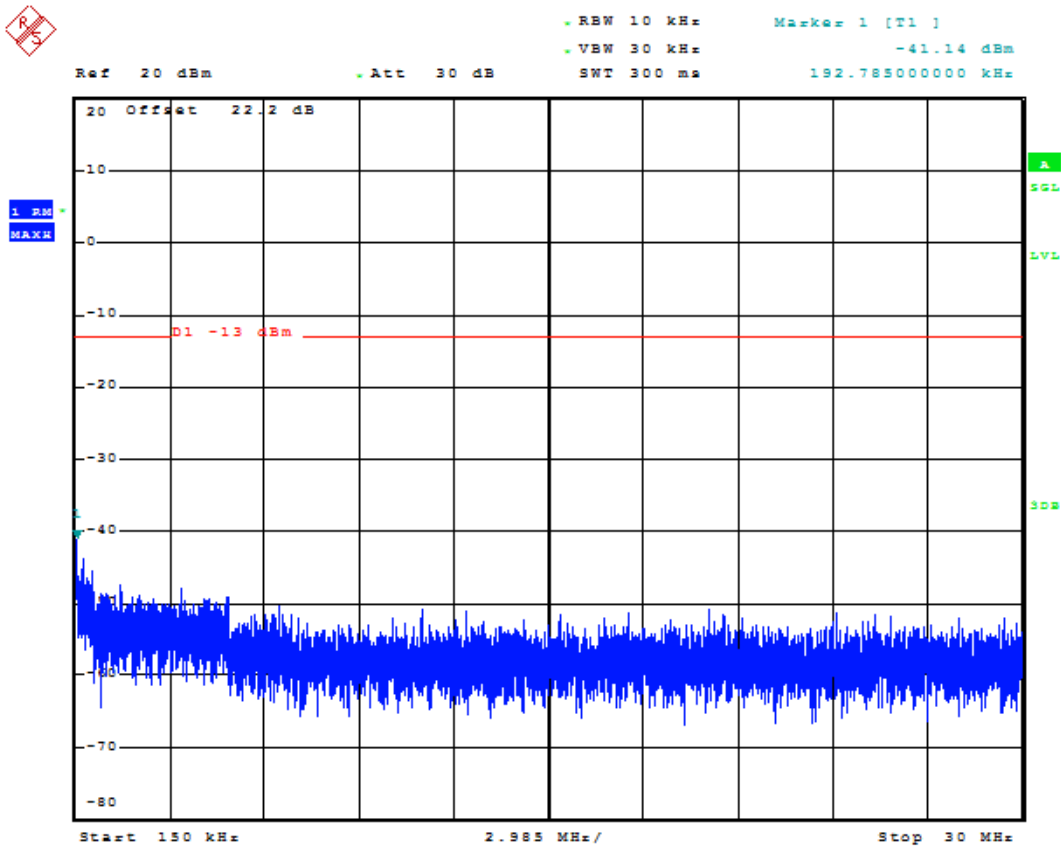
#### 1.1.3.1 Test Channel=LCH



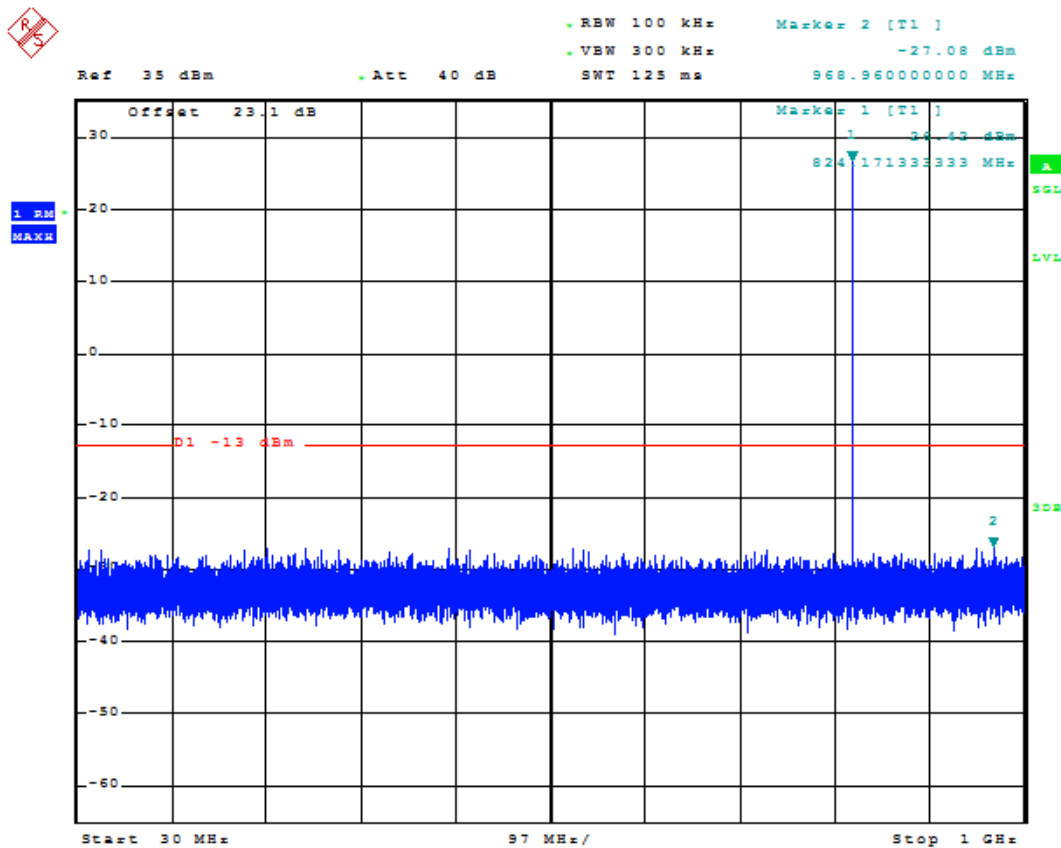
Date: 3.OCT.2017 14:08:16



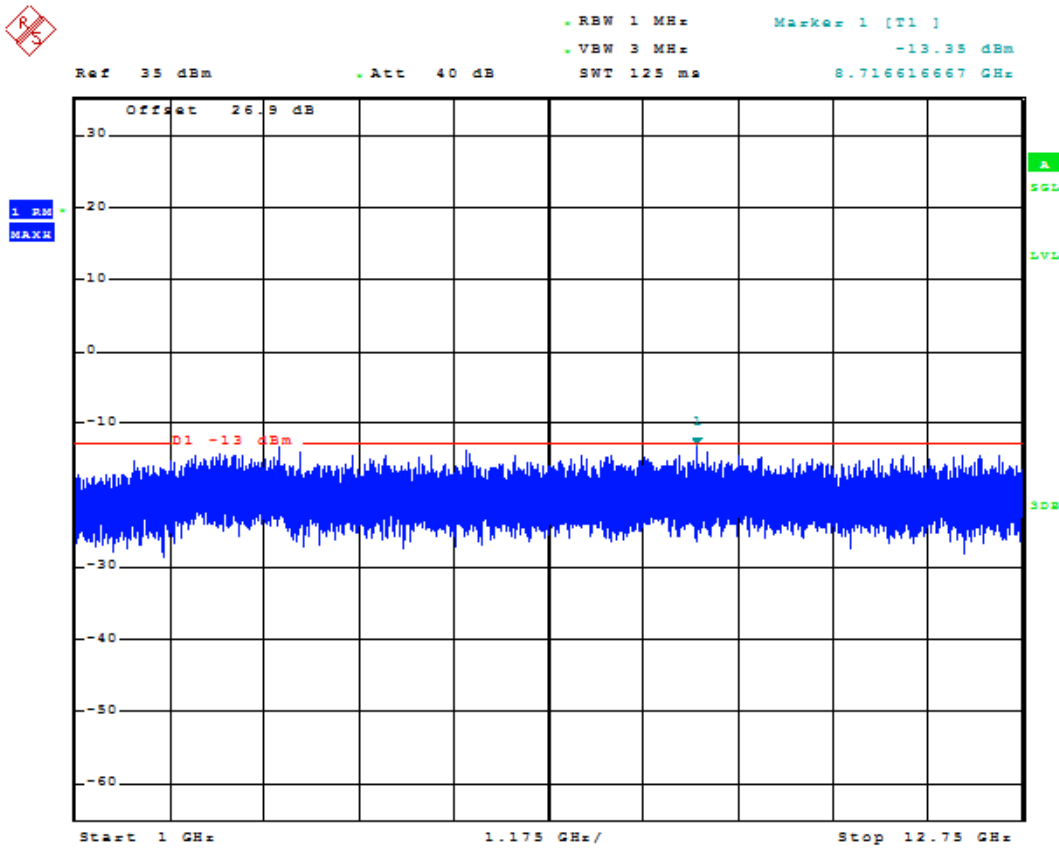
Report Number: 1709FR17-01



Date: 3.OCT.2017 14:08:26



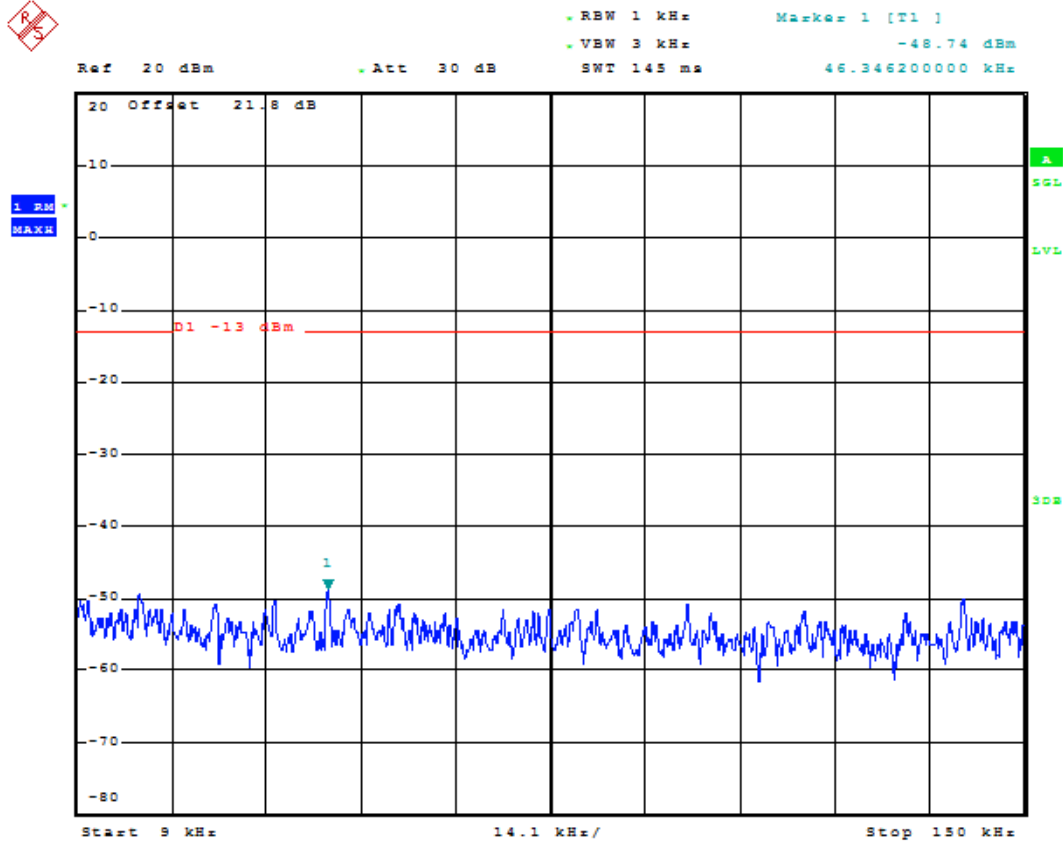
Date: 3.OCT.2017 14:08:36



Date: 3.OCT.2017 14:08:46



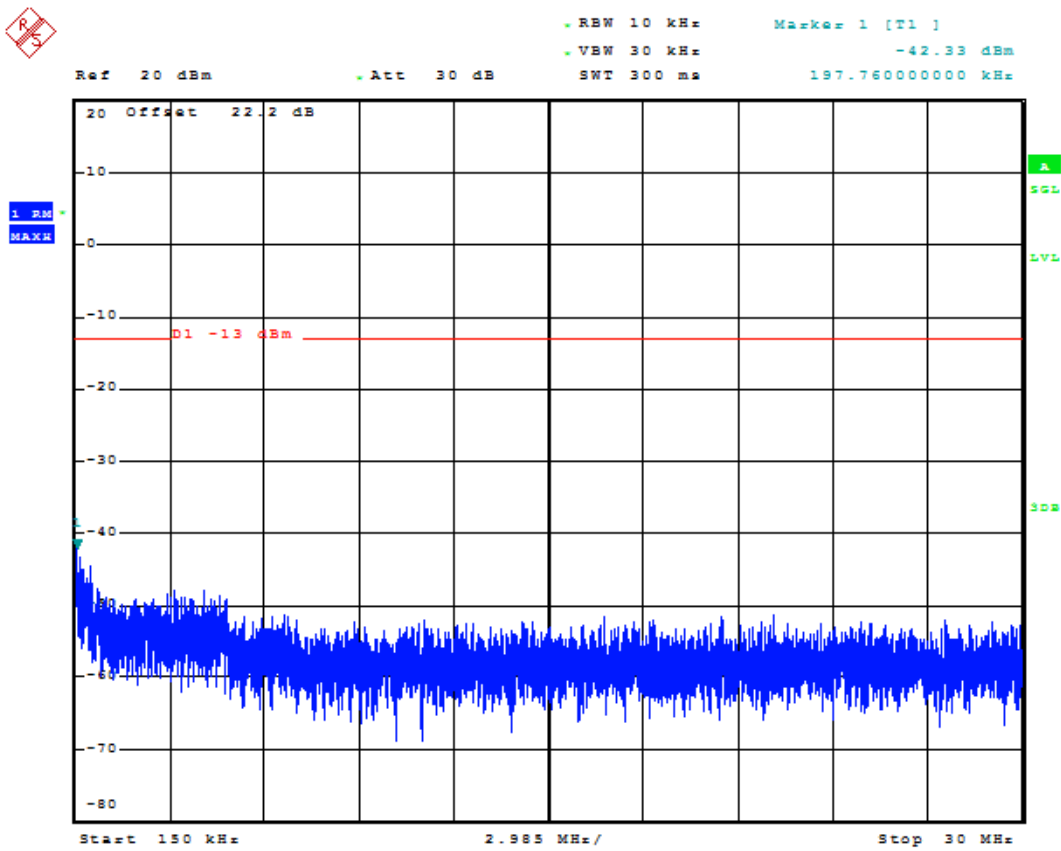
### 1.1.3.2 Test Channel=MCH



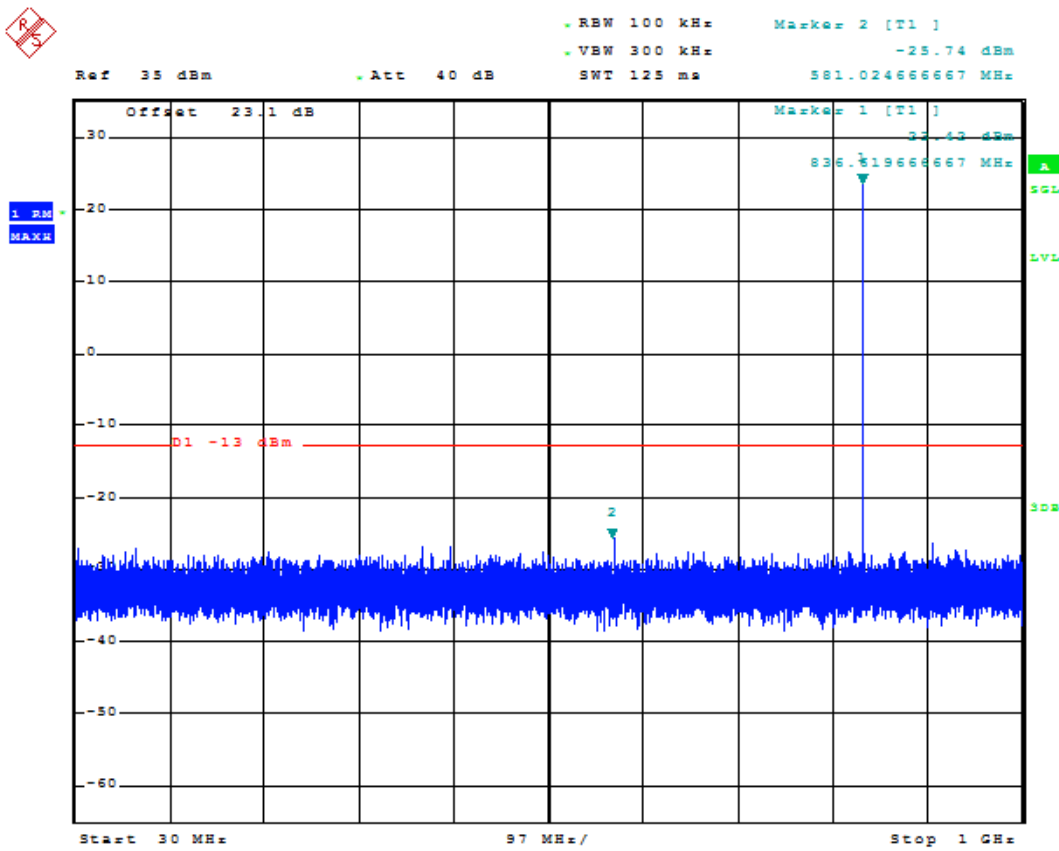
Date: 3.OCT.2017 14:09:04



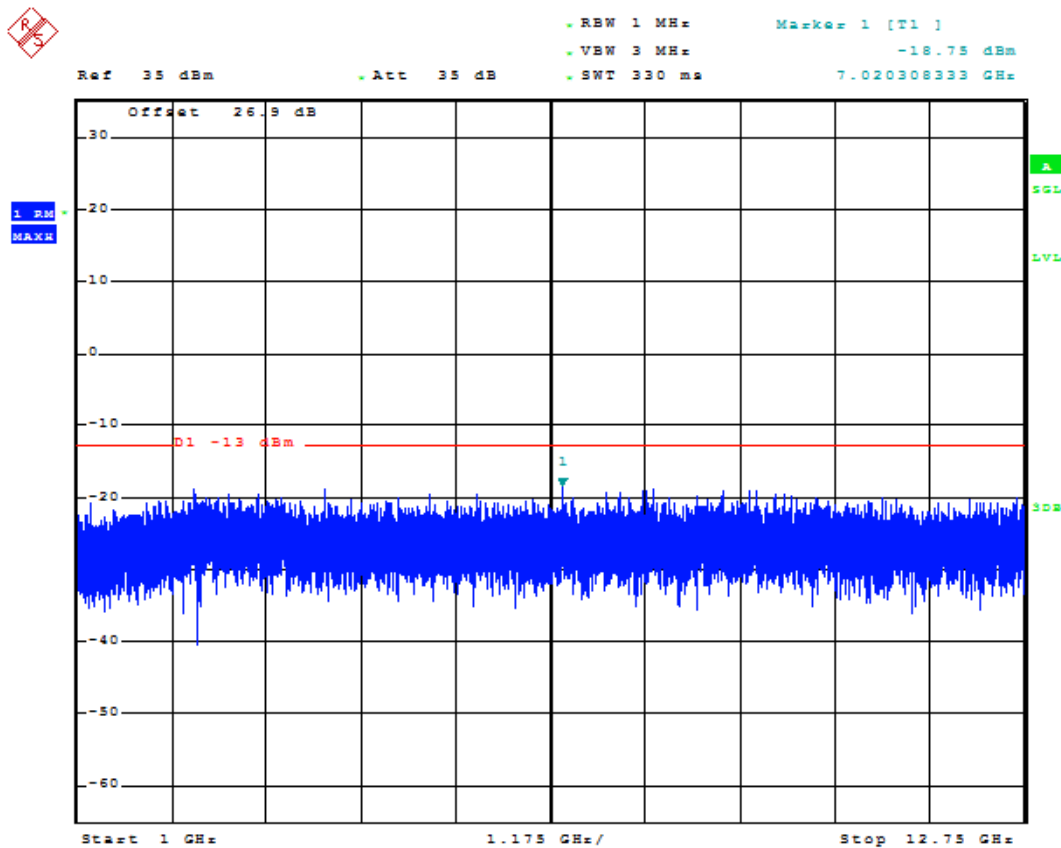
Report Number: 1709FR17-01



Date: 3.OCT.2017 14:09:13



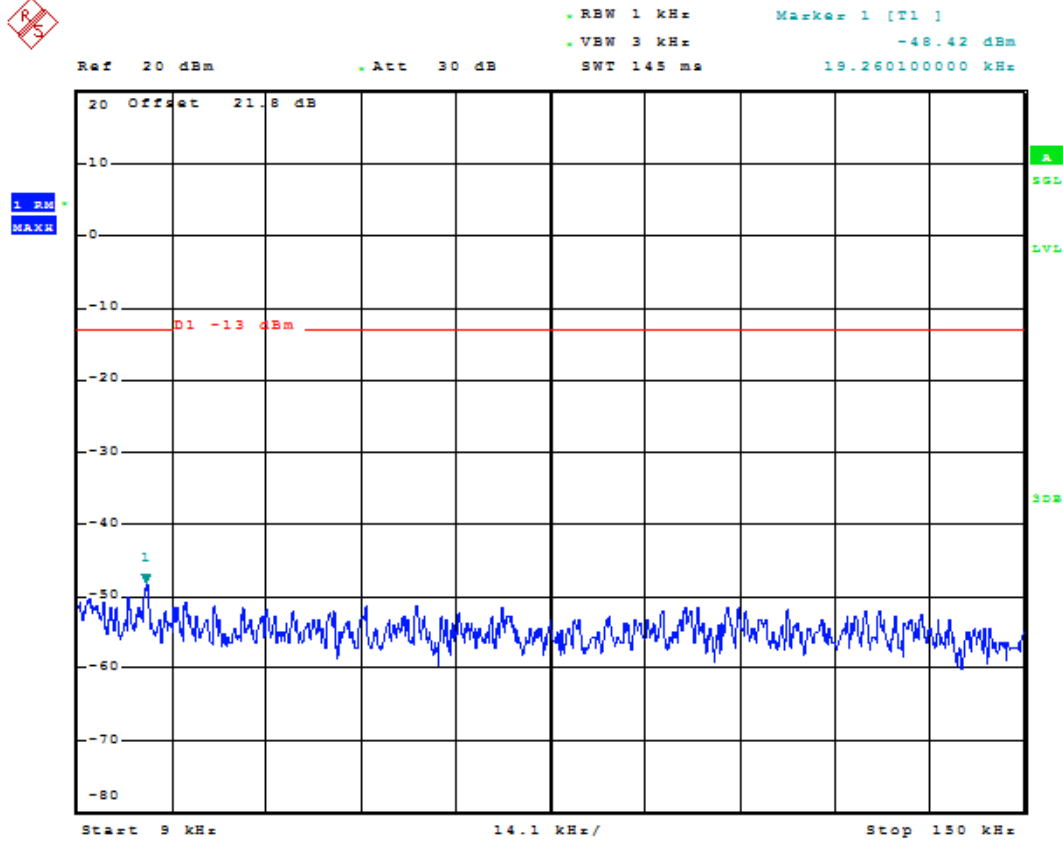
Date: 3.OCT.2017 14:09:24



Date: 3.OCT.2017 14:09:41



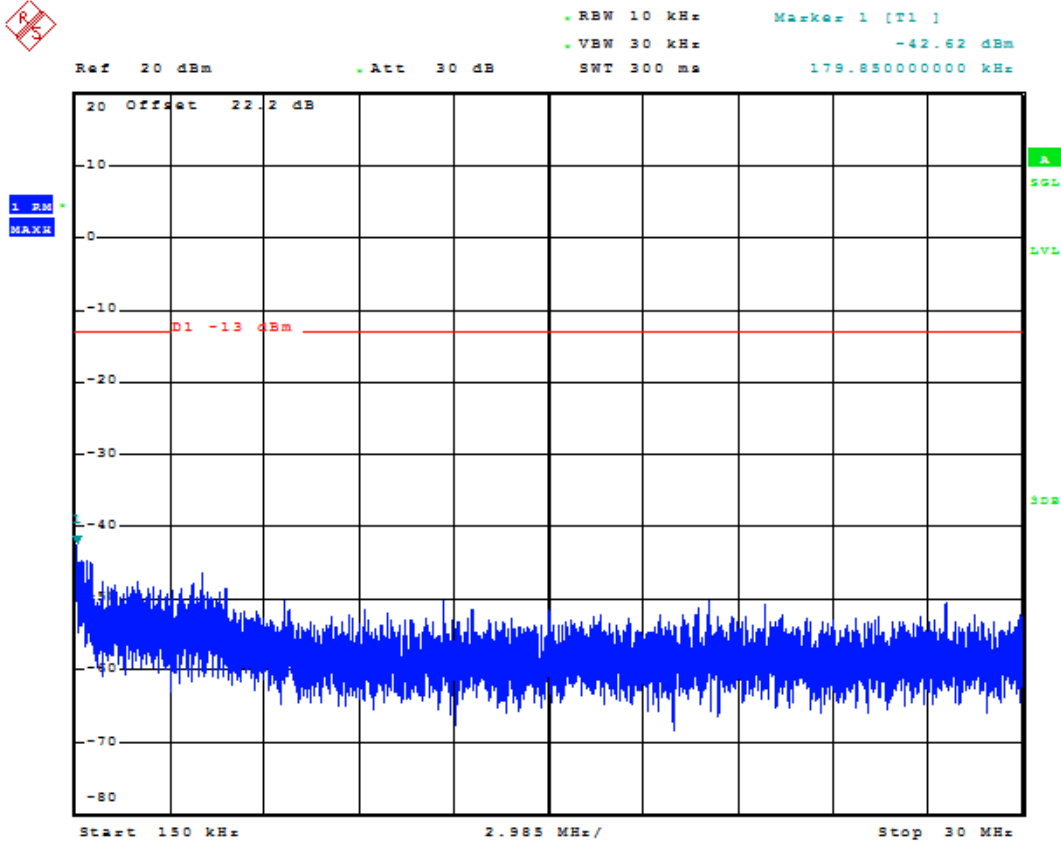
### 1.1.3.3 Test Channel=HCH



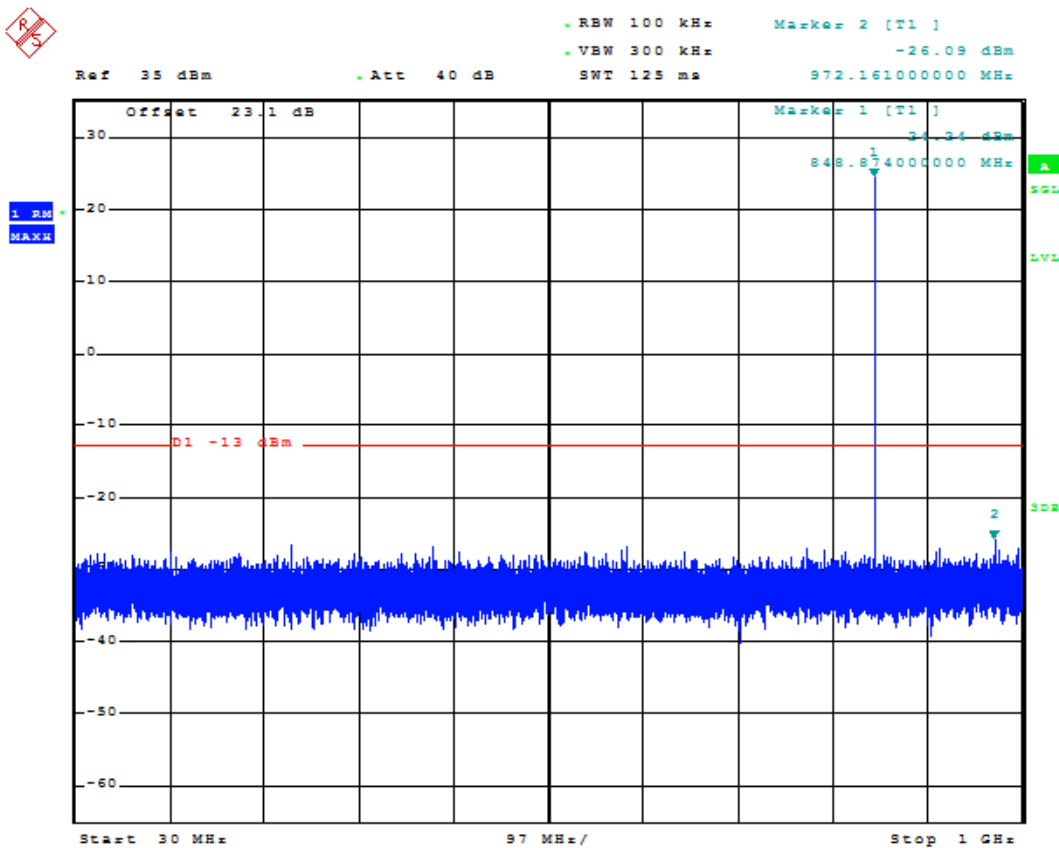
Date: 3.OCT.2017 14:09:59



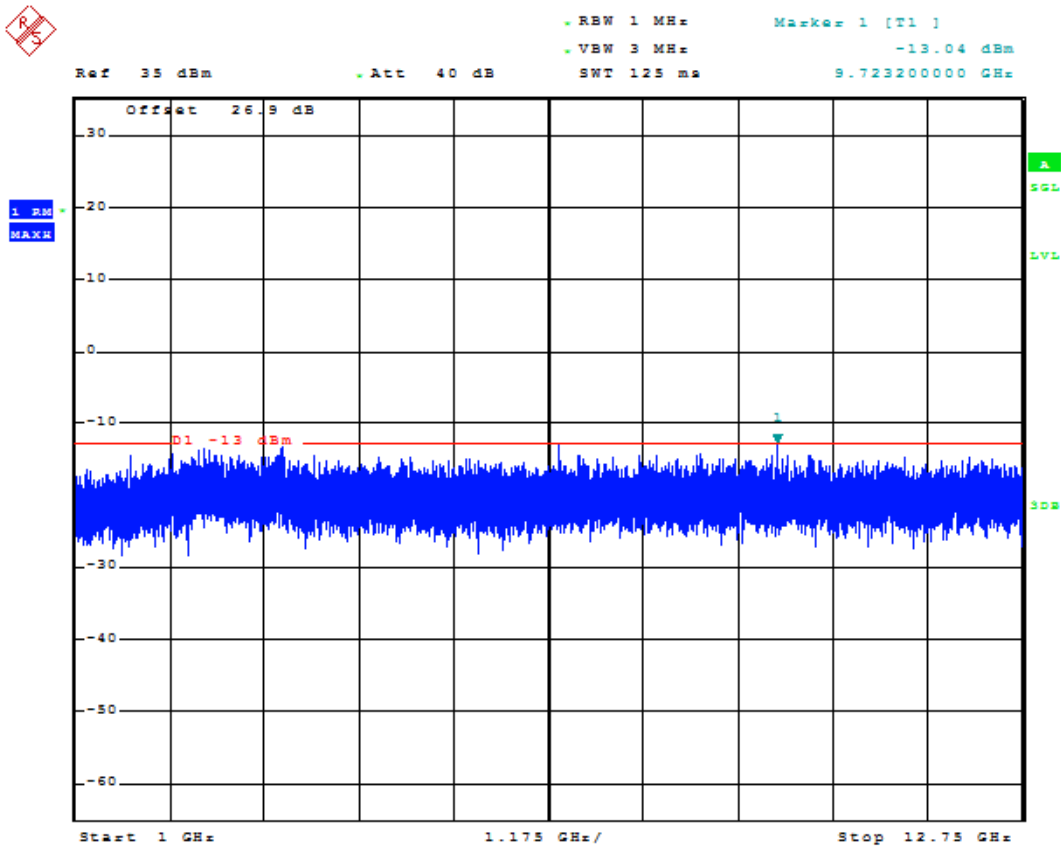
Report Number: 1709FR17-01



Date: 3.OCT.2017 14:10:08



Date: 3.OCT.2017 14:10:19



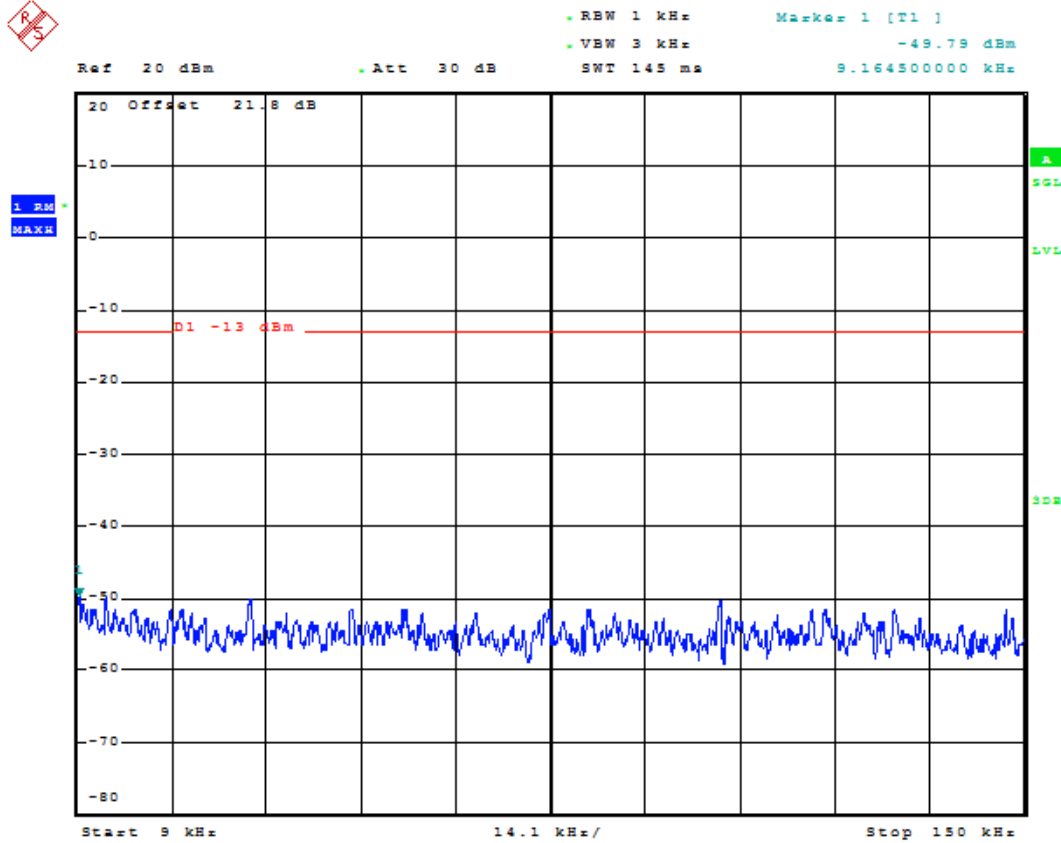
Date: 3.OCT.2017 14:10:29



1.2 Test Band=GSM1900

1.2.1 Test Mode=GSM/TM1

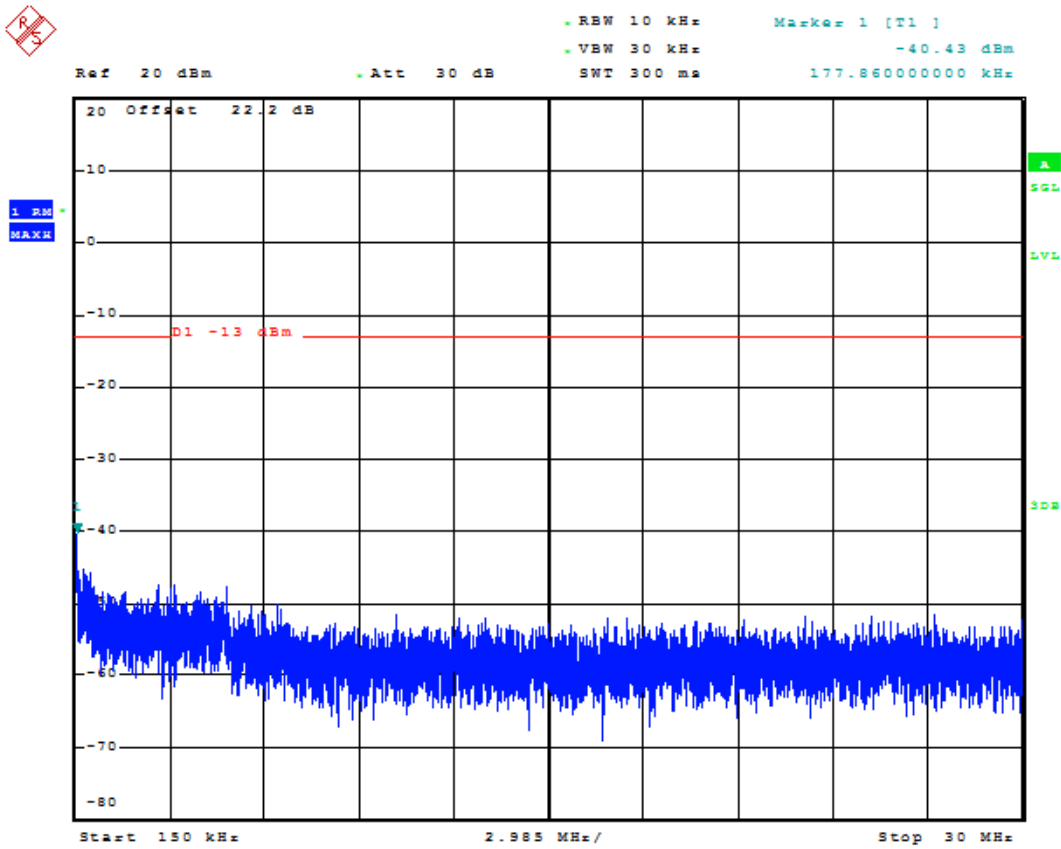
1.2.1.1 Test Channel=LCH



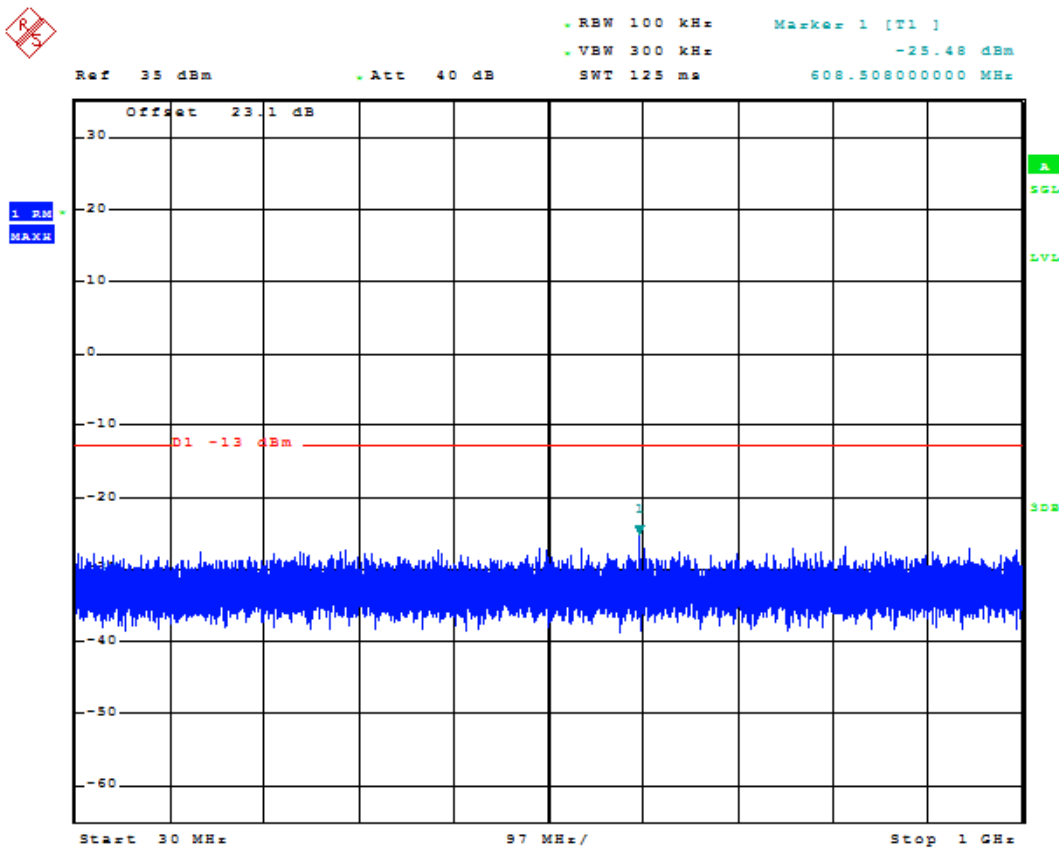
Date: 3.OCT.2017 13:02:55



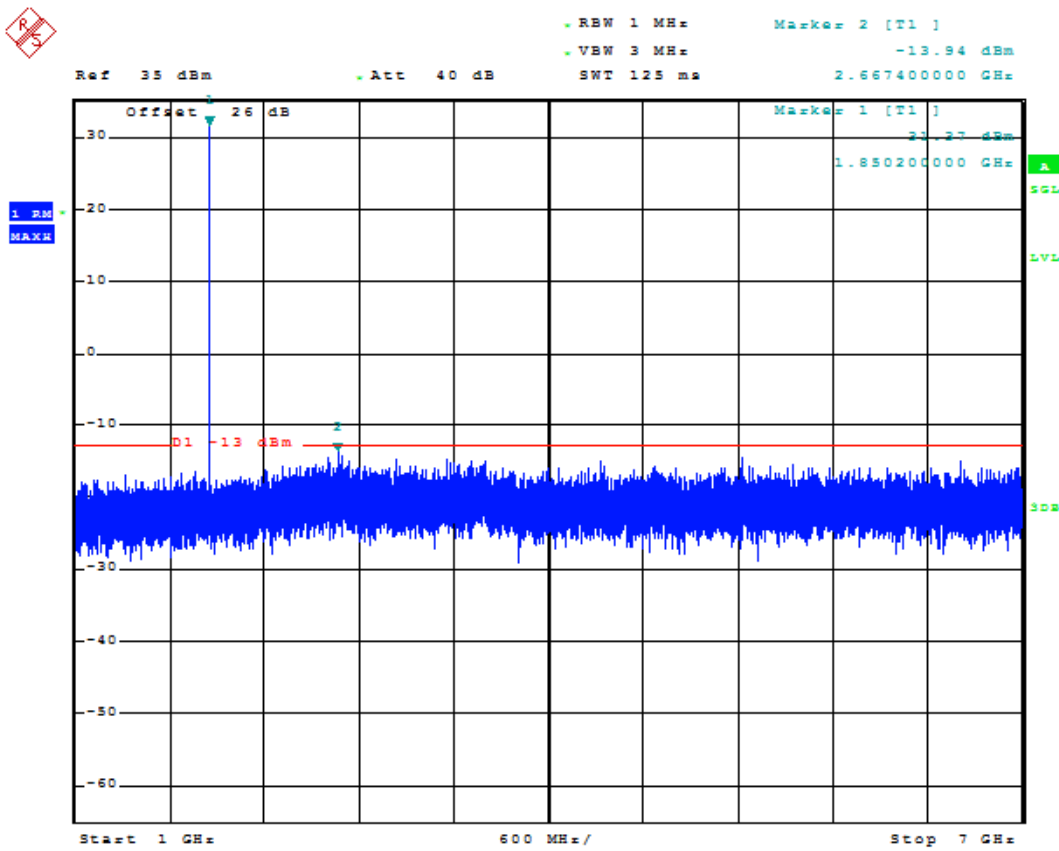
Report Number: 1709FR17-01



Date: 3.OCT.2017 13:03:05



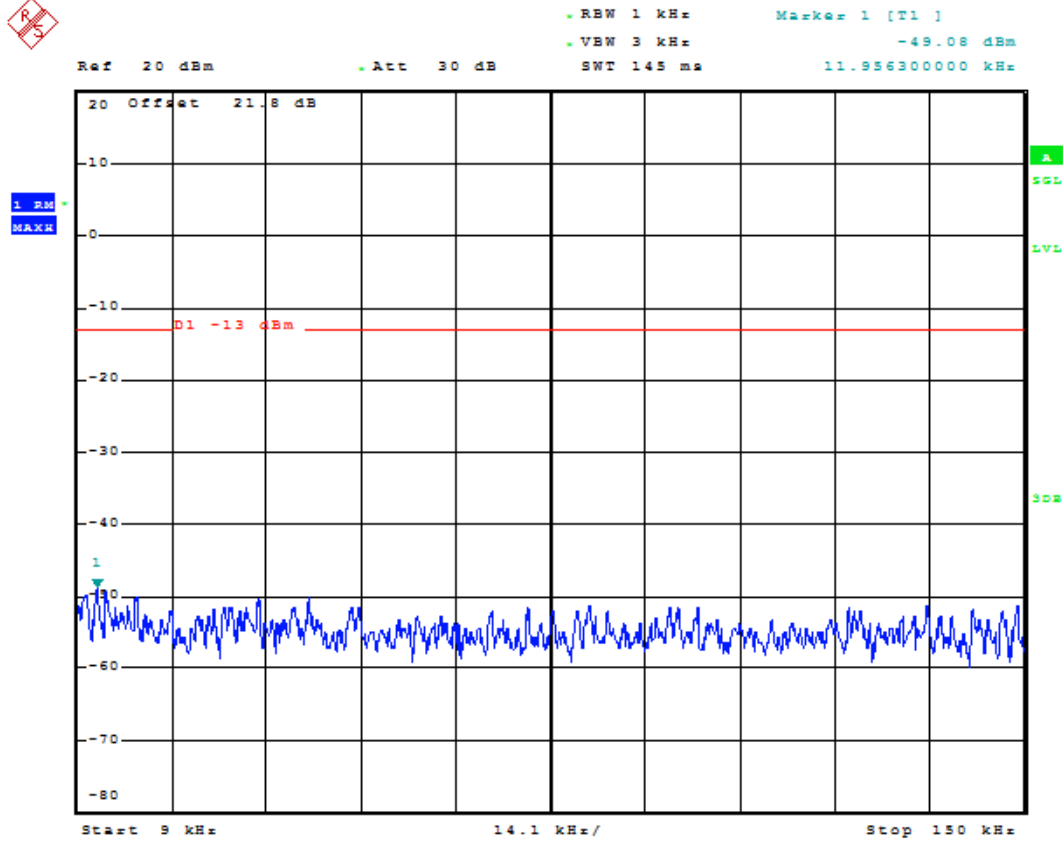
Date: 3.OCT.2017 13:03:15



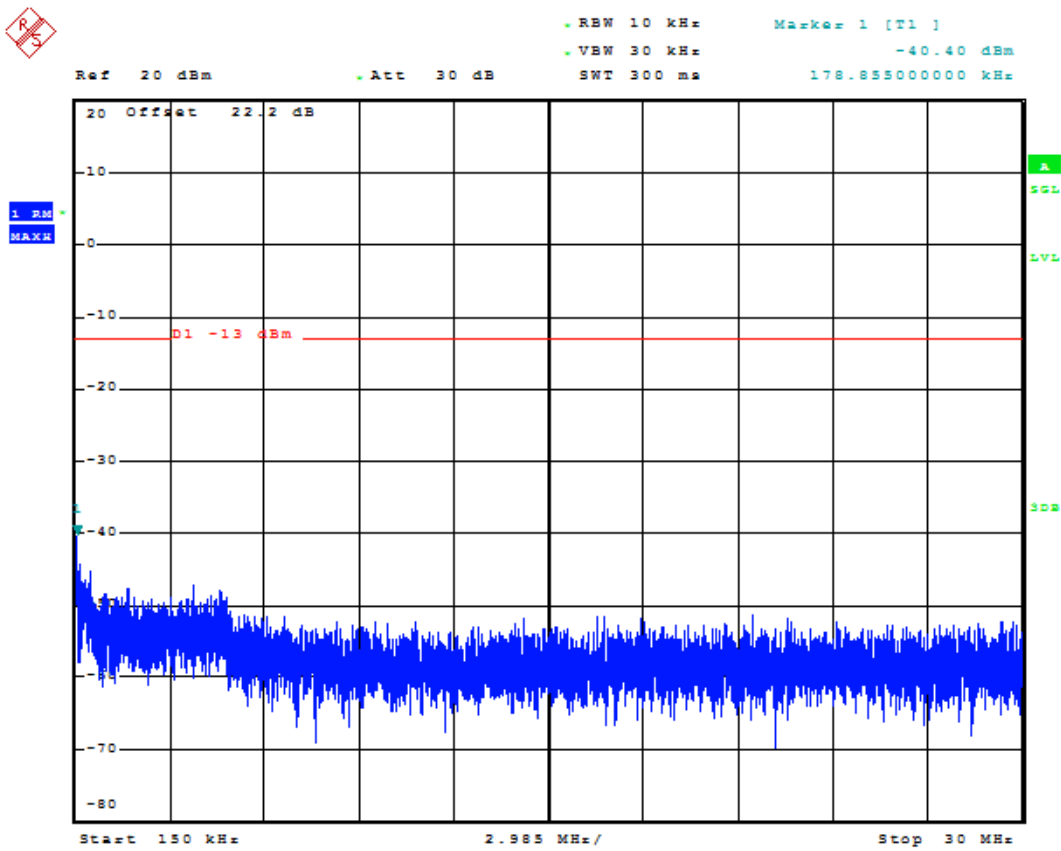
Date: 3.OCT.2017 13:03:26



### 1.2.1.2 Test Channel=MCH



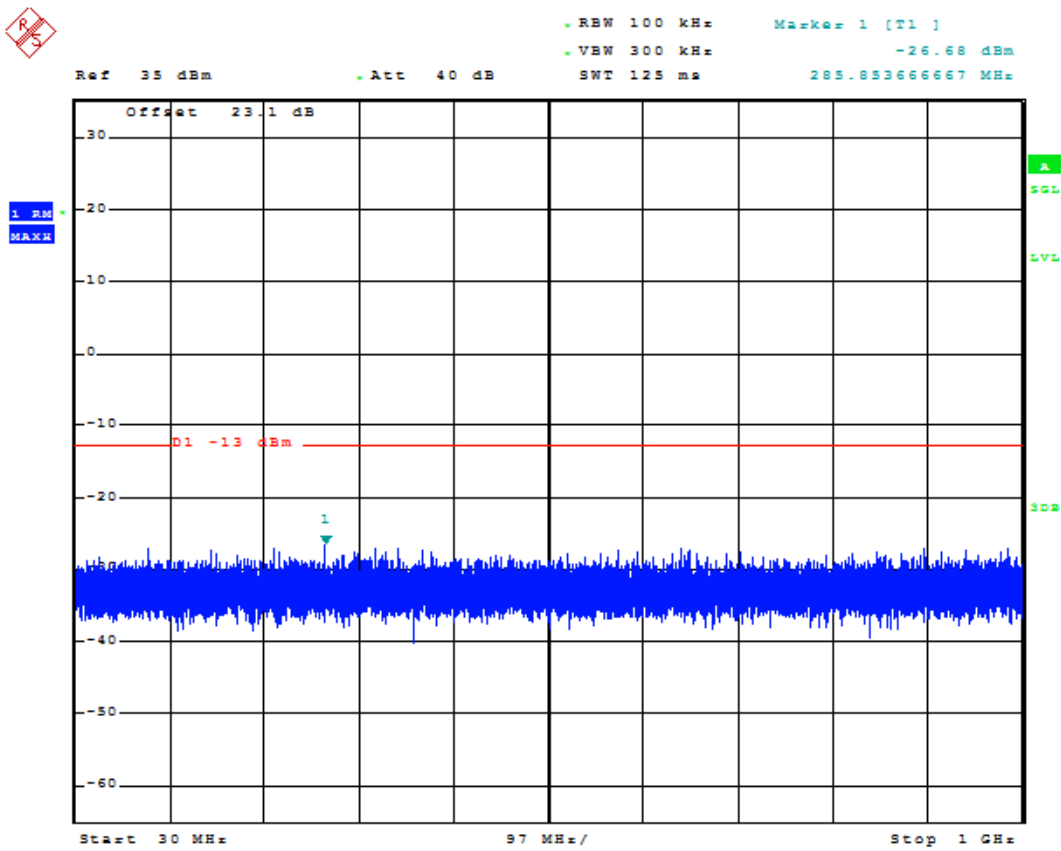
Date: 3.OCT.2017 13:04:20



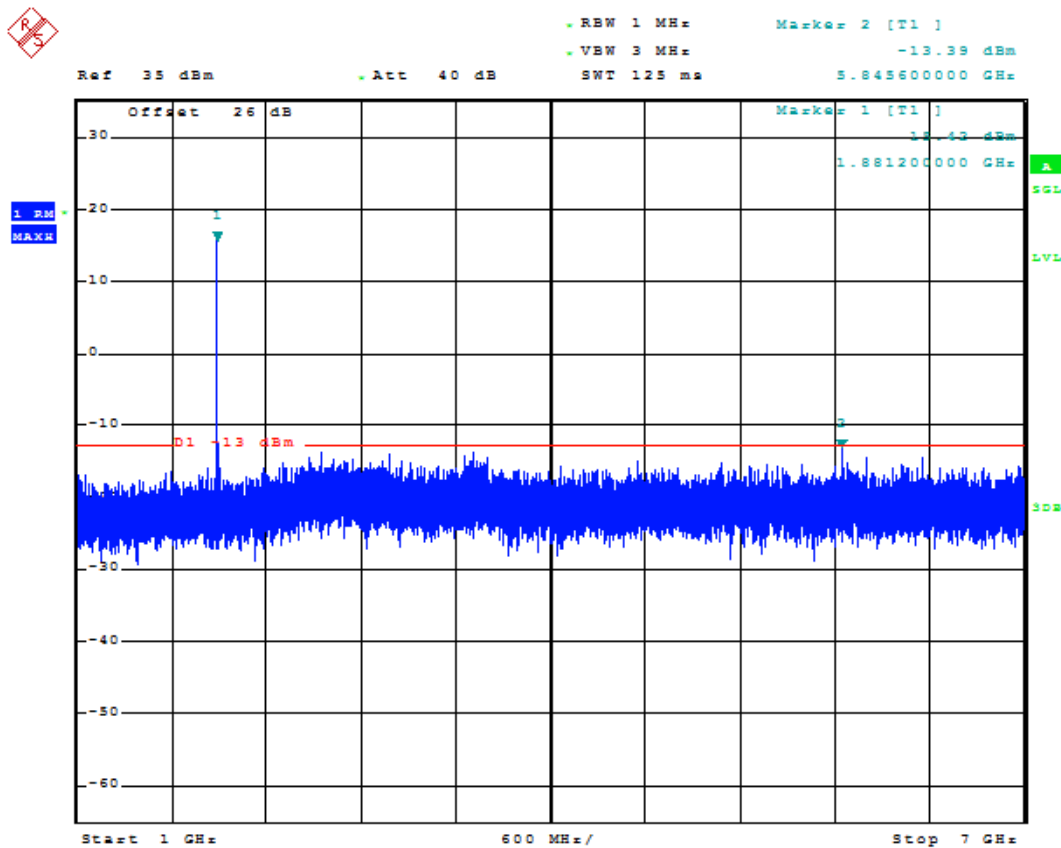
Date: 3.OCT.2017 13:04:30



Report Number: 1709FR17-01

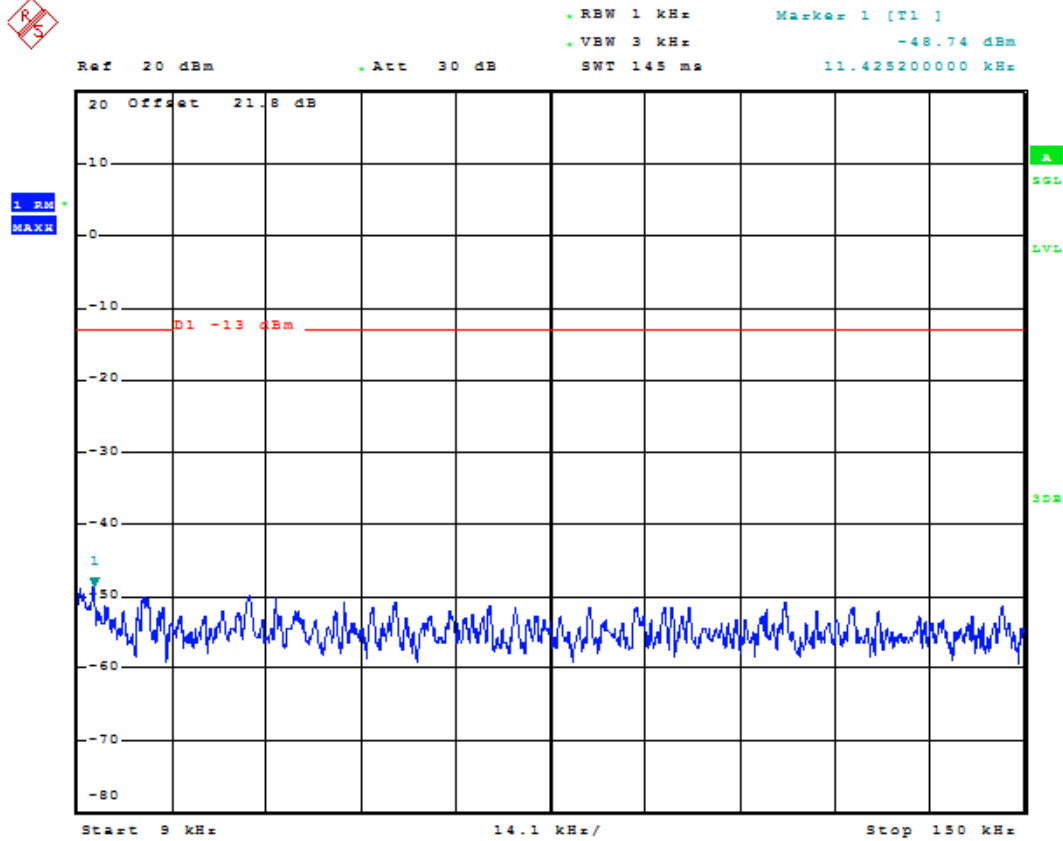


Date: 3.OCT.2017 13:04:41





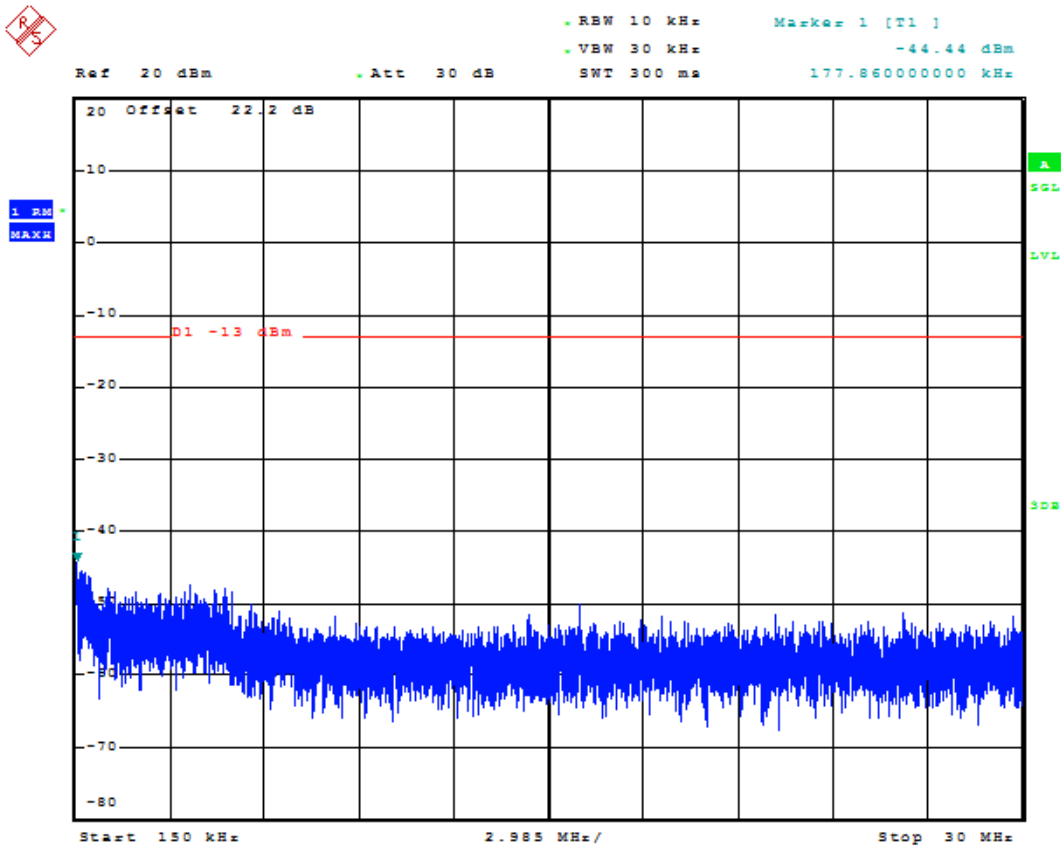
### 1.2.1.3 Test Channel=HCH



Date: 3.OCT.2017 13:05:46



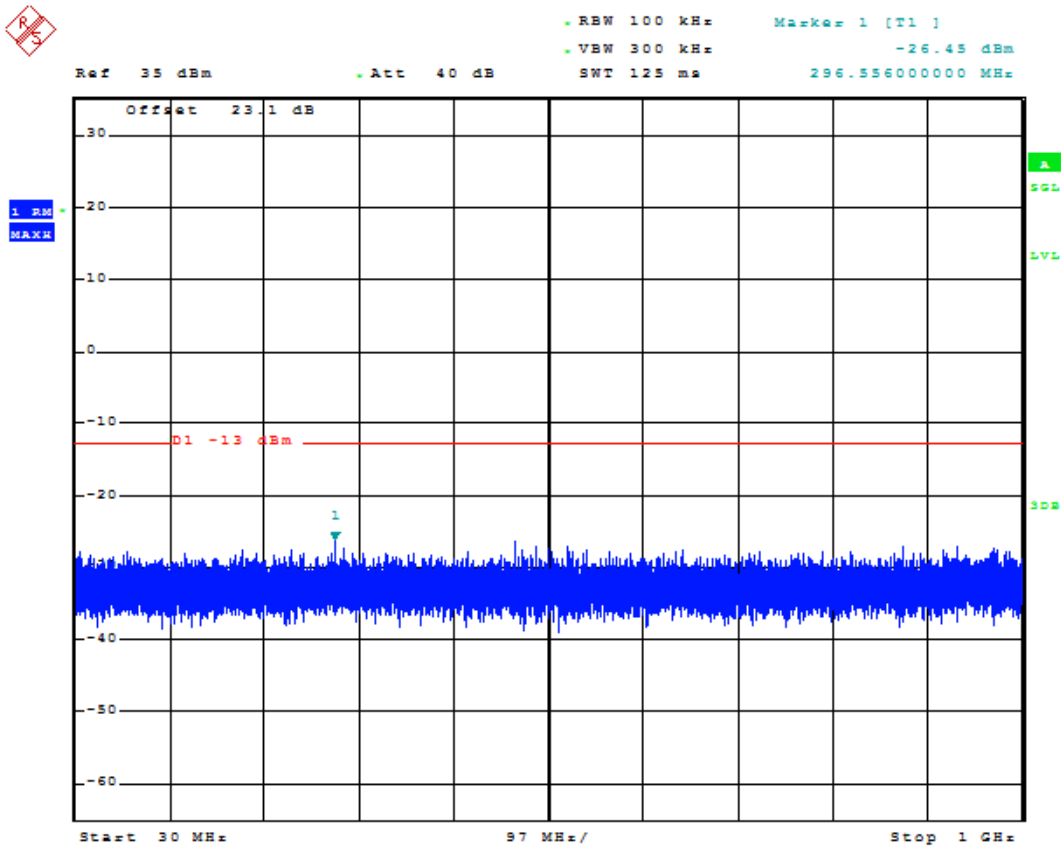
Report Number: 1709FR17-01



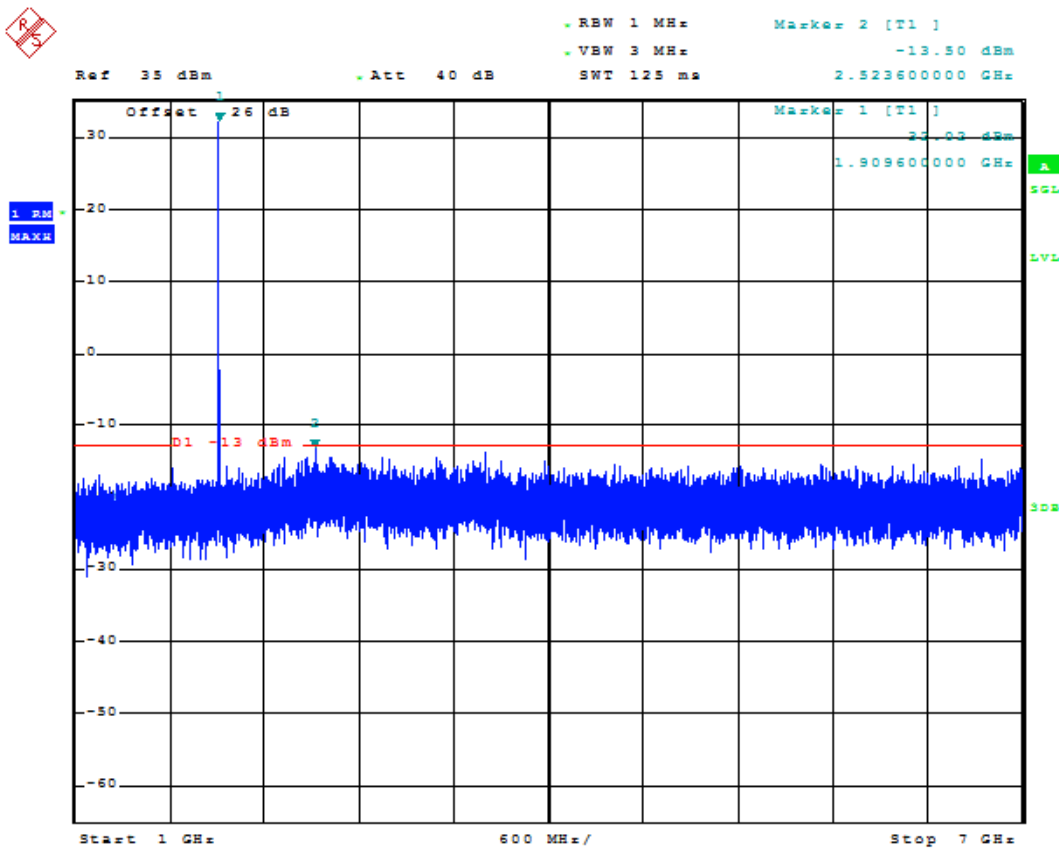
Date: 3.OCT.2017 13:05:56



Report Number: 1709FR17-01



Date: 3.OCT.2017 13:06:06

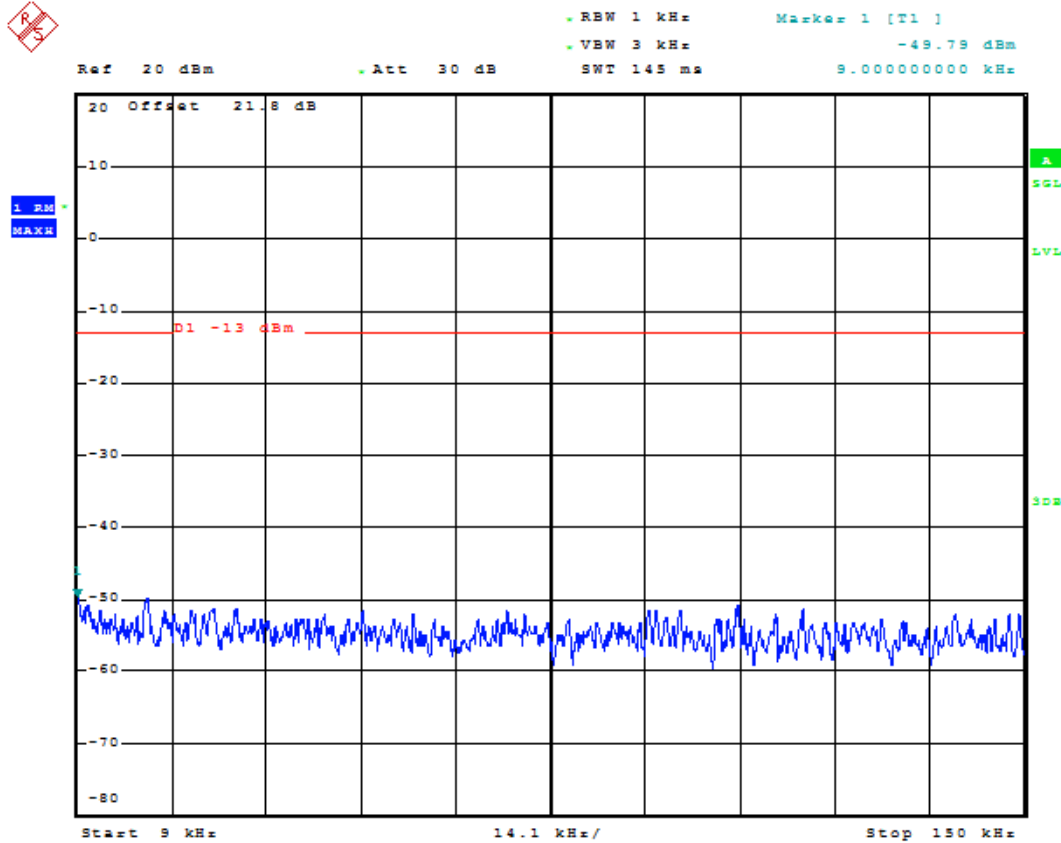


Date: 3.OCT.2017 13:06:17



## 1.2.2 Test Mode=GSM/TM2

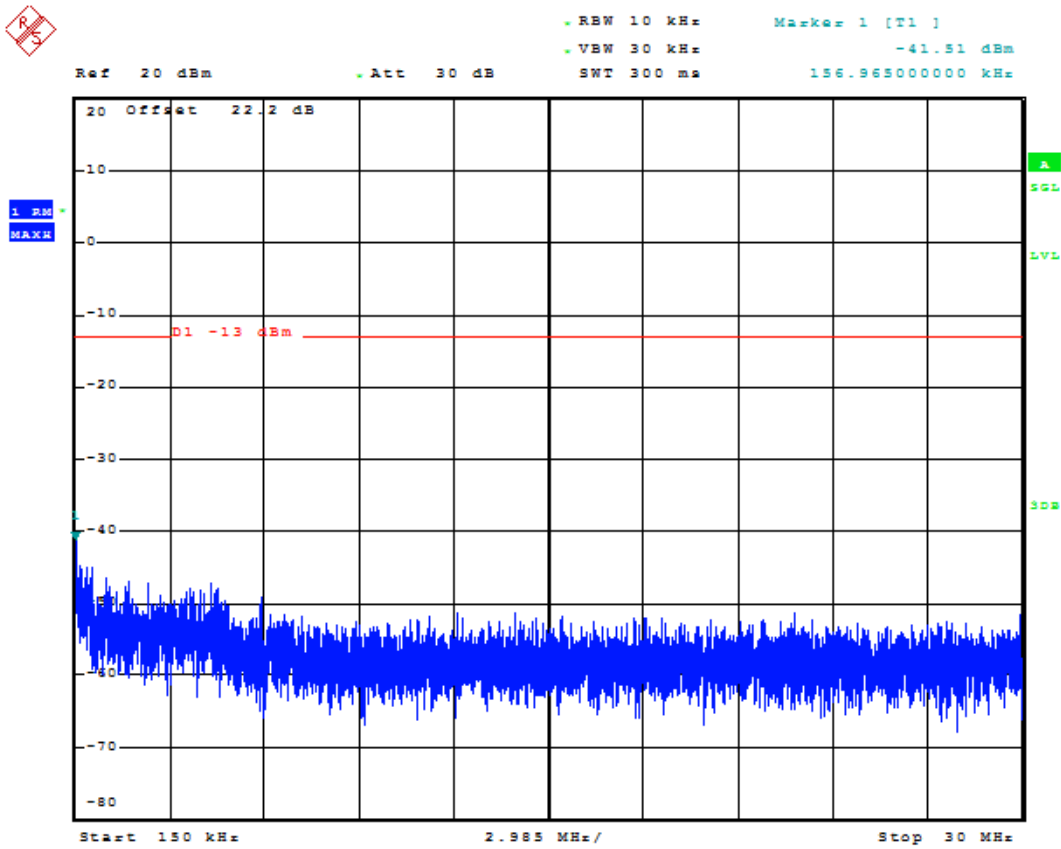
### 1.2.2.1 Test Channel=LCH



Date: 3.OCT.2017 13:51:35



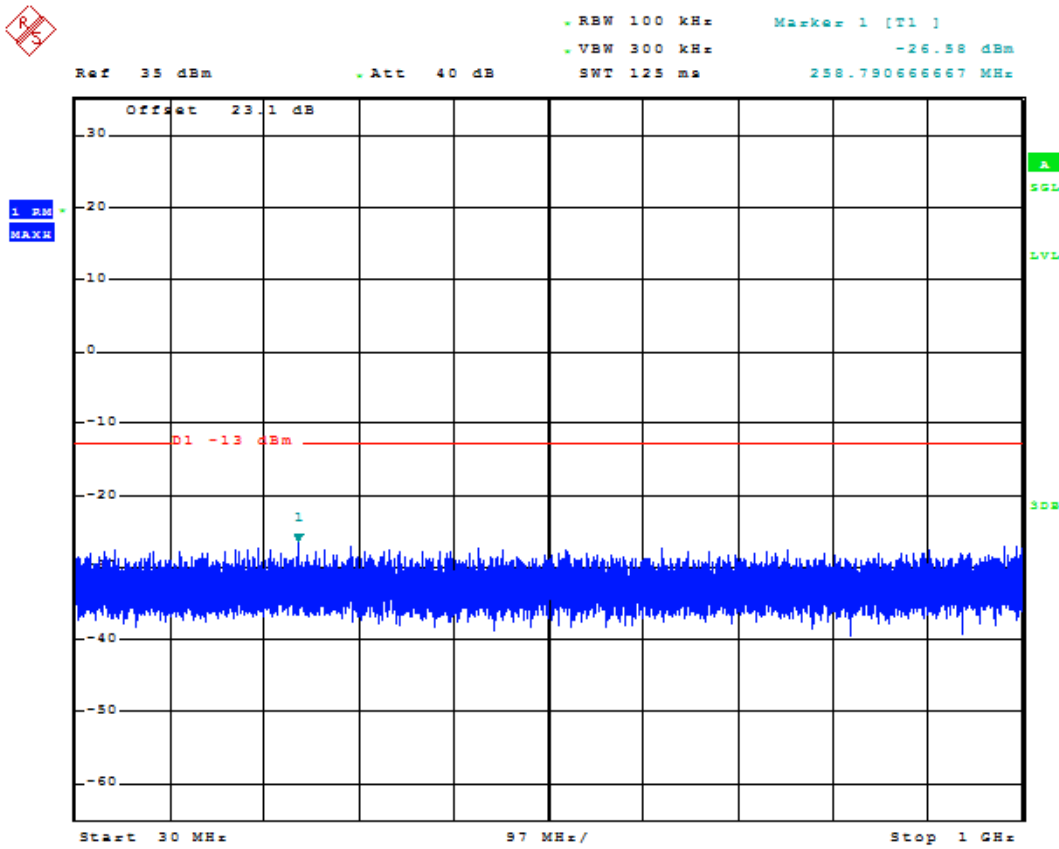
Report Number: 1709FR17-01



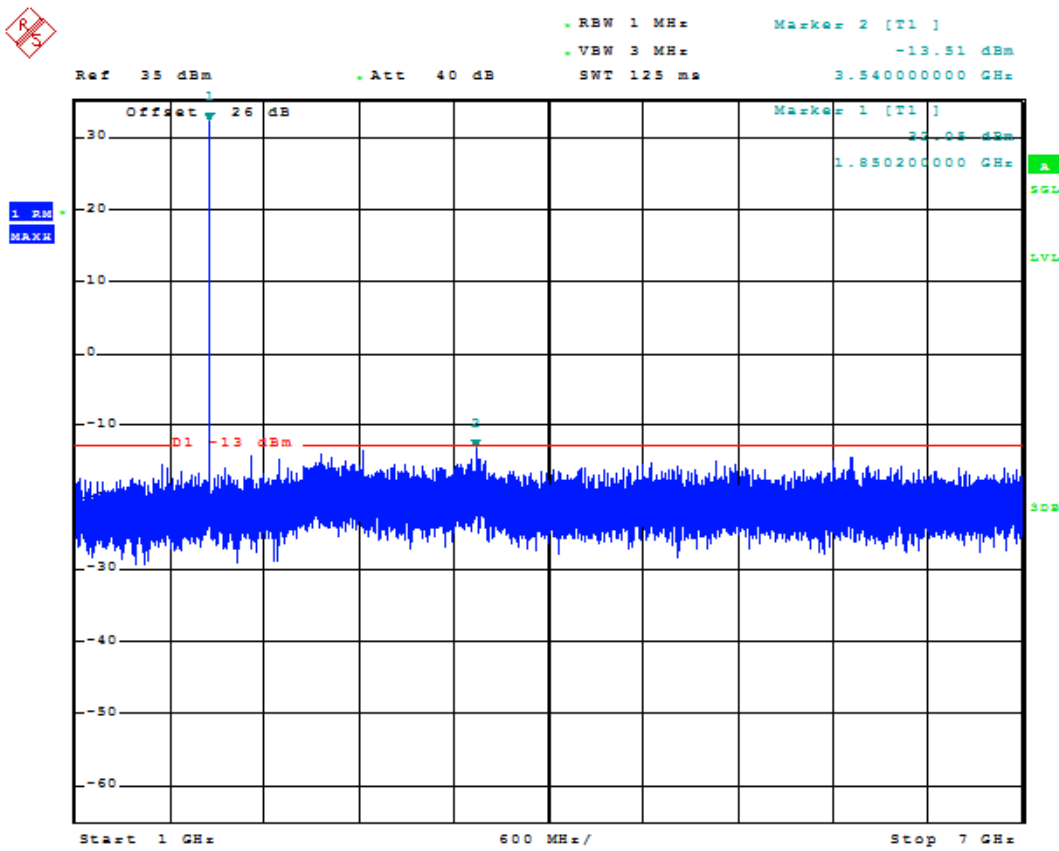
Date: 3.OCT.2017 13:51:44



Report Number: 1709FR17-01



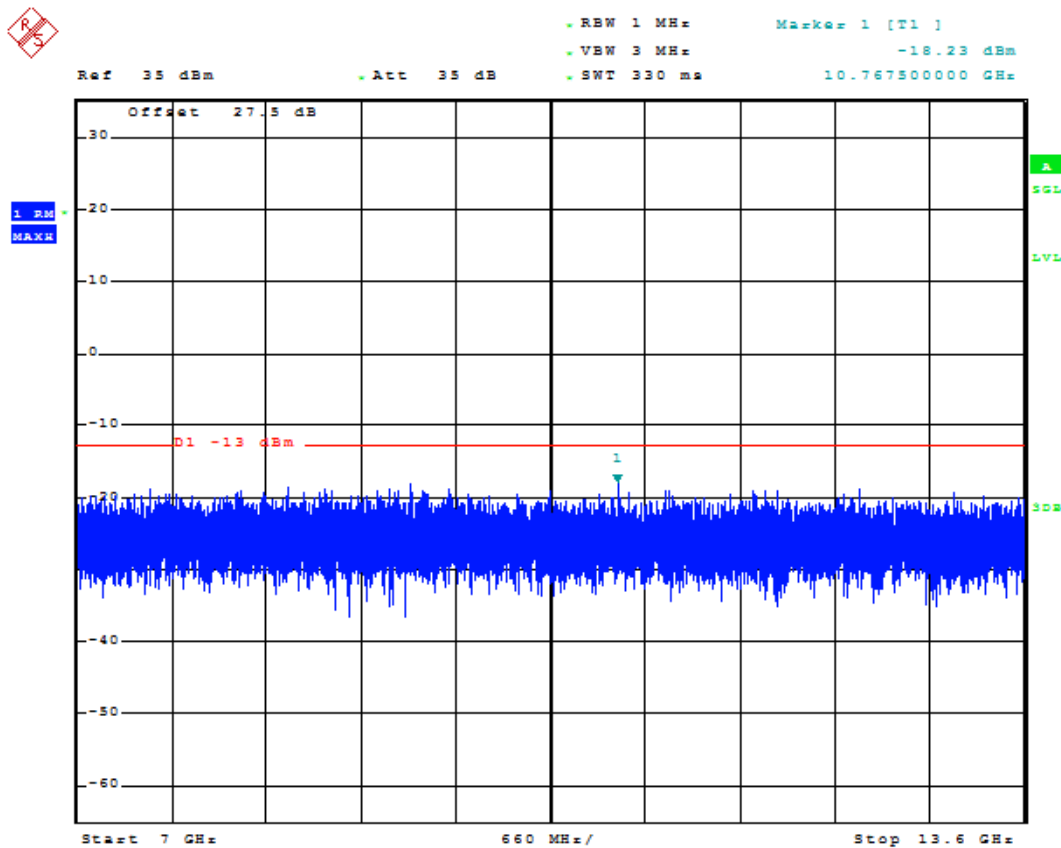
Date: 3.OCT.2017 13:51:53



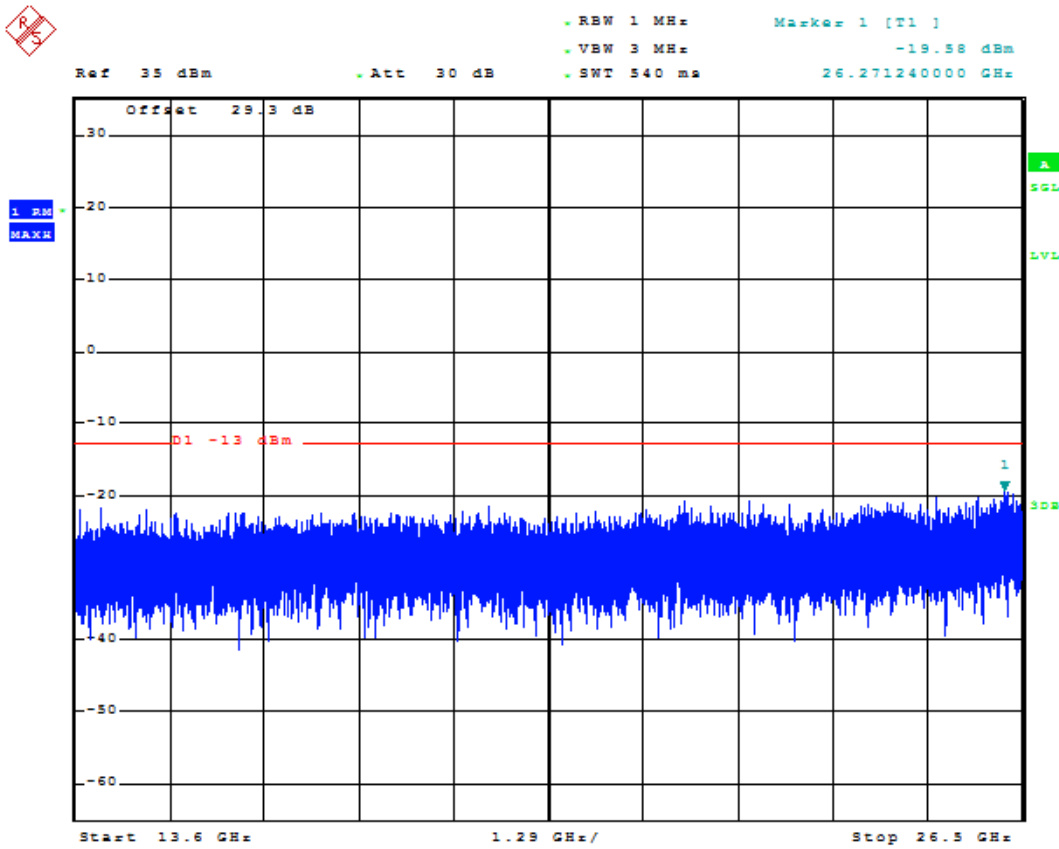
Date: 3.OCT.2017 13:52:03



Report Number: 1709FR17-01



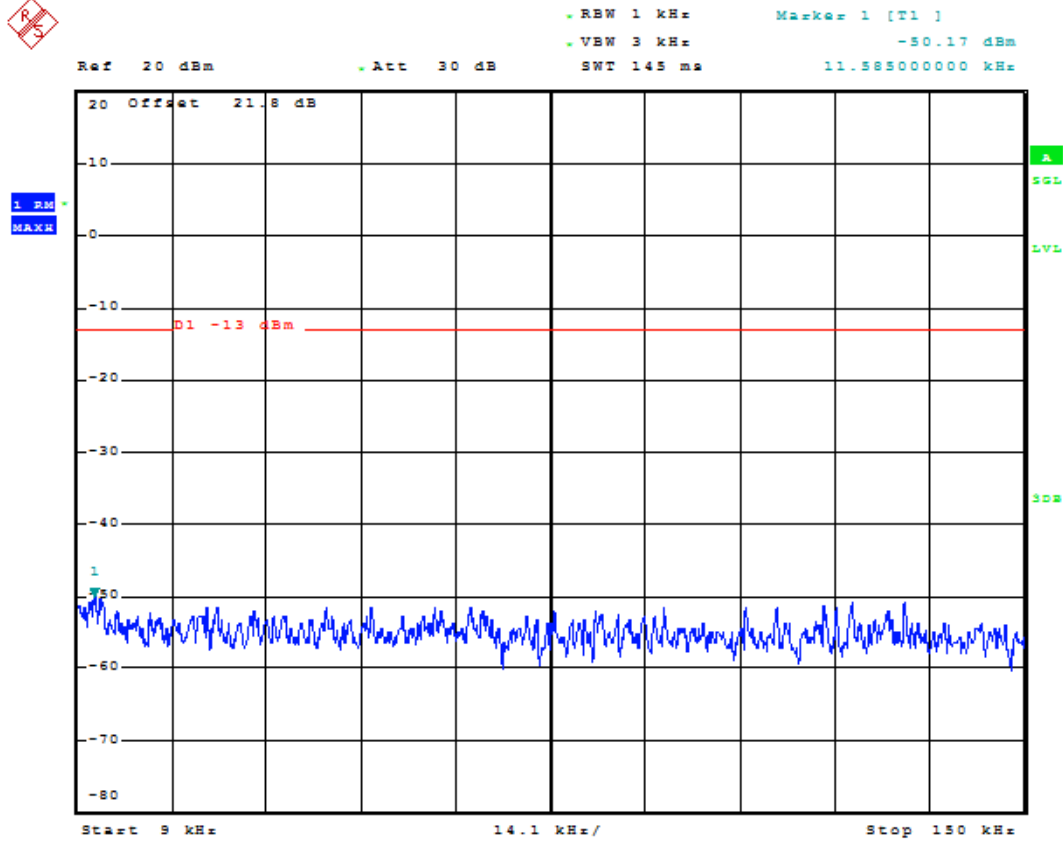
Date: 3.OCT.2017 13:52:20



Date: 3.OCT.2017 13:52:45



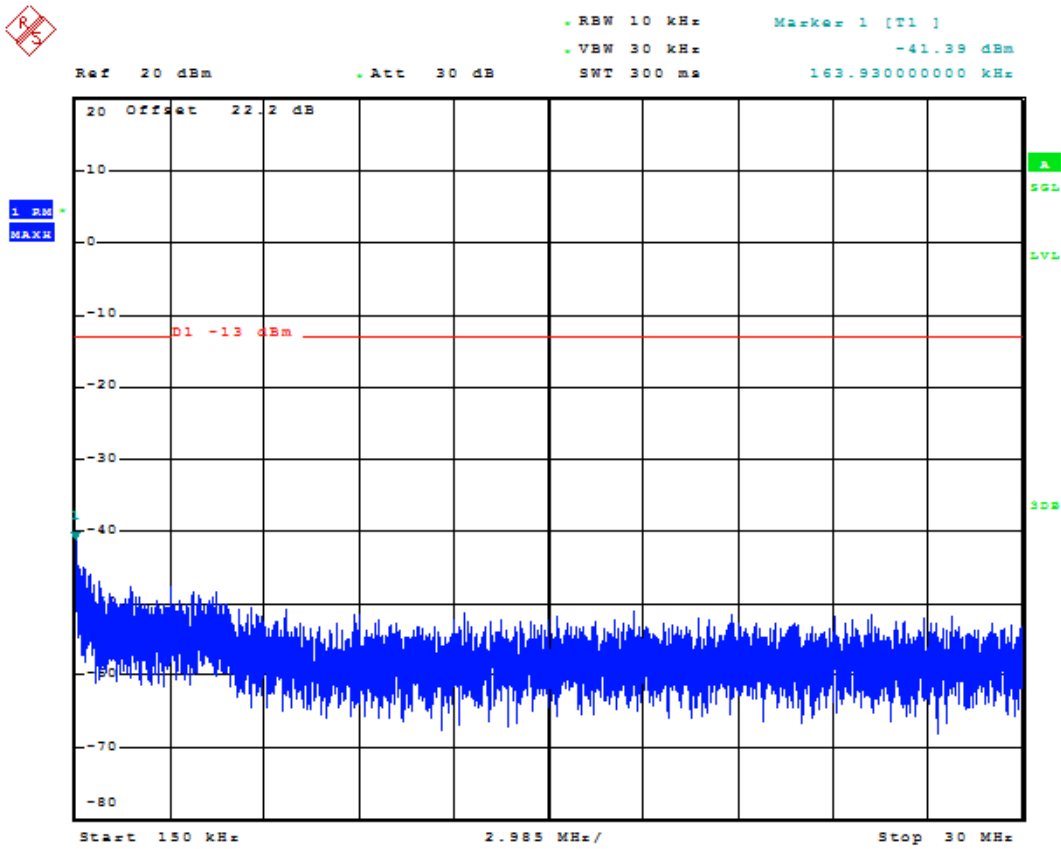
### 1.2.2.2 Test Channel=MCH



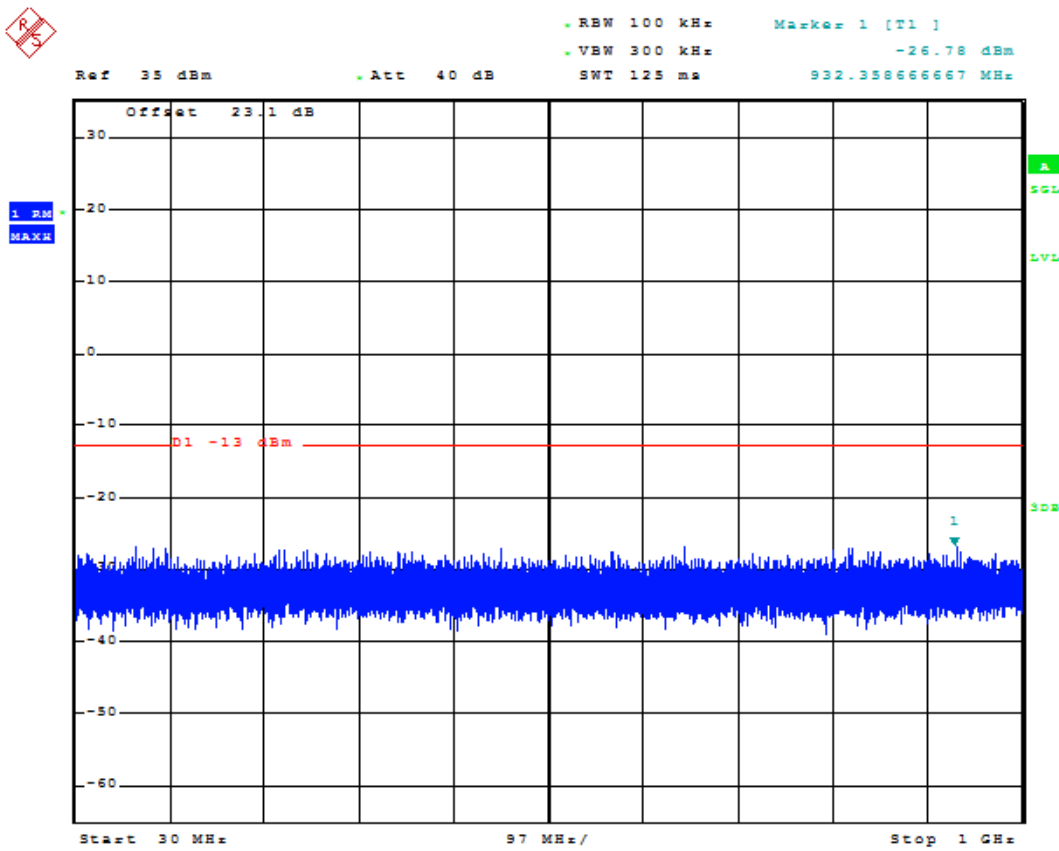
Date: 3.OCT.2017 13:53:02



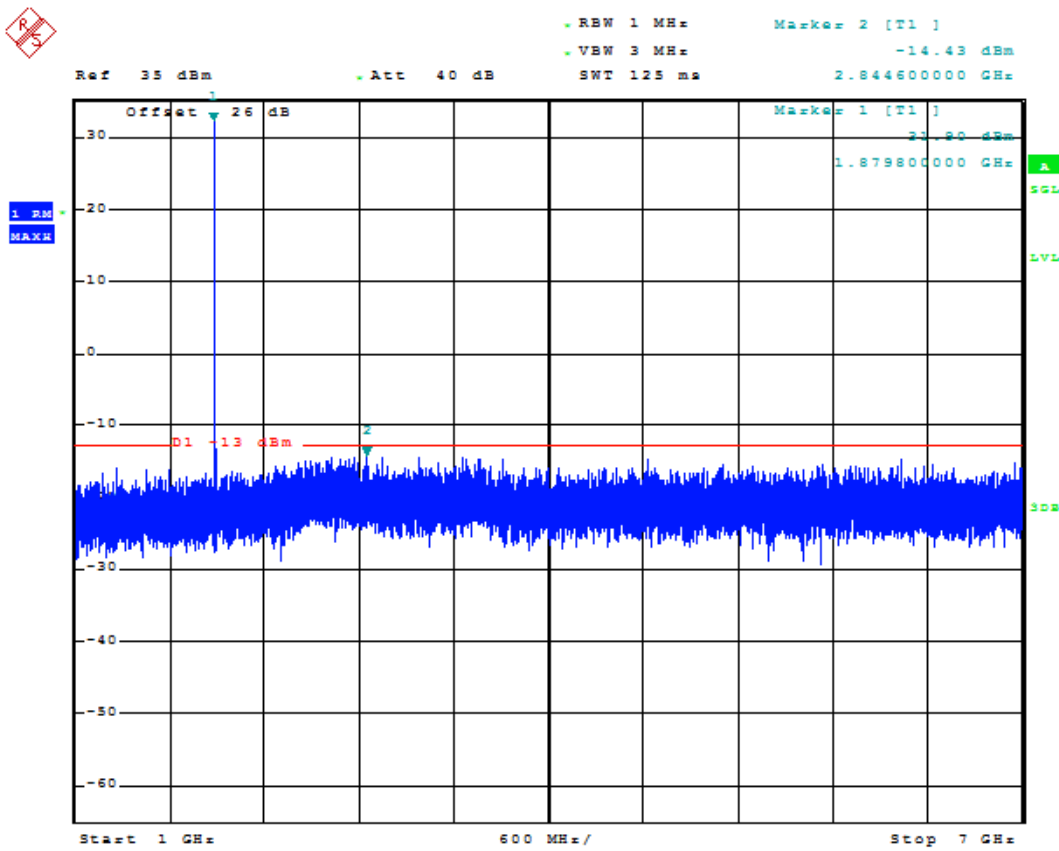
Report Number: 1709FR17-01



Date: 3.OCT.2017 13:53:11



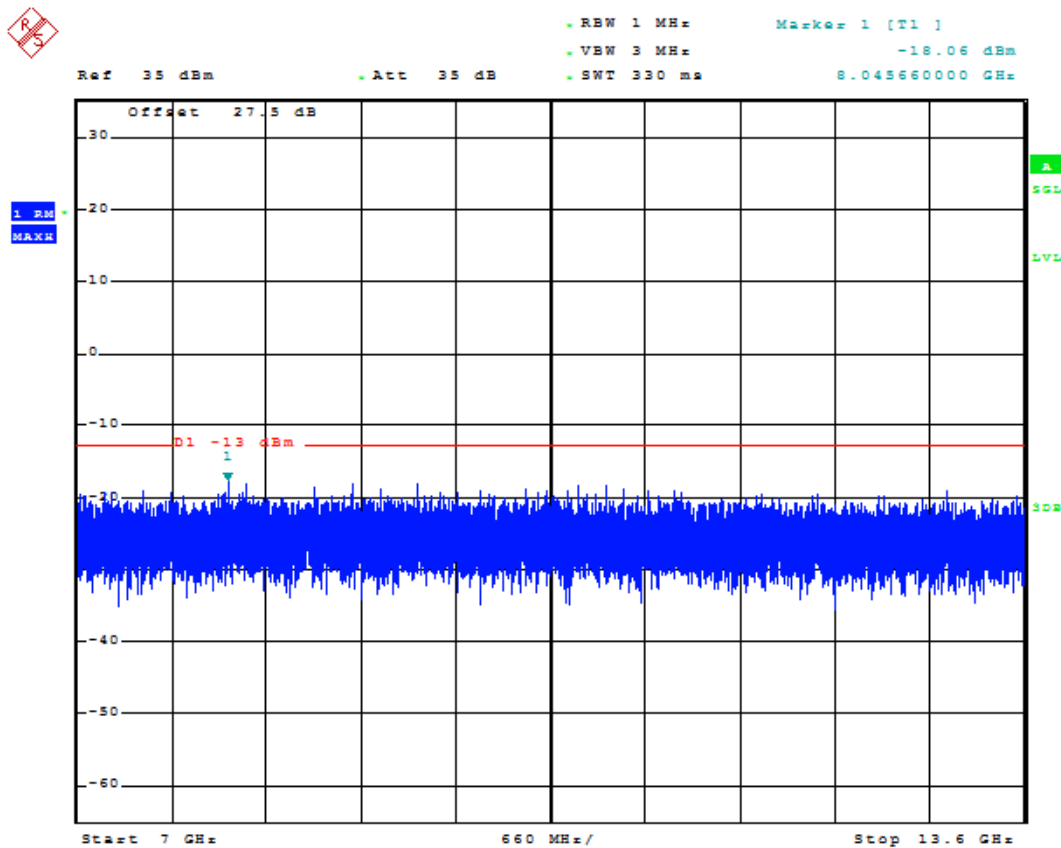
Date: 3.OCT.2017 13:53:20



Date: 3.OCT.2017 13:53:30



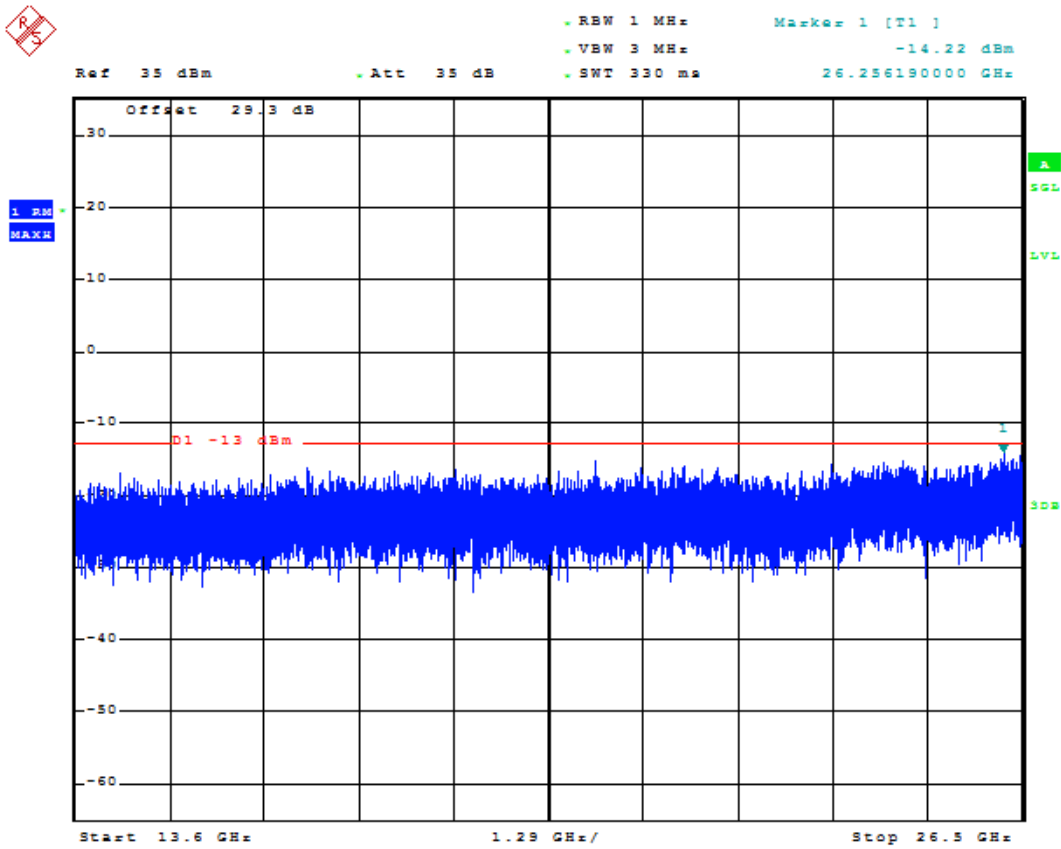
Report Number: 1709FR17-01



Date: 3.OCT.2017 13:53:46



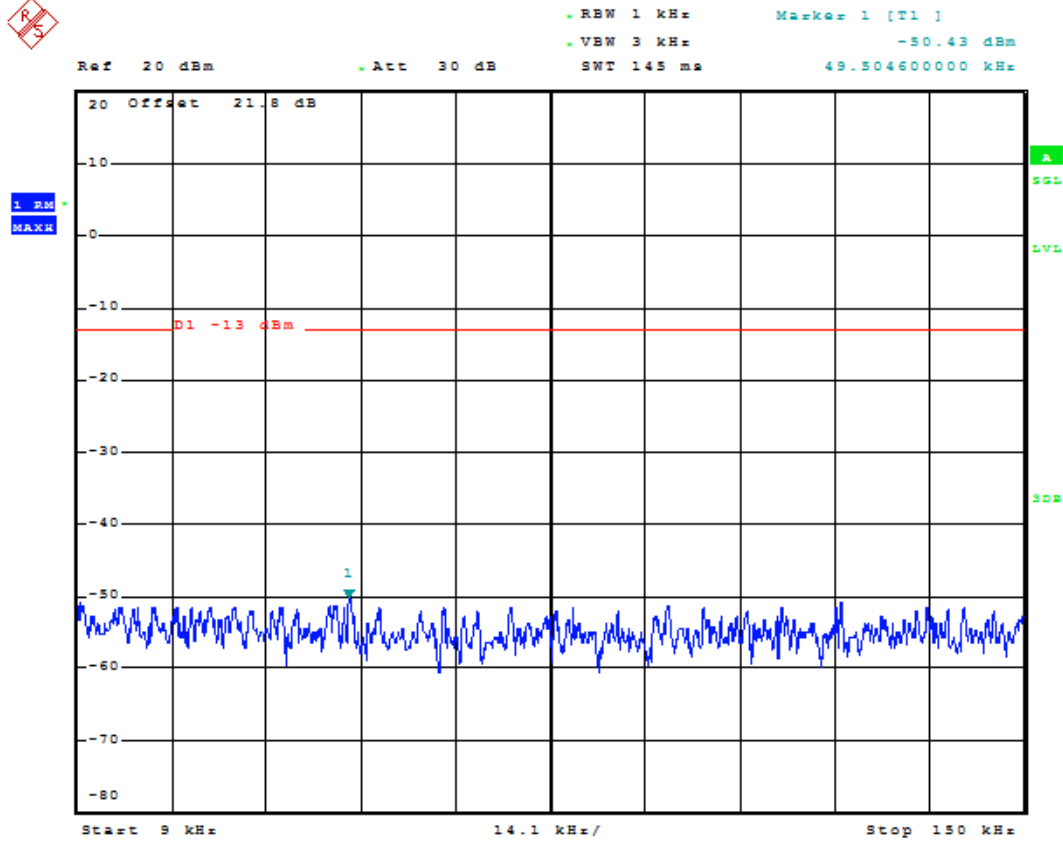
Report Number: 1709FR17-01



Date: 3.OCT.2017 13:54:03



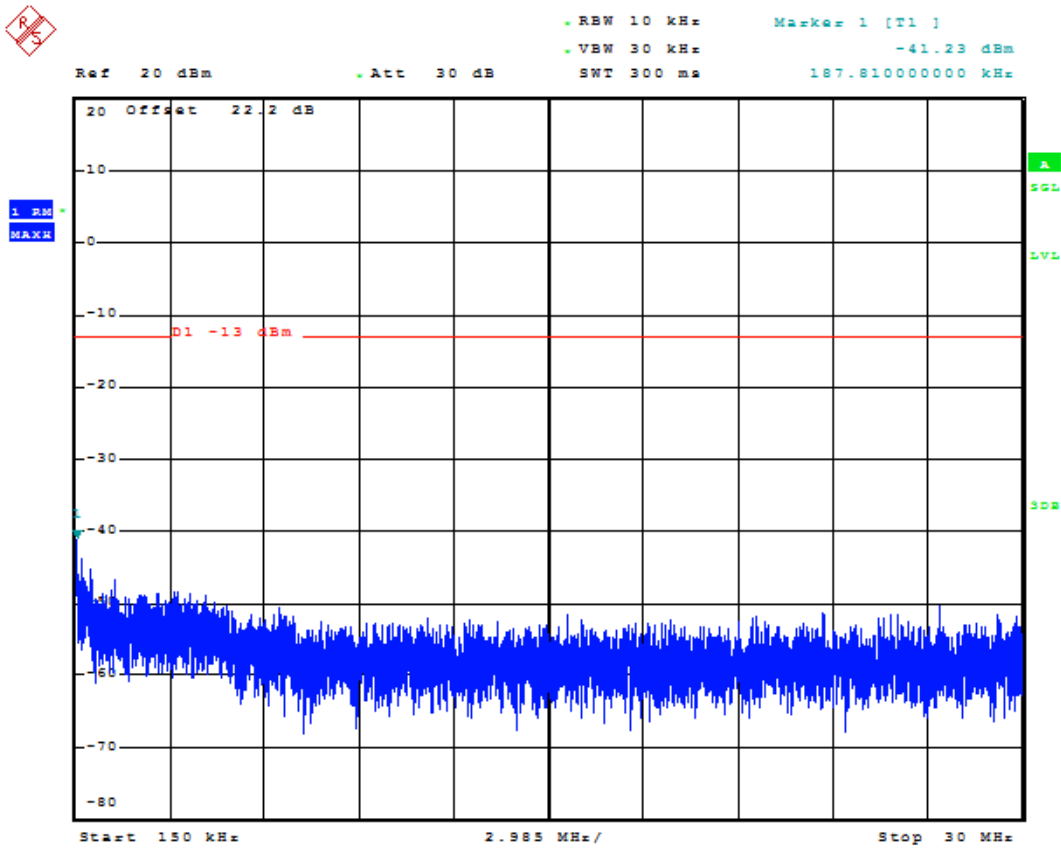
### 1.2.2.3 Test Channel=HCH



Date: 3.OCT.2017 13:54:20



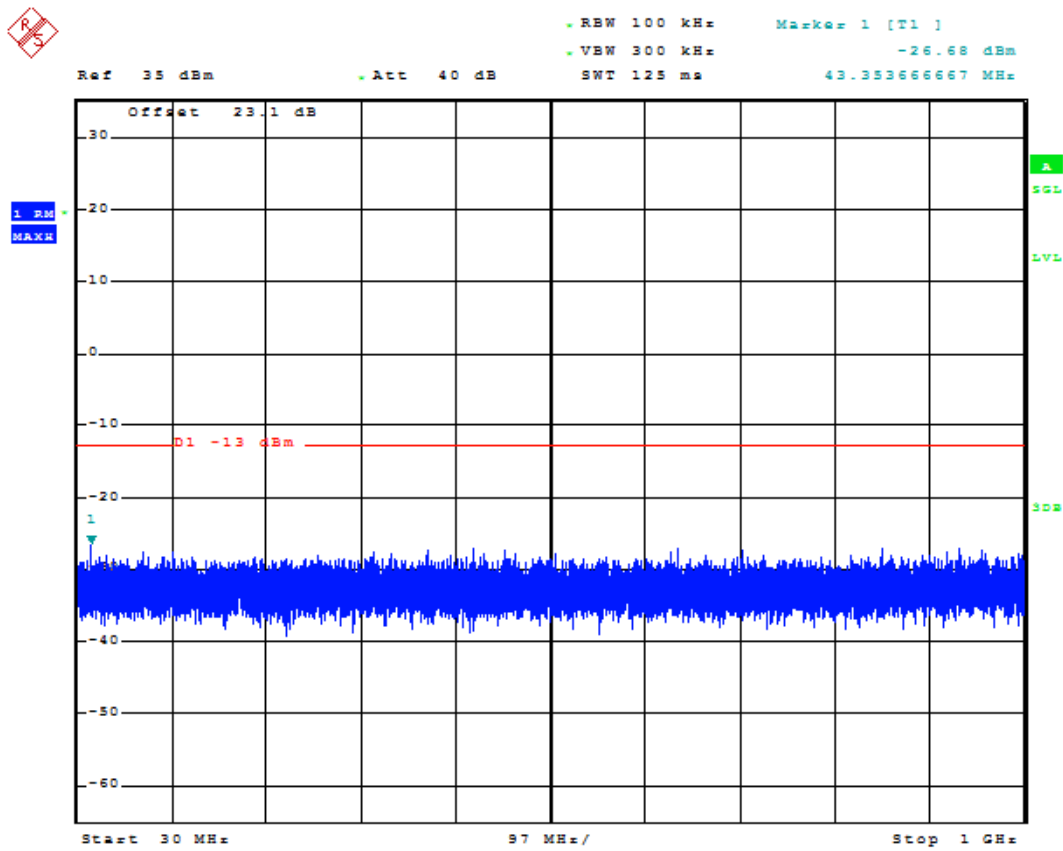
Report Number: 1709FR17-01



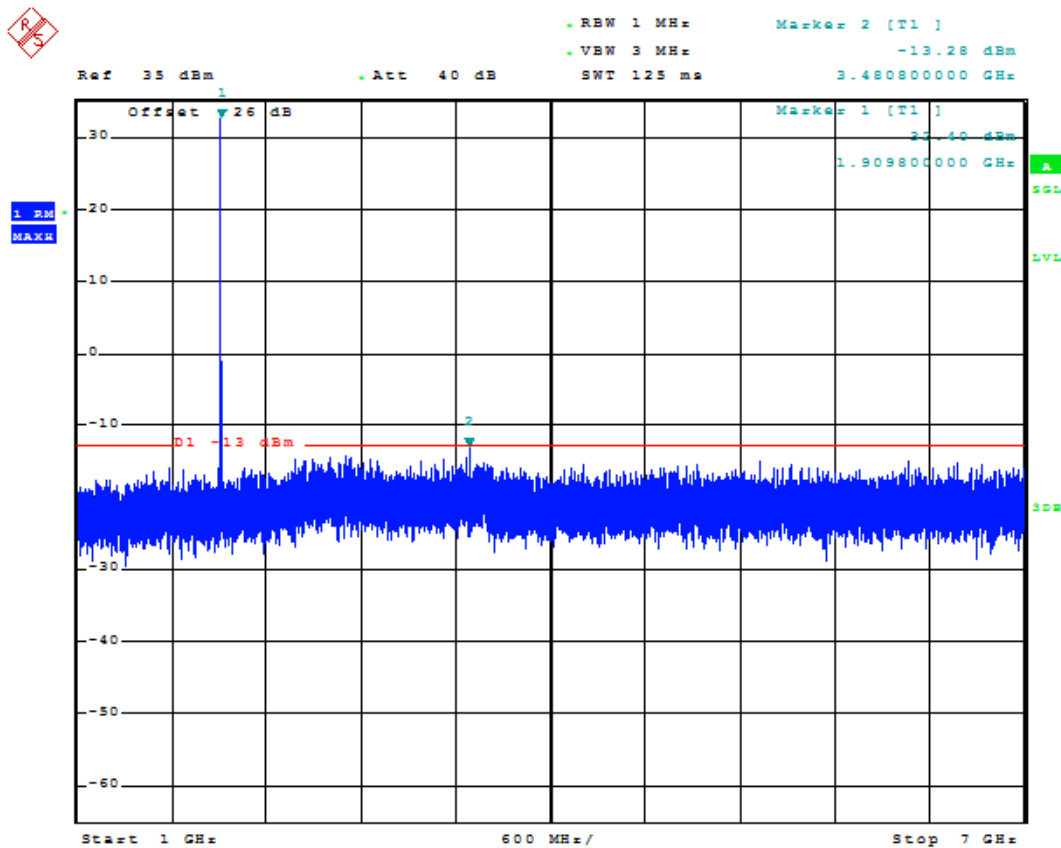
Date: 3.OCT.2017 13:54:29



Report Number: 1709FR17-01



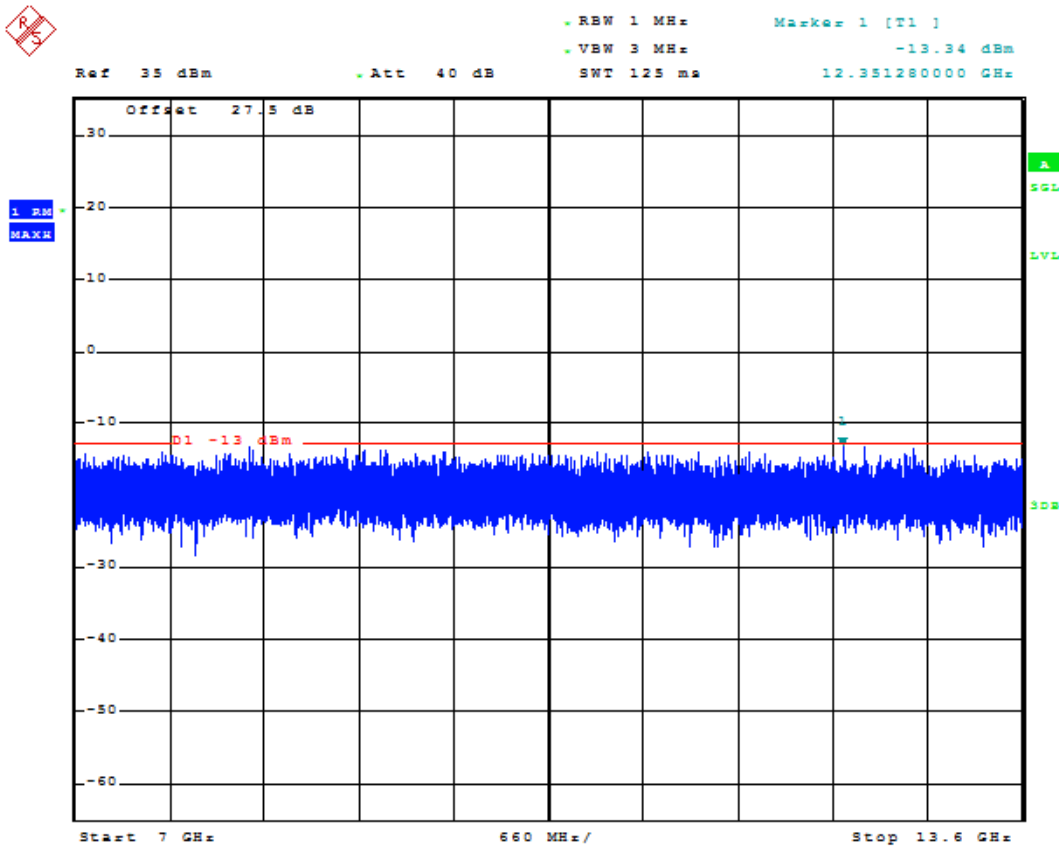
Date: 3.OCT.2017 13:54:38



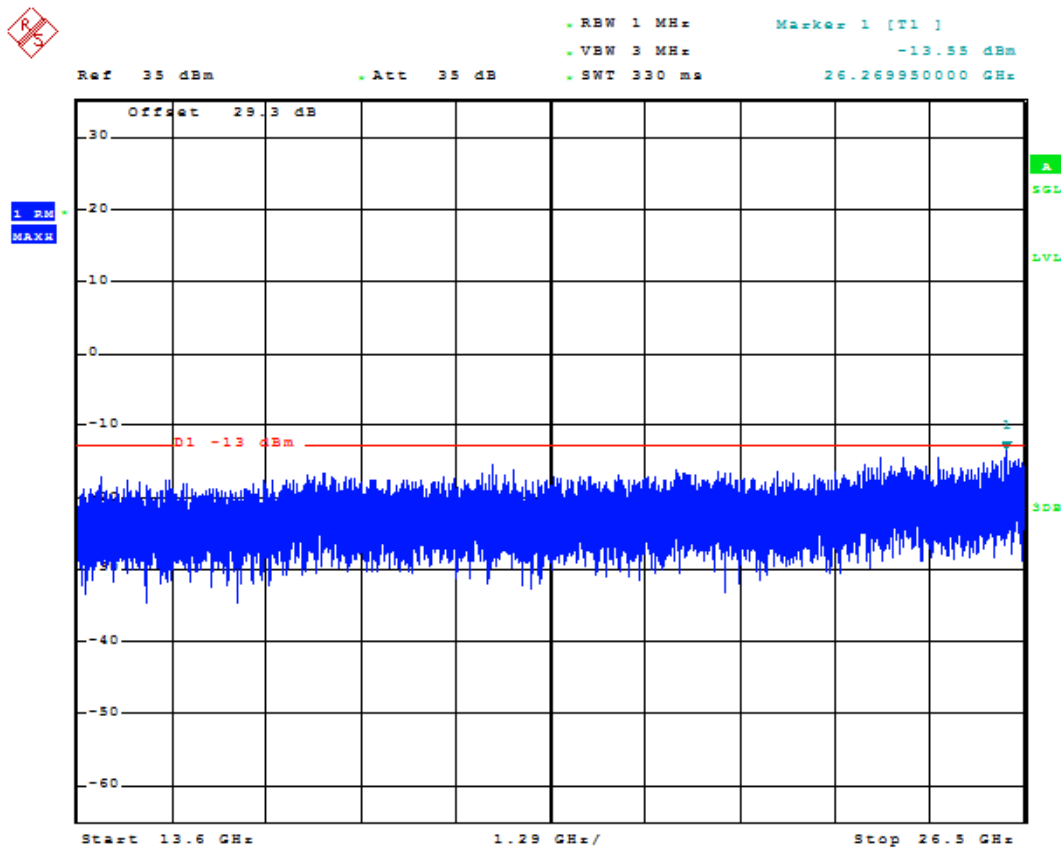
Date: 3.OCT.2017 13:54:48



Report Number: 1709FR17-01



Date: 3.OCT.2017 13:54:57

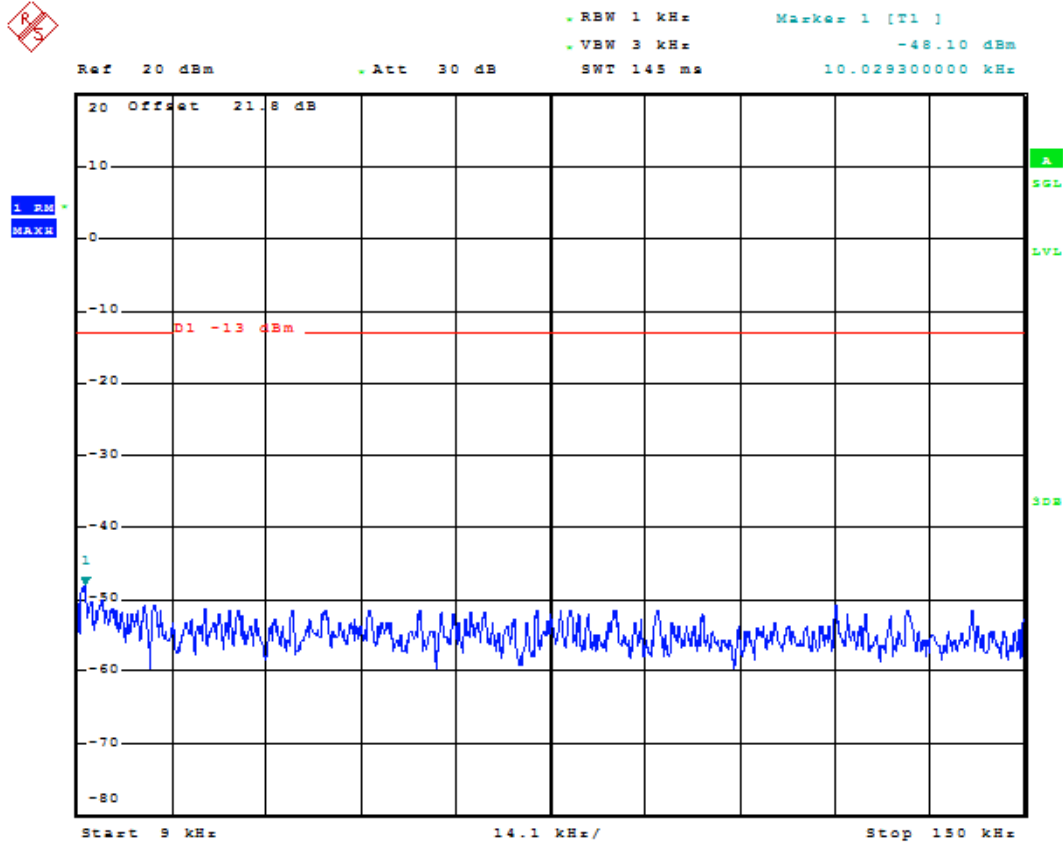


Date: 3.OCT.2017 13:55:14

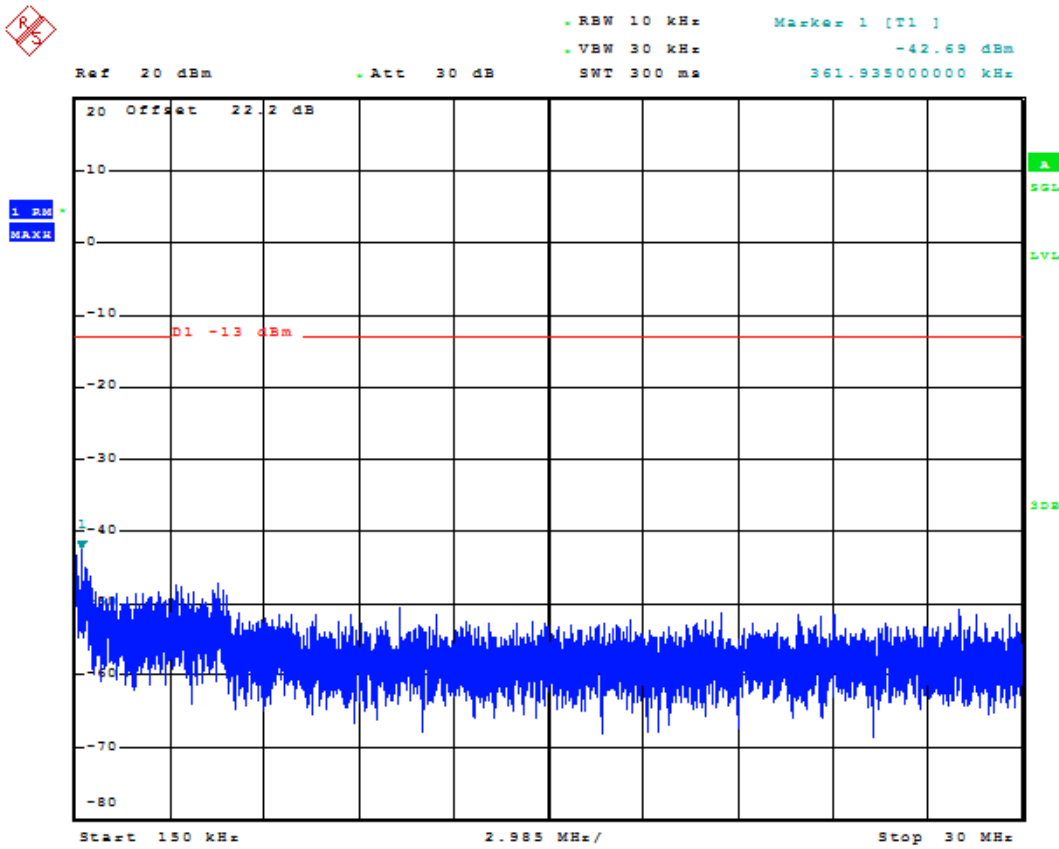


### 1.2.3 Test Mode=GSM/TM3

#### 1.2.3.1 Test Channel=LCH



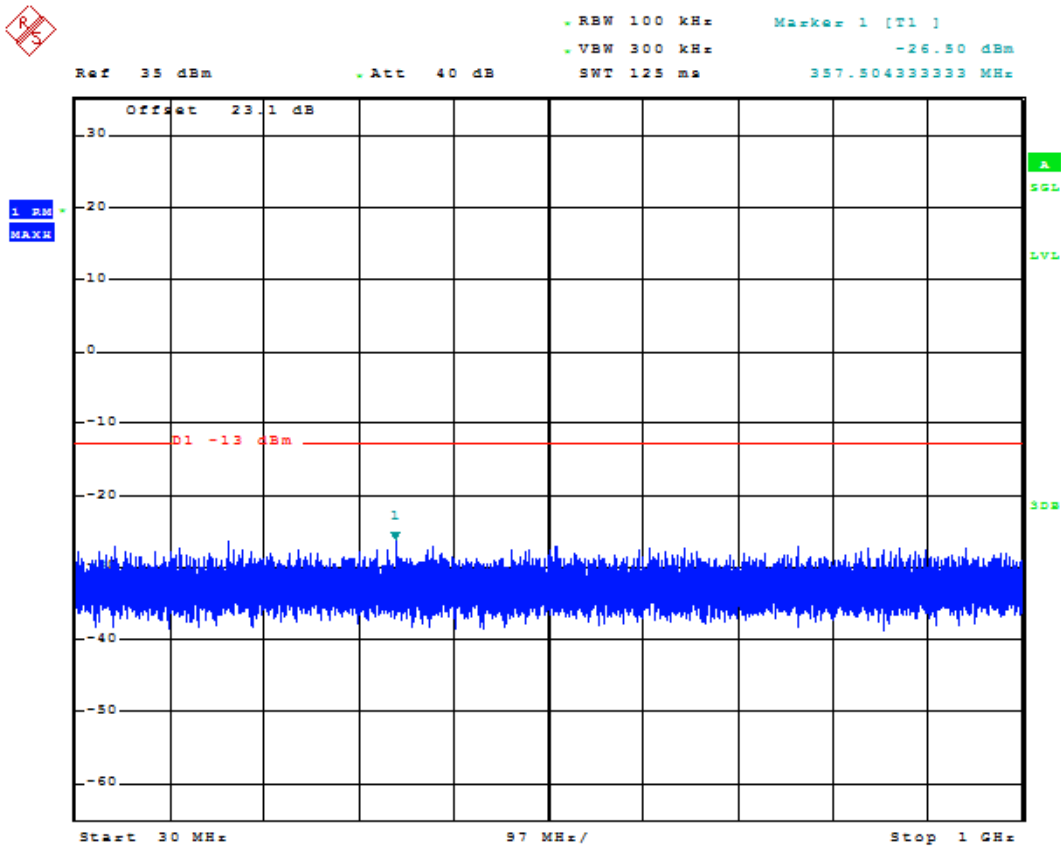
Date: 3.OCT.2017 14:29:24



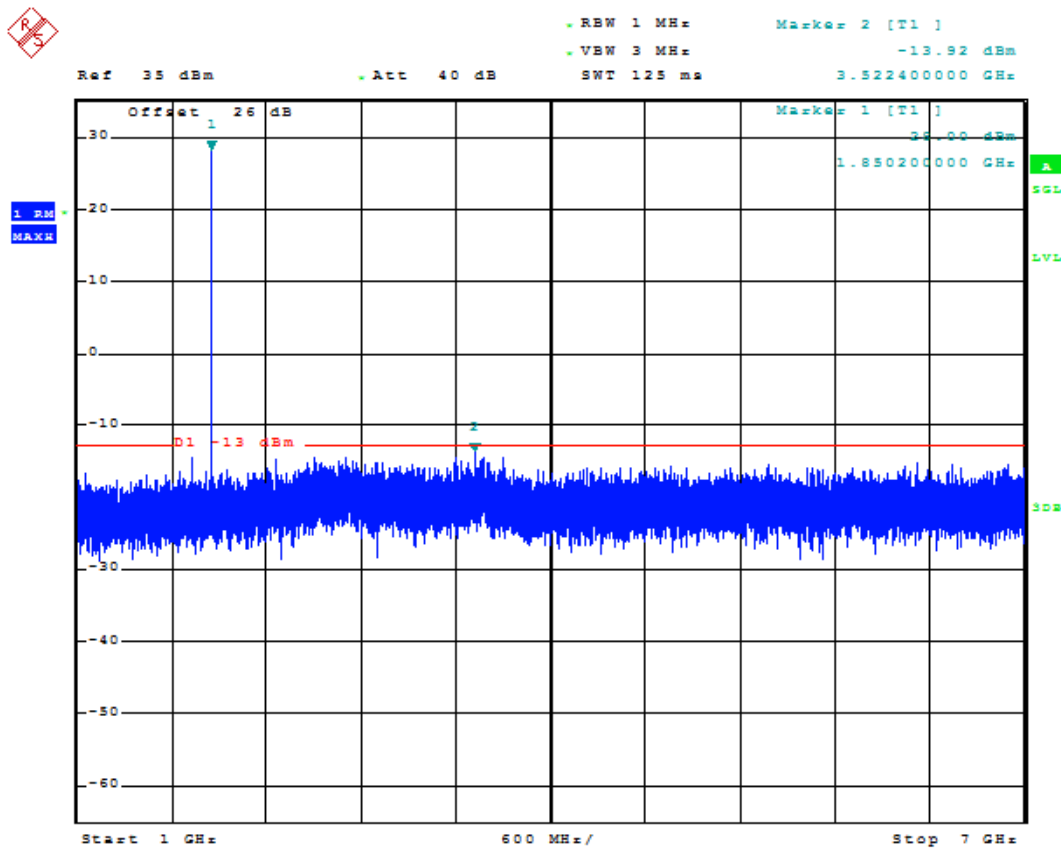
Date: 3.OCT.2017 14:29:34



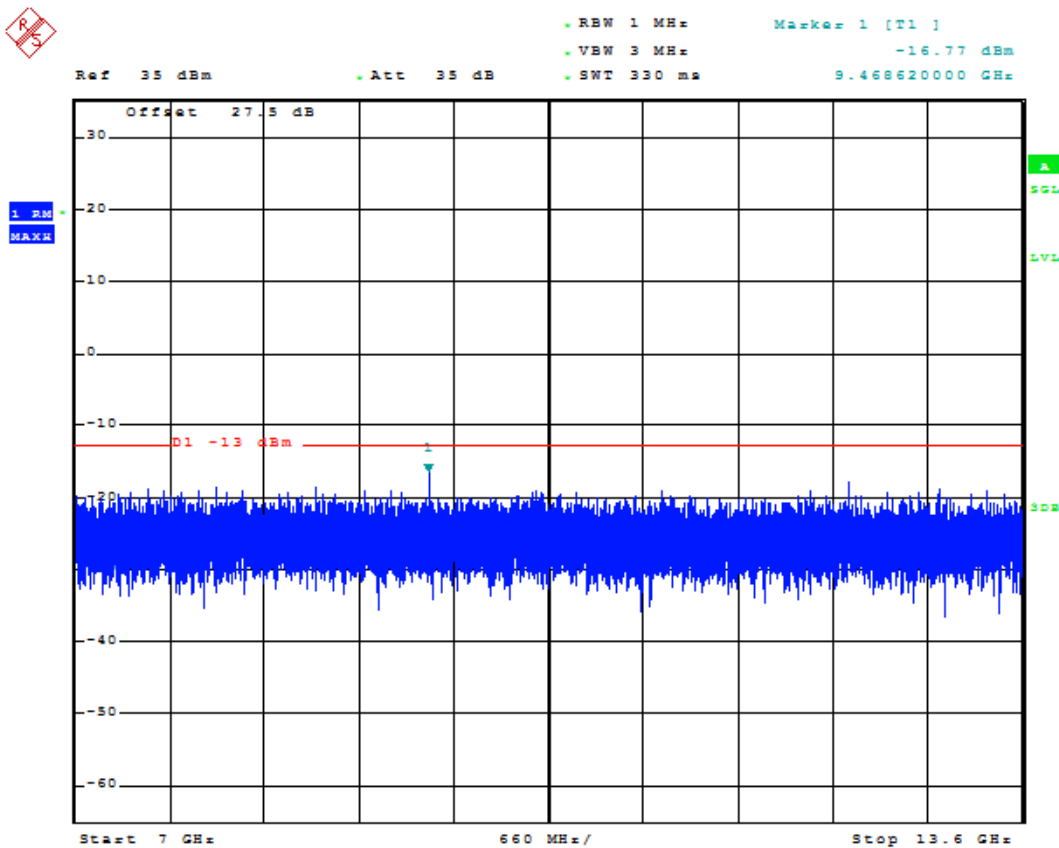
Report Number: 1709FR17-01



Date: 3.OCT.2017 14:29:43



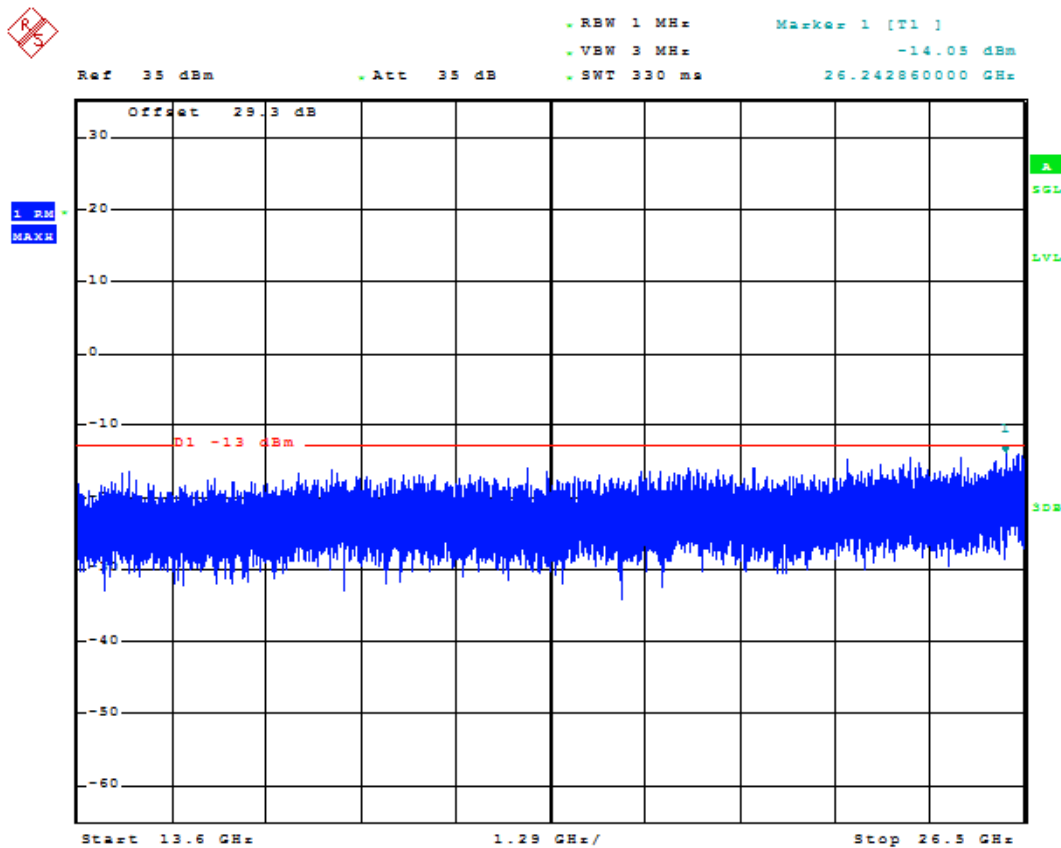
Date: 3.OCT.2017 14:29:54



Date: 3.OCT.2017 14:30:11



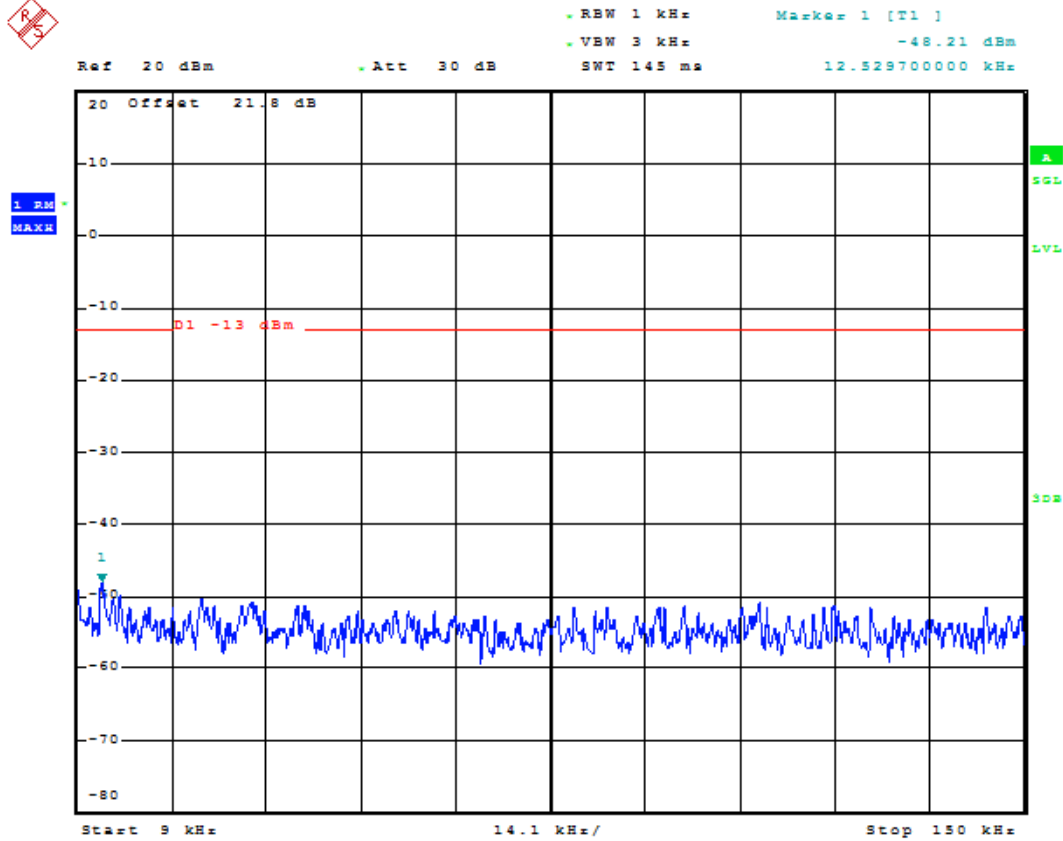
Report Number: 1709FR17-01



Date: 3.OCT.2017 14:30:29



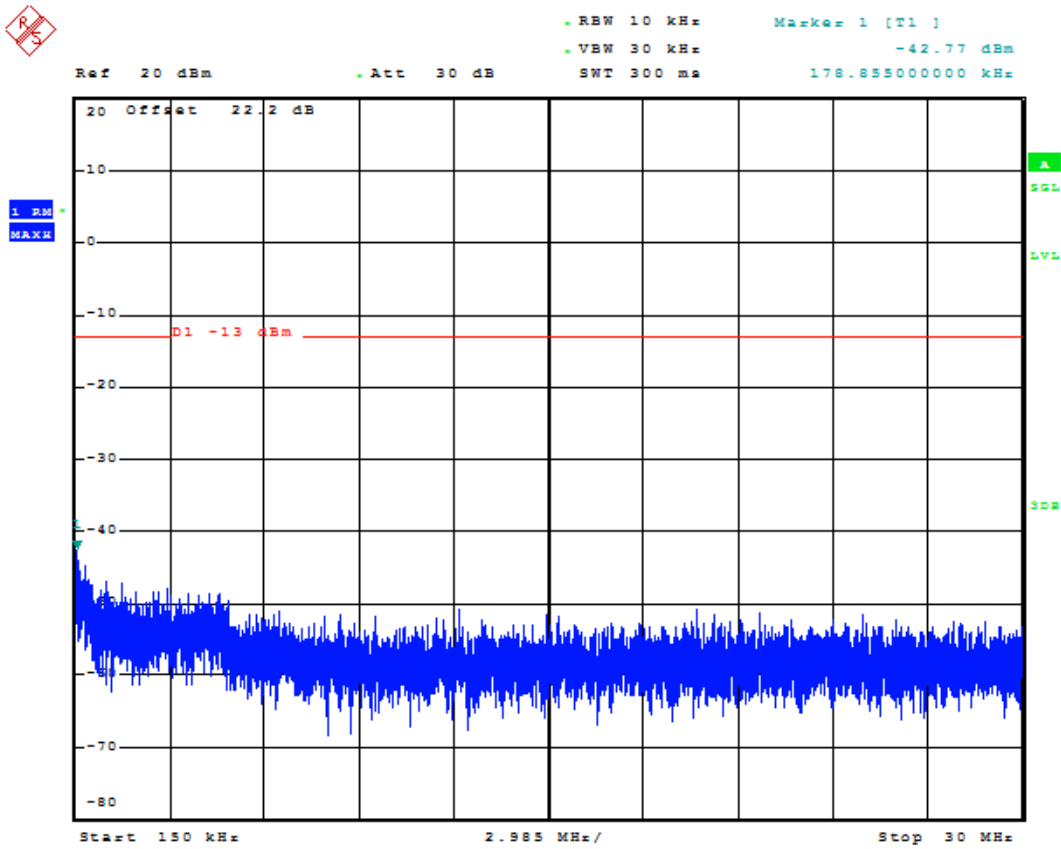
### 1.2.3.2 Test Channel=MCH



Date: 3.OCT.2017 14:23:52



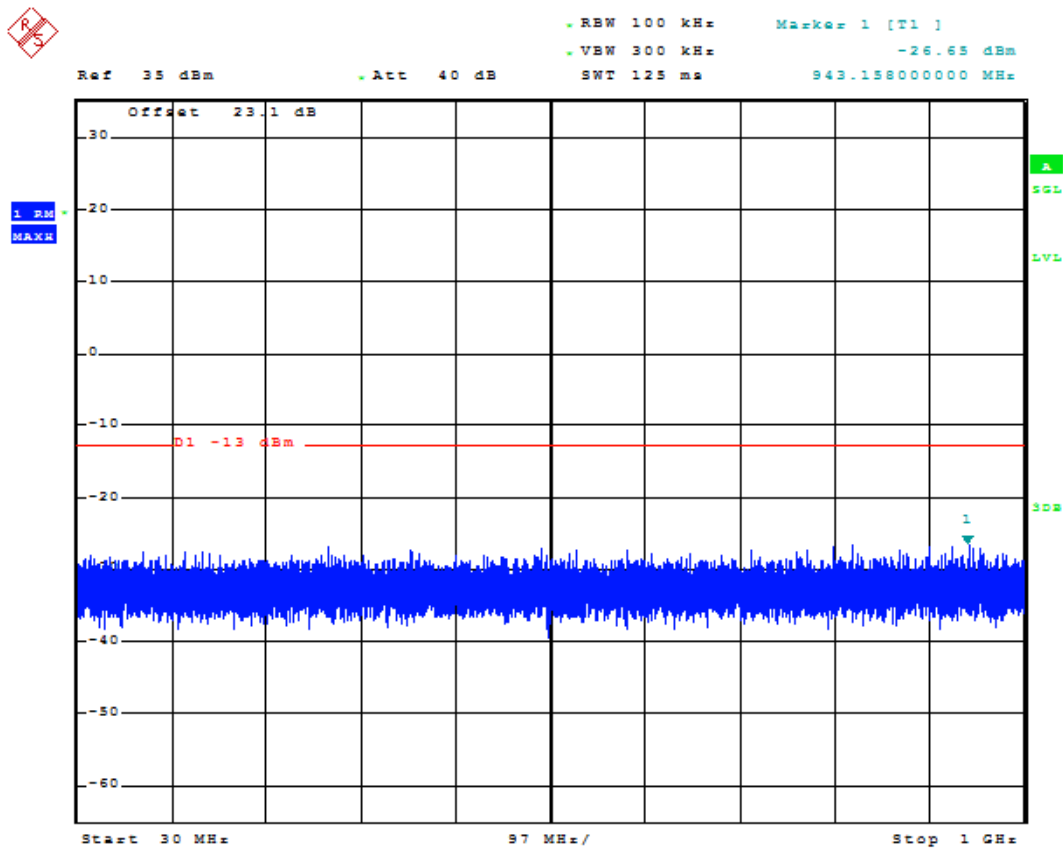
Report Number: 1709FR17-01



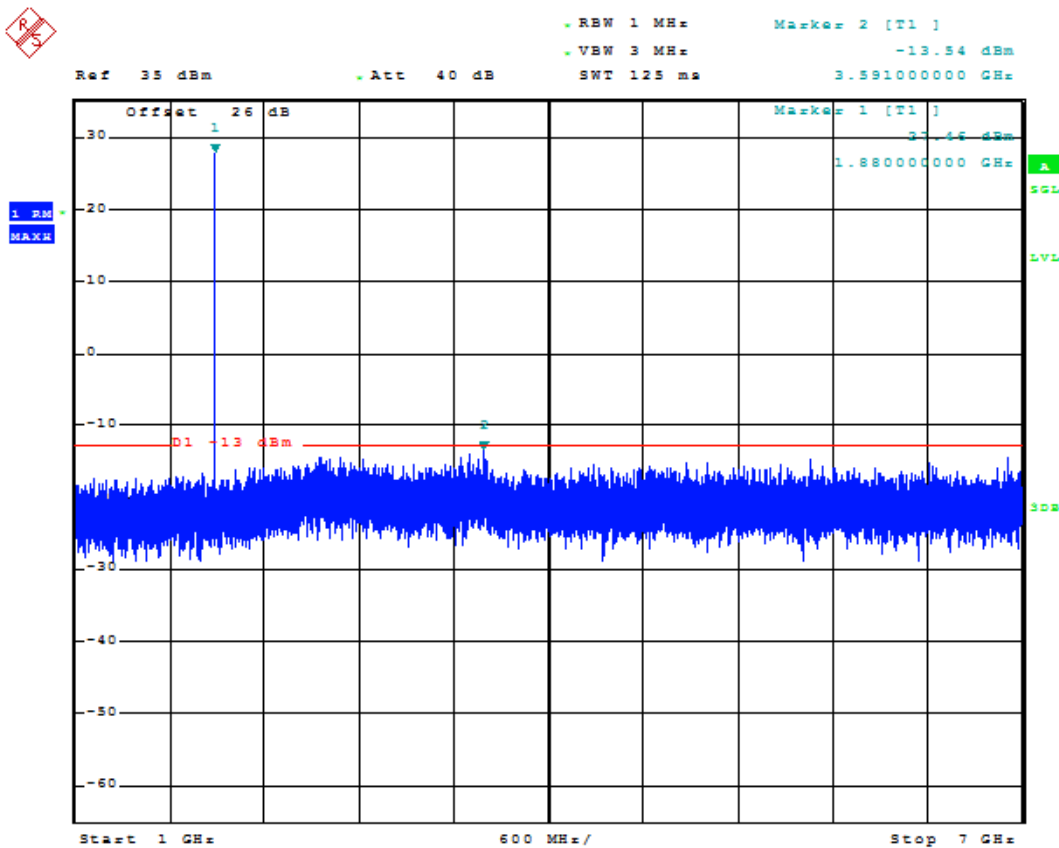
Date: 3.OCT.2017 14:24:01



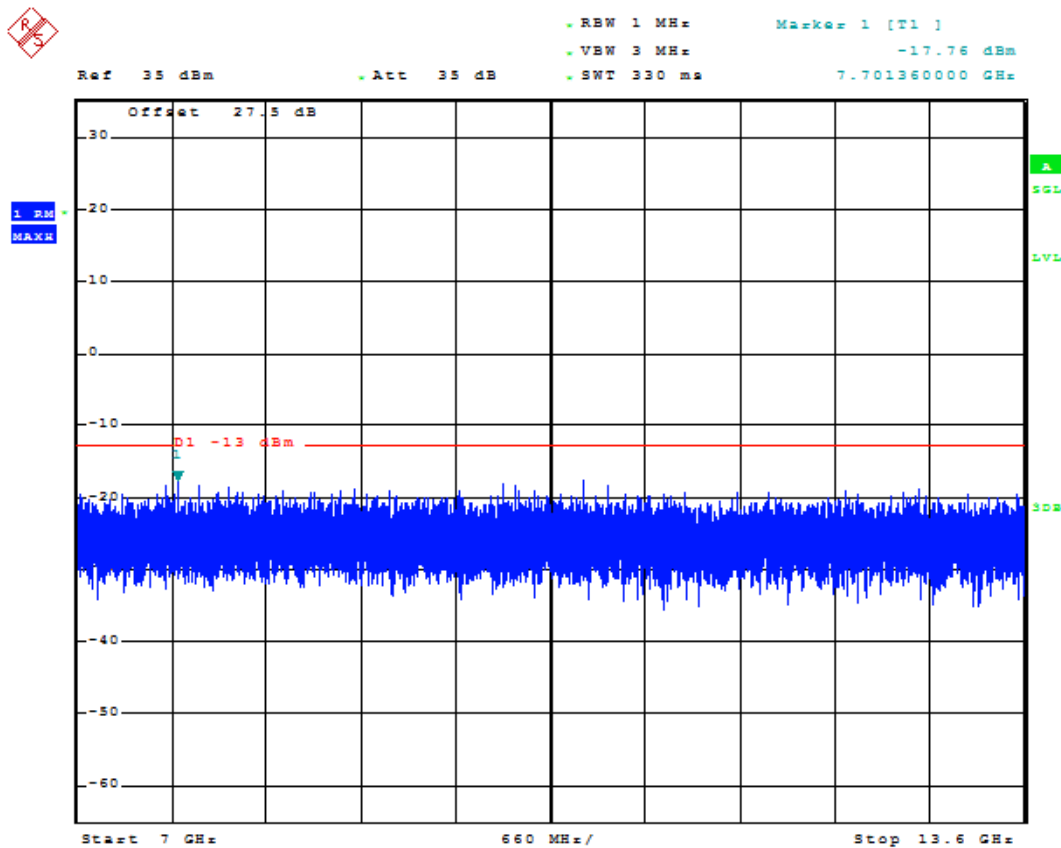
Report Number: 1709FR17-01



Date: 3.OCT.2017 14:24:10



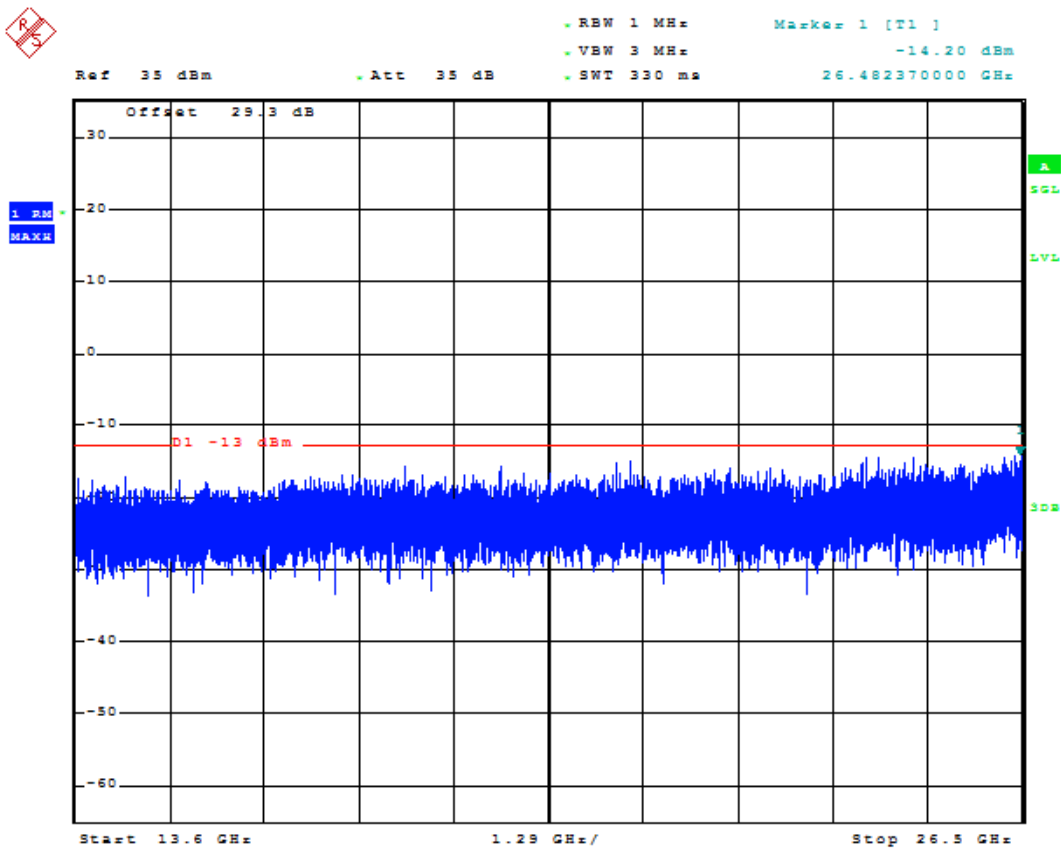
Date: 3.OCT.2017 14:24:21



Date: 3.OCT.2017 14:24:39



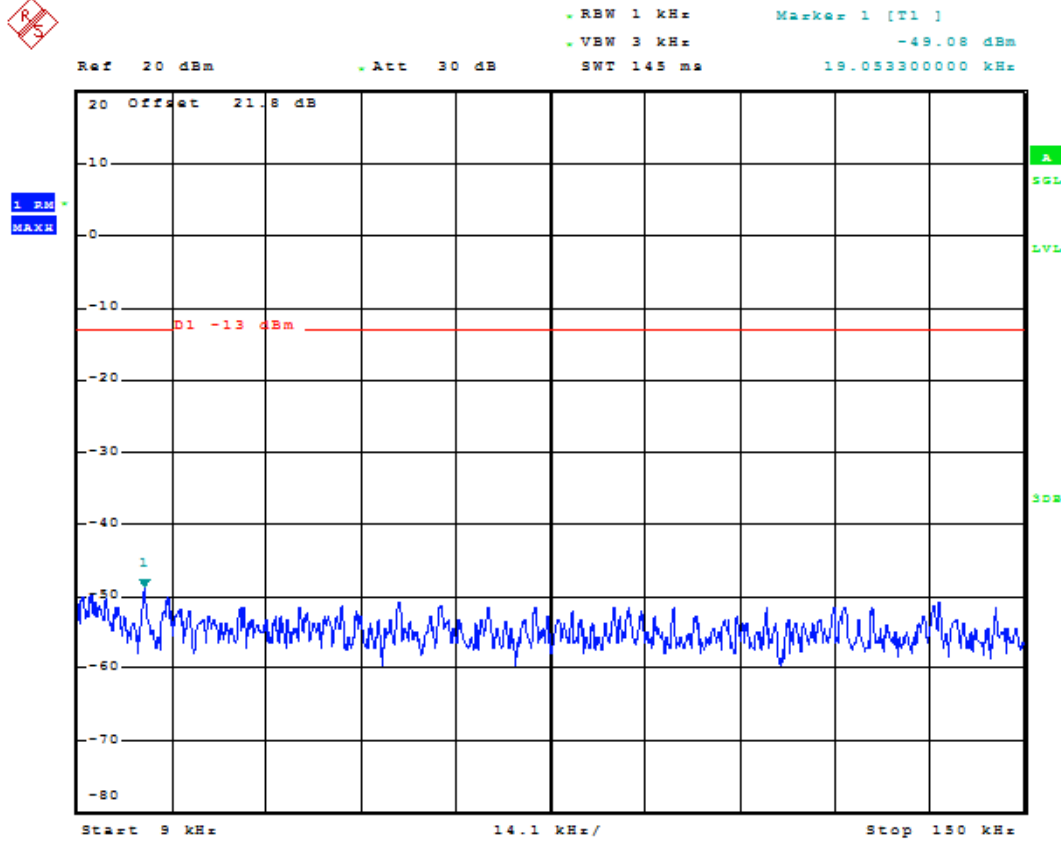
Report Number: 1709FR17-01



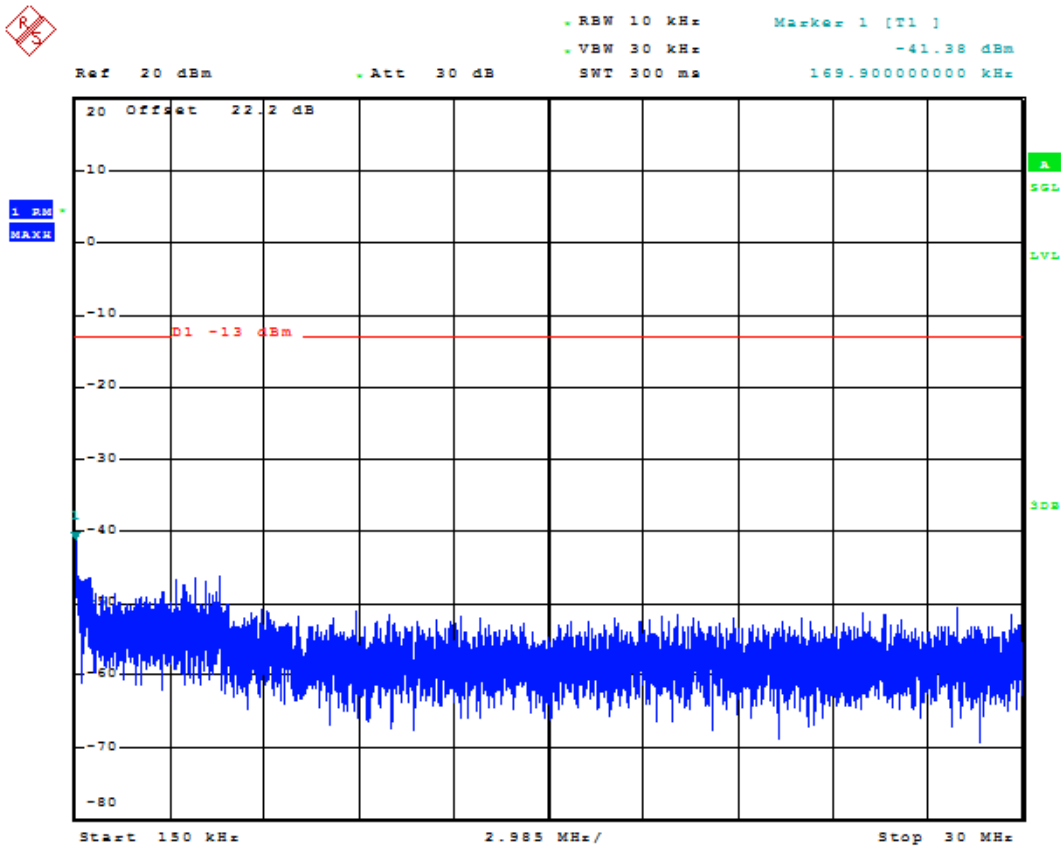
Date: 3.OCT.2017 14:24:56



### 1.2.3.3 Test Channel=HCH



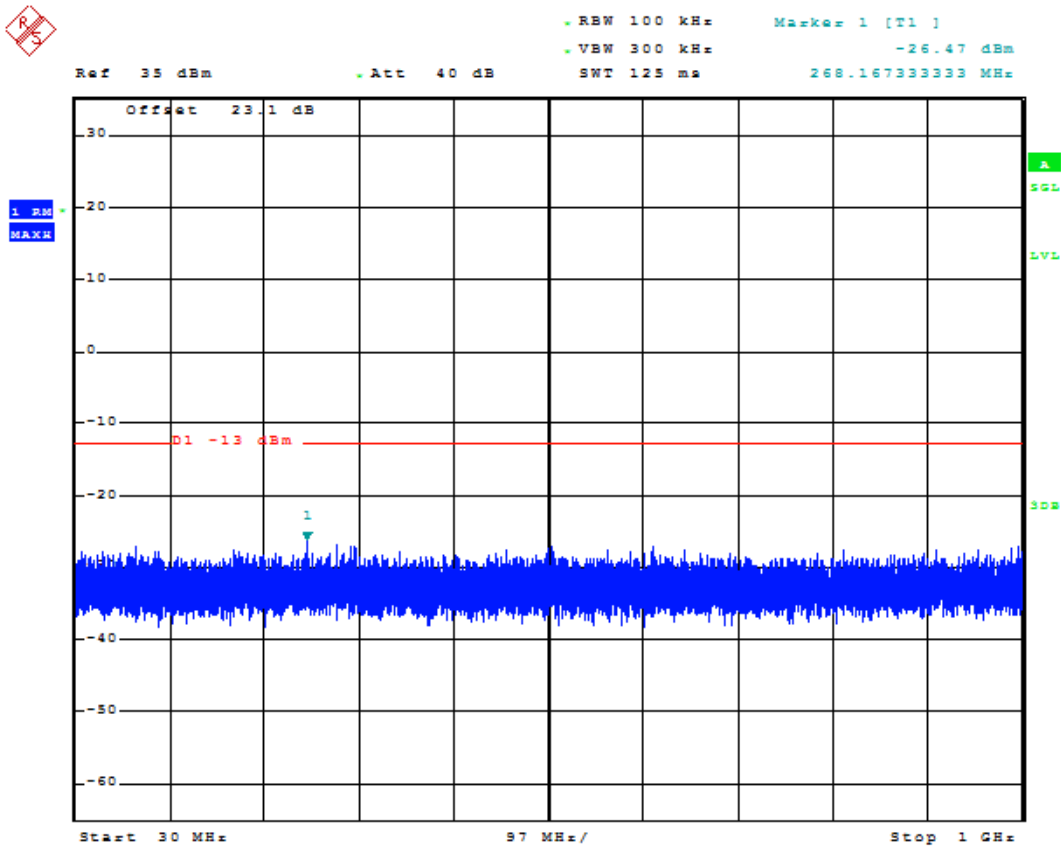
Date: 3.OCT.2017 14:25:14



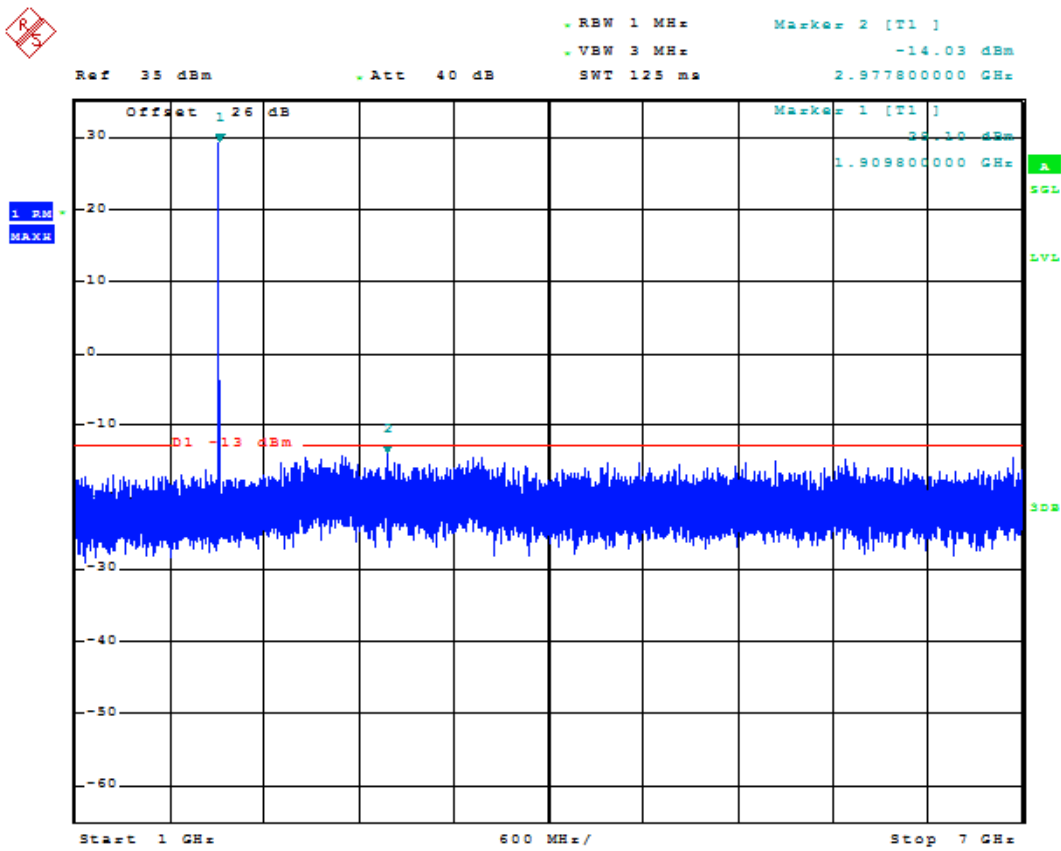
Date: 3.OCT.2017 14:25:24



Report Number: 1709FR17-01



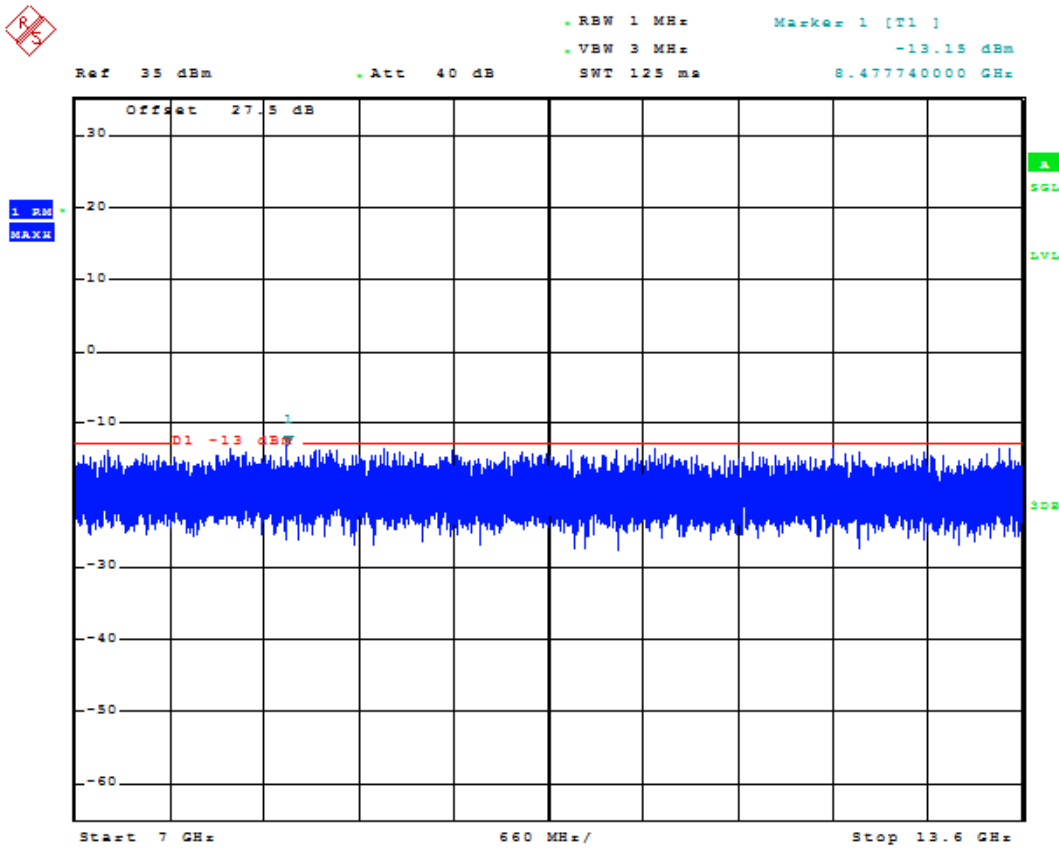
Date: 3.OCT.2017 14:25:33



Date: 3.OCT.2017 14:25:44



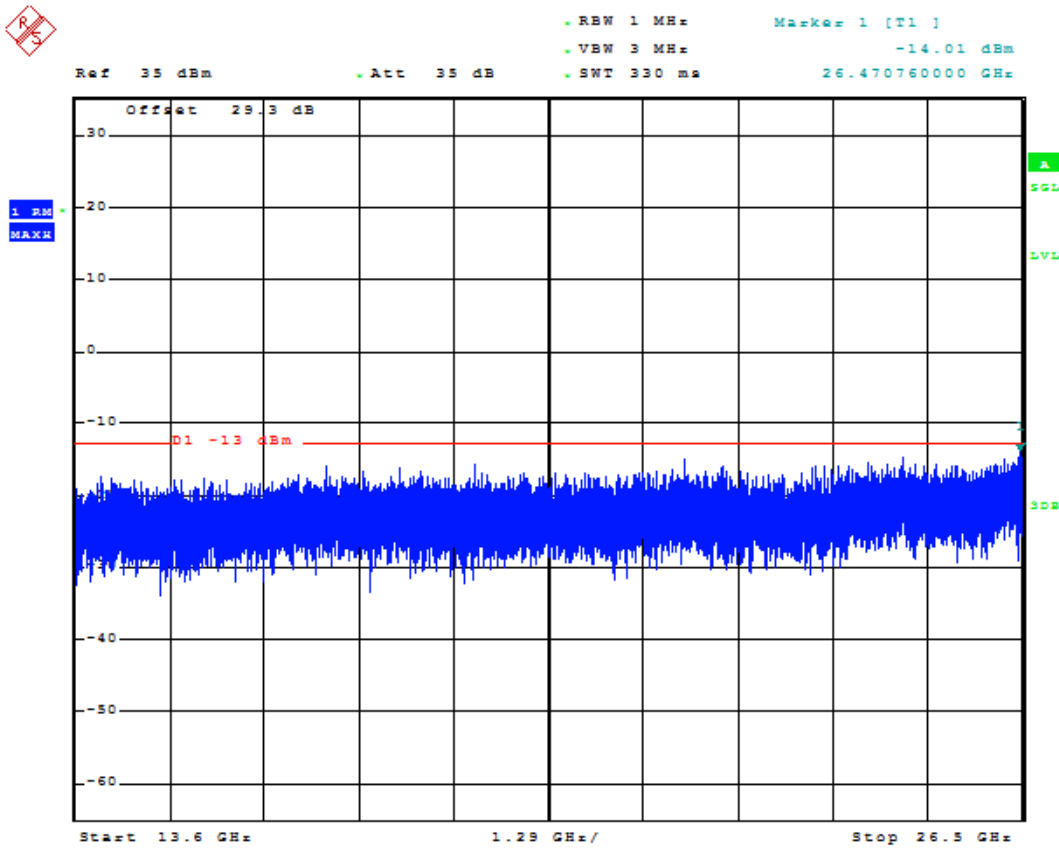
Report Number: 1709FR17-01



Date: 3.OCT.2017 14:25:53



Report Number: 1709FR17-01



Date: 3.OCT.2017 14:26:11



## Appendix F: Field Strength of Spurious Radiation

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 824.2MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_850_CH128   | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1648.400           | -31.84           | 0.00                   | -31.84          | -13.00         | -18.84         | peak   |
| 2   | 2472.600           | -26.49           | -3.30                  | -29.79          | -13.00         | -16.79         | peak   |
| 3   | 3296.800           | -38.16           | -1.39                  | -39.55          | -13.00         | -26.55         | peak   |
| 4   | 4121.000           | -28.11           | 0.53                   | -27.58          | -13.00         | -14.58         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 824.2MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_850_CH128   | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1648.400           | -31.90           | 0.00                   | -31.90          | -13.00         | -18.90         | peak   |
| 2   | 2472.600           | -23.28           | -3.30                  | -26.58          | -13.00         | -13.58         | peak   |
| 3   | 3296.800           | -37.28           | -1.39                  | -38.67          | -13.00         | -25.67         | peak   |
| 4   | 4121.000           | -26.91           | 0.53                   | -26.38          | -13.00         | -13.38         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 836.6MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_850_CH190   | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1673.200           | -25.68           | -6.10                  | -31.78          | -13.00         | -18.78         | peak   |
| 2   | 2509.800           | -33.63           | -3.17                  | -36.80          | -13.00         | -23.80         | peak   |
| 3   | 3346.400           | -42.88           | -1.30                  | -44.18          | -13.00         | -31.18         | peak   |
| 4   | 4183.000           | -33.11           | 0.66                   | -32.45          | -13.00         | -19.45         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 836.6MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_850_CH190   | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1673.200           | -25.59           | -6.10                  | -31.69          | -13.00         | -18.69         | peak   |
| 2   | 2509.800           | -26.09           | -3.17                  | -29.26          | -13.00         | -16.26         | peak   |
| 3   | 3346.400           | -41.84           | -1.30                  | -43.14          | -13.00         | -30.14         | peak   |
| 4   | 4183.000           | -31.67           | 0.66                   | -31.01          | -13.00         | -18.01         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 848.8MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_850_CH251   | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1697.600           | -25.51           | -6.03                  | -31.54          | -13.00         | -18.54         | peak   |
| 2   | 2546.400           | -30.15           | -3.07                  | -33.22          | -13.00         | -20.22         | peak   |
| 3   | 3395.200           | -42.21           | -1.23                  | -43.44          | -13.00         | -30.44         | peak   |
| 4   | 4244.000           | -32.12           | 0.78                   | -31.34          | -13.00         | -18.34         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 848.8MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_850_CH251   | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1697.600           | -25.60           | -6.03                  | -31.63          | -13.00         | -18.63         | peak   |
| 2   | 2546.400           | -25.95           | -3.07                  | -29.02          | -13.00         | -16.02         | peak   |
| 3   | 3395.200           | -42.61           | -1.23                  | -43.84          | -13.00         | -30.84         | peak   |
| 4   | 4244.000           | -30.56           | 0.78                   | -29.78          | -13.00         | -16.78         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1850.2MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_1900_CH512  | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3700.400           | -52.39           | -0.52                  | -52.91          | -13.00         | -39.91         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1850.2MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_1900_CH512  | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3700.400           | -51.37           | -0.52                  | -51.89          | -13.00         | -38.89         | peak   |



|             |                    |                       |              |
|-------------|--------------------|-----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:        | 3m           |
| Test item:  | Harmonic           | Power:                | AC 120V/60Hz |
| Frequency:  | 1880MHz            | Temp.(°C)/Hum. (%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_1900_CH661  | Date:                 | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                       |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3760.000           | -51.56           | -0.37                  | -51.93          | -13.00         | -38.93         | peak   |

|             |                    |                       |              |
|-------------|--------------------|-----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:        | 3m           |
| Test item:  | Harmonic           | Power:                | AC 120V/60Hz |
| Frequency:  | 1880MHz            | Temp.(°C)/Hum. (%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_1900_CH661  | Date:                 | 09/12/2017   |
| Ant.Polar.: | Vertical           |                       |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3760.000           | -52.47           | -0.37                  | -52.84          | -13.00         | -39.84         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1909.8MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_1900_CH810  | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3819.600           | -54.01           | -0.21                  | -54.22          | -13.00         | -41.22         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1909.8MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GSM_1900_CH810  | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3819.600           | -52.60           | -0.21                  | -52.81          | -13.00         | -39.81         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 824.2MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_850_CH128  | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1648.400           | -25.64           | -6.19                  | -31.83          | -13.00         | -18.83         | peak   |
| 2   | 2472.600           | -30.26           | -3.31                  | -33.57          | -13.00         | -20.57         | peak   |
| 3   | 3296.800           | -38.05           | -1.38                  | -39.43          | -13.00         | -26.43         | peak   |
| 4   | 4121.000           | -31.93           | 0.53                   | -31.40          | -13.00         | -18.40         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 824.2MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_850_CH128  | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1648.400           | -25.66           | -6.19                  | -31.85          | -13.00         | -18.85         | peak   |
| 2   | 2472.600           | -23.21           | -3.31                  | -26.52          | -13.00         | -13.52         | peak   |
| 3   | 3296.800           | -34.65           | -1.38                  | -36.03          | -13.00         | -23.03         | peak   |
| 4   | 4121.000           | -28.80           | 0.53                   | -28.27          | -13.00         | -15.27         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 836.6MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_850_CH190  | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1673.200           | -25.67           | -6.10                  | -31.77          | -13.00         | -18.77         | peak   |
| 2   | 2509.800           | -30.46           | -3.17                  | -33.63          | -13.00         | -20.63         | peak   |
| 3   | 3346.400           | -39.59           | -1.30                  | -40.89          | -13.00         | -27.89         | peak   |
| 4   | 4183.000           | -32.05           | 0.66                   | -31.39          | -13.00         | -18.39         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 836.6MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_850_CH190  | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1673.200           | -25.64           | -6.10                  | -31.74          | -13.00         | -18.74         | peak   |
| 2   | 2509.800           | -24.69           | -3.17                  | -27.86          | -13.00         | -14.86         | peak   |
| 3   | 3346.400           | -37.58           | -1.30                  | -38.88          | -13.00         | -25.88         | peak   |
| 4   | 4183.000           | -27.36           | 0.66                   | -26.70          | -13.00         | -13.70         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 848.8MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_850_CH251  | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1697.600           | -25.52           | -6.03                  | -31.55          | -13.00         | -18.55         | peak   |
| 2   | 2546.400           | -29.34           | -3.07                  | -32.41          | -13.00         | -19.41         | peak   |
| 3   | 3395.200           | -40.32           | -1.23                  | -41.55          | -13.00         | -28.55         | peak   |
| 4   | 4244.000           | -33.04           | 0.78                   | -32.26          | -13.00         | -19.26         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 848.8MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_850_CH251  | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1697.600           | -25.46           | -6.03                  | -31.49          | -13.00         | -18.49         | peak   |
| 2   | 2546.400           | -23.12           | -3.07                  | -26.19          | -13.00         | -13.19         | peak   |
| 3   | 3395.200           | -37.48           | -1.23                  | -38.71          | -13.00         | -25.71         | peak   |
| 4   | 4244.000           | -29.19           | 0.78                   | -28.41          | -13.00         | -15.41         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1850.2MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_1900_CH512 | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3700.400           | -52.48           | -0.52                  | -53.00          | -13.00         | -40.00         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1850.2MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_1900_CH512 | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3700.400           | -54.18           | -0.52                  | -54.70          | -13.00         | -41.70         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1880MHz            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_1900_CH661 | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3760.000           | -53.49           | -0.37                  | -53.86          | -13.00         | -40.86         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1880MHz            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_1900_CH661 | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3760.000           | -52.92           | -0.37                  | -53.29          | -13.00         | -40.29         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1909.8MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_1900_CH810 | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3819.600           | -52.97           | -0.21                  | -53.18          | -13.00         | -40.18         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1909.8MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_GPRS_1900_CH810 | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3819.600           | -52.98           | -0.21                  | -53.19          | -13.00         | -40.19         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 824.2MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_850_CH128  | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1648.400           | -25.64           | -6.19                  | -31.83          | -13.00         | -18.83         | peak   |
| 2   | 2472.600           | -43.07           | -3.31                  | -46.38          | -13.00         | -33.38         | peak   |
| 3   | 4121.000           | -39.82           | 0.53                   | -39.29          | -13.00         | -26.29         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 824.2MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_850_CH128  | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1648.400           | -25.67           | -6.19                  | -31.86          | -13.00         | -18.86         | peak   |
| 2   | 2472.600           | -30.82           | -3.31                  | -34.13          | -13.00         | -21.13         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 836.6MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_850_CH190  | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1673.200           | -25.53           | -6.10                  | -31.63          | -13.00         | -18.63         | peak   |
| 2   | 2509.800           | -40.75           | -3.17                  | -43.92          | -13.00         | -30.92         | peak   |
| 3   | 4183.000           | -38.08           | 0.66                   | -37.42          | -13.00         | -24.42         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 836.6MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_850_CH190  | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1673.200           | -25.60           | -6.10                  | -31.70          | -13.00         | -18.70         | peak   |
| 2   | 2509.800           | -25.71           | -3.17                  | -28.88          | -13.00         | -15.88         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 848.8MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_850_CH251  | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1697.600           | -25.53           | -6.03                  | -31.56          | -13.00         | -18.56         | peak   |
| 2   | 2546.400           | -40.02           | -3.07                  | -43.09          | -13.00         | -30.09         | peak   |
| 3   | 3395.200           | -45.48           | -1.23                  | -46.71          | -13.00         | -33.71         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 848.8MHz           | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_850_CH251  | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 1697.600           | -25.50           | -6.03                  | -31.53          | -13.00         | -18.53         | peak   |
| 2   | 2546.400           | -34.36           | -3.07                  | -37.43          | -13.00         | -24.43         | peak   |
| 3   | 3395.200           | -43.03           | -1.23                  | -44.26          | -13.00         | -31.26         | peak   |
| 4   | 4244.000           | -45.88           | 0.78                   | -45.10          | -13.00         | -32.10         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1850.2MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_1900_CH512 | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3700.400           | -54.52           | -0.52                  | -55.04          | -13.00         | -42.04         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1850.2MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_1900_CH512 | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3700.400           | -53.82           | -0.52                  | -54.34          | -13.00         | -41.34         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1880MHz            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_1900_CH661 | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3760.000           | -53.74           | -0.37                  | -54.11          | -13.00         | -41.11         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1880MHz            | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_1900_CH661 | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3760.000           | -54.17           | -0.37                  | -54.54          | -13.00         | -41.54         | peak   |



|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1909.8MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_1900_CH810 | Date:                | 09/12/2017   |
| Ant.Polar.: | Horizontal         |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3819.600           | -53.29           | -0.21                  | -53.50          | -13.00         | -40.50         | peak   |

|             |                    |                      |              |
|-------------|--------------------|----------------------|--------------|
| Standard:   | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:  | Harmonic           | Power:               | AC 120V/60Hz |
| Frequency:  | 1909.8MHz          | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Mode:       | 2G_EDGE_1900_CH810 | Date:                | 09/12/2017   |
| Ant.Polar.: | Vertical           |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBm) | Correct Factor<br>(dB) | Result<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) | Remark |
|-----|--------------------|------------------|------------------------|-----------------|----------------|----------------|--------|
| 1   | 3819.600           | -53.75           | -0.21                  | -53.96          | -13.00         | -40.96         | peak   |



|              |                    |                      |              |
|--------------|--------------------|----------------------|--------------|
| Standard:    | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:   | Harmonic           | Power:               | AC 120V/60Hz |
| Mode:        | RX                 | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Ant.Polar.:  | Horizontal         | Date:                | 09/13/2017   |
| Description: |                    |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct Factor<br>(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|--------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2547.000           | 50.49             | -13.38                   | 37.11              | 74.00             | -36.89         | peak   |
| 2   | 4570.000           | 49.05             | -7.87                    | 41.18              | 74.00             | -32.82         | peak   |
| 3   | 6338.000           | 46.94             | -3.58                    | 43.36              | 74.00             | -30.64         | peak   |

|              |                    |                      |              |
|--------------|--------------------|----------------------|--------------|
| Standard:    | FCC Part 22H / 24E | Test Distance:       | 3m           |
| Test item:   | Harmonic           | Power:               | AC 120V/60Hz |
| Mode:        | RX                 | Temp.(°C)/Hum.(%RH): | 26(°C)/60%RH |
| Ant.Polar.:  | Vertical           | Date:                | 09/13/2017   |
| Description: |                    |                      |              |

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct Factor<br>(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|--------------------------|--------------------|-------------------|----------------|--------|
| 1   | 2530.000           | 51.57             | -13.42                   | 38.15              | 74.00             | -35.85         | peak   |
| 2   | 4349.000           | 50.84             | -8.47                    | 42.37              | 74.00             | -31.63         | peak   |
| 3   | 6287.000           | 48.86             | -3.76                    | 45.10              | 74.00             | -28.90         | peak   |



## Appendix G: Frequency Stability (Temperature & Voltage Variation)

### Frequency Error vs. Voltage:

| Test Band | Test Mode | Test Channel | Test Temp. | Test Volt. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM850    | TM1       | LCH          | TN         | VL         | 1.10            | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | -1.42           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 0.13            | 0.00                | ±2.5        | PASS    |
|           |           | MCH          | TN         | VL         | 13.04           | 0.02                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 18.47           | 0.02                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 21.11           | 0.03                | ±2.5        | PASS    |
|           |           | HCH          | TN         | VL         | -4.52           | -0.01               | ±2.5        | PASS    |
|           |           |              | TN         | VN         | -5.75           | -0.01               | ±2.5        | PASS    |
|           |           |              | TN         | VH         | -4.97           | -0.01               | ±2.5        | PASS    |

| Test Band | Test Mode | Test Channel | Test Temp. | Test Volt. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM850    | TM2       | LCH          | TN         | VL         | 8.27            | 0.01                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 7.75            | 0.01                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 7.49            | 0.01                | ±2.5        | PASS    |
|           |           | MCH          | TN         | VL         | 11.11           | 0.01                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 15.95           | 0.02                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 16.34           | 0.02                | ±2.5        | PASS    |
|           |           | HCH          | TN         | VL         | 7.62            | 0.01                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 5.29            | 0.01                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 6.59            | 0.01                | ±2.5        | PASS    |



| Test Band | Test Mode | Test Channel | Test Temp. | Test Volt. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM850    | TM3       | LCH          | TN         | VL         | 14.98           | 0.02                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 14.63           | 0.02                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 15.46           | 0.02                | ±2.5        | PASS    |
|           |           | MCH          | TN         | VL         | 21.18           | 0.03                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 23.12           | 0.03                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 21.99           | 0.03                | ±2.5        | PASS    |
|           |           | HCH          | TN         | VL         | 11.11           | 0.01                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 12.75           | 0.02                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 10.72           | 0.01                | ±2.5        | PASS    |

| Test Band | Test Mode | Test Channel | Test Temp. | Test Volt. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM1900   | TM1       | LCH          | TN         | VL         | -10.59          | -0.01               | ±2.5        | PASS    |
|           |           |              | TN         | VN         | -7.81           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | -11.69          | -0.01               | ±2.5        | PASS    |
|           |           | MCH          | TN         | VL         | -1.55           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | -1.42           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | -3.87           | 0.00                | ±2.5        | PASS    |
|           |           | HCH          | TN         | VL         | -9.30           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | -8.39           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | -11.62          | -0.01               | ±2.5        | PASS    |

| Test Band | Test Mode | Test Channel | Test Temp. | Test Volt. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM1900   | TM2       | LCH          | TN         | VL         | -1.03           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | -1.94           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | -3.10           | 0.00                | ±2.5        | PASS    |
|           |           | MCH          | TN         | VL         | 2.58            | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 2.26            | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 1.94            | 0.00                | ±2.5        | PASS    |
|           |           | HCH          | TN         | VL         | -3.81           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | -2.20           | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 3.29            | 0.00                | ±2.5        | PASS    |



| Test Band | Test Mode | Test Channel | Test Temp. | Test Volt. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM1900   | TM3       | LCH          | TN         | VL         | 2.68            | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 4.62            | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 3.45            | 0.00                | ±2.5        | PASS    |
|           |           | MCH          | TN         | VL         | 6.46            | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 10.59           | 0.01                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 6.94            | 0.00                | ±2.5        | PASS    |
|           |           | HCH          | TN         | VL         | 10.91           | 0.01                | ±2.5        | PASS    |
|           |           |              | TN         | VN         | 2.68            | 0.00                | ±2.5        | PASS    |
|           |           |              | TN         | VH         | 9.49            | 0.00                | ±2.5        | PASS    |



### Frequency Error vs. Temperature:

| Test Band | Test Mode | Test Channel | Test Volt. | Test Temp. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM850    | TM1       | LCH          | VN         | -30        | 0.13            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | -1.49           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | -0.77           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | -0.65           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | -1.49           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | -0.58           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | -0.45           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | -0.52           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 0.65            | 0.00                | ±2.5        | PASS    |
| GSM850    | TM1       | MCH          | VN         | -30        | 15.50           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 20.53           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 14.08           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 16.47           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 20.73           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 20.66           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 5.23            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 13.69           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 1.81            | 0.00                | ±2.5        | PASS    |
| GSM850    | TM1       | HCH          | VN         | -30        | -4.97           | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | -20        | -3.36           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | -3.03           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | -6.33           | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 10         | -5.94           | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 20         | -4.07           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | -5.81           | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 40         | -5.75           | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 50         | -2.78           | 0.00                | ±2.5        | PASS    |

| Test Band | Test Mode | Test Channel | Test Volt. | Test Temp. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM850    | TM2       | LCH          | VN         | -30        | 9.36            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 8.20            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 7.68            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 4.65            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 6.46            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 5.88            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 7.62            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 7.49            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 8.85            | 0.01                | ±2.5        | PASS    |
| GSM850    | TM2       | MCH          | VN         | -30        | 19.82           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 15.24           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 12.40           | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 23.37           | 0.03                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 20.40           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 20.92           | 0.03                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 17.11           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 18.34           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 18.02           | 0.02                | ±2.5        | PASS    |
| GSM850    | TM2       | HCH          | VN         | -30        | 4.07            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 9.04            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 5.68            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 5.29            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 5.17            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 6.20            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 4.78            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 4.97            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 7.55            | 0.01                | ±2.5        | PASS    |

| Test Band | Test Mode | Test Channel | Test Volt. | Test Temp. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM850    | TM3       | LCH          | VN         | -30        | 13.69           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 14.88           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 14.17           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 14.50           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 14.27           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 14.59           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 14.66           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 13.40           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 14.30           | 0.02                | ±2.5        | PASS    |
| GSM850    | TM3       | MCH          | VN         | -30        | 19.76           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 29.12           | 0.03                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 27.31           | 0.03                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 22.47           | 0.03                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 22.15           | 0.03                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 27.25           | 0.03                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 25.63           | 0.03                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 22.70           | 0.03                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 23.41           | 0.03                | ±2.5        | PASS    |
| GSM850    | TM3       | HCH          | VN         | -30        | 10.65           | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 12.79           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 11.40           | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 12.59           | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 12.11           | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 12.49           | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 14.24           | 0.02                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 10.94           | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 11.62           | 0.01                | ±2.5        | PASS    |

| Test Band | Test Mode | Test Channel | Test Volt. | Test Temp. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM1900   | TM1       | LCH          | VN         | -30        | -11.75          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | -20        | -12.07          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | -10        | -11.30          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 0          | -11.04          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 10         | -11.56          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 20         | -5.68           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | -11.56          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 40         | -10.33          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 50         | -12.91          | -0.01               | ±2.5        | PASS    |
| GSM1900   | TM1       | MCH          | VN         | -30        | 3.29            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 2.13            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 2.71            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 0.90            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 0.39            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 3.94            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 3.03            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | -0.06           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 2.00            | 0.00                | ±2.5        | PASS    |
| GSM1900   | TM1       | HCH          | VN         | -30        | -11.24          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | -20        | -8.20           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | -11.95          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 0          | -8.39           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | -8.27           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | -11.24          | -0.01               | ±2.5        | PASS    |
|           |           |              | VN         | 30         | -6.07           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | -9.17           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | -7.04           | 0.00                | ±2.5        | PASS    |



| Test Band | Test Mode | Test Channel | Test Volt. | Test Temp. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM1900   | TM2       | LCH          | VN         | -30        | -3.62           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | -3.42           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | -5.29           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | -2.39           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | -3.94           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | -2.13           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | -4.91           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | -5.04           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | -0.71           | 0.00                | ±2.5        | PASS    |
| GSM1900   | TM2       | MCH          | VN         | -30        | 4.84            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 7.30            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 4.26            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 6.33            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 7.23            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 6.01            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 1.29            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 6.07            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 6.84            | 0.00                | ±2.5        | PASS    |
| GSM1900   | TM2       | HCH          | VN         | -30        | 1.55            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | -0.06           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 1.29            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 1.81            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | -0.45           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | -0.52           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | -0.77           | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 2.84            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 0.13            | 0.00                | ±2.5        | PASS    |



| Test Band | Test Mode | Test Channel | Test Volt. | Test Temp. | Freq.Error (Hz) | Freq.vs.rated (ppm) | Limit (ppm) | Verdict |
|-----------|-----------|--------------|------------|------------|-----------------|---------------------|-------------|---------|
| GSM1900   | TM3       | LCH          | VN         | -30        | 8.88            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 4.46            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 2.36            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 6.88            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 4.62            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 4.46            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 6.30            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 6.20            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 1.84            | 0.00                | ±2.5        | PASS    |
| GSM1900   | TM3       | MCH          | VN         | -30        | 8.59            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 8.94            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 6.23            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 10.56           | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 11.59           | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 7.88            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 7.07            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 9.14            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 8.27            | 0.00                | ±2.5        | PASS    |
| GSM1900   | TM3       | HCH          | VN         | -30        | 4.20            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -20        | 5.42            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | -10        | 6.59            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 0          | 9.78            | 0.01                | ±2.5        | PASS    |
|           |           |              | VN         | 10         | 6.78            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 20         | 5.20            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 30         | 6.78            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 40         | 8.98            | 0.00                | ±2.5        | PASS    |
|           |           |              | VN         | 50         | 6.33            | 0.00                | ±2.5        | PASS    |