

# EMC Test Report

**Project Number:** 4054596**Report Number:** 4054596EMC01**Revision Level:** 0**Client:** ClearOne, Inc.**Equipment Under Test:** Dialog 20 Handheld Transmitter**Model:** 910-6103-XXX**FCC ID:** FBI-DIALOG20HH**IC ID:** 1970A-DIALOG20HH**Applicable Standards:** FCC Part 15 Subpart C, § 15.247**RSS-247, Issue 1****ANSI C63.10: 2013****Report issued on:** 01 December 2016**Test Result:** Compliant**Tested by:**  
\_\_\_\_\_  
Fabian Nica, Senior Engineering Technician**Reviewed by:**  
\_\_\_\_\_  
Jeremy O. Pickens, Senior EMC Engineer**Remarks:**

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or Testing done by SGS International Electrical Approvals in connection with distribution or use of the product described in this report must be approved by SGS international Electrical Approvals in writing.

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## 1 Summary of Test Results

| Test Description                                  | Test Specification |                                  | Test Result |
|---------------------------------------------------|--------------------|----------------------------------|-------------|
| Bandwidth                                         | 15.247(d)          | RSS-247 S5.2 (1)<br>RSS-GEN S6.6 | Compliant   |
| Transmitter Output Power                          | 15.247(b)(3)       | RSS-247 S5.4 (4)                 | Compliant   |
| Power Spectral Density                            | 15.247(e)          | RSS-247 S5.2 (2)                 | Compliant   |
| Conducted Spurious Emissions /<br>Band edge       | 15.247(d)          | RSS-247 S5.5                     | Compliant   |
| Radiated Spurious Emissions /<br>Restricted Bands | 15.35(b),15.209    | RSS-GEN S6.13<br>RSS-GEN S8.10   | Compliant   |
| AC Powerline Conducted<br>Emission                | 15.107, 15.207     | RSS-GEN S8.8                     | Compliant   |

### 1.1 Modifications Required for Compliance

None

## 2 General Information

### 2.1 Client Information

Name: CLEARONE INC  
Address: 5225 WILEY POST WAY SUITE 500  
City, State, Zip, Country: SALT LAKE CITY, UT 84116, USA

### 2.1 Test Laboratory

Name: SGS North America, Inc.  
Address: 620 Old Peachtree Road NW, Suite 100  
City, State, Zip, Country: Suwanee, GA 30024, USA

Accrediting Body: A2LA  
Type of lab: Testing Laboratory  
Certificate Number: 3212.01

### 2.2 General Information of EUT

Type of Product: Dialog 20 Handheld Transmitter  
Model Number: 910-6103-XXX  
Serial Number: 1 (Conducted measurements)  
2 (Radiated measurements)

Frequency Range: 2403-2481MHz (79 Channels)  
Antenna: Monopole: 1.5dBi  
EIRP: 9.96 dBm / 9.9 mW

Rated Voltage: 2.4 Vdc (2xAA Batteries)  
Test Voltage: 2.4Vdc

Sample Received Date: 18 October 2016  
Dates of testing: 16 - 29 November 2016

Handheld with SACOM H18,  
Cardioid Microphone capsule model number is 910-6103-001

Handheld Transmitter with Audix OM3,  
Super Cardioid Microphone capsule model number is 910-6103-011

Handheld Transmitter with Audix OM5,  
Dynamic, Hyper Cardioid Microphone capsule model number is 910-6103-021

From a compliance perspective these two models are identical with the exception that they use different microphone types.

## 2.3 Operating Modes and Conditions

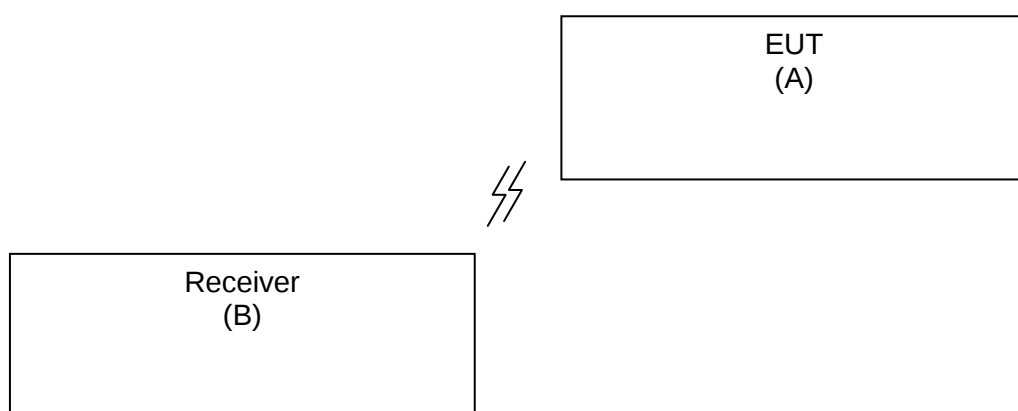
The transmitter was programmed by setting the receiver to the desired channel and then syncing the transmitter to the receiver. Once connected, the device transmitted continuously at full power. The device was programmed to transmit at low, middle, and high channels.

Channel 03, 2403MHz

Channel 42, 2442MHz

Channel 81, 2481MHz

## 2.4 EUT Connection Block Diagram



## 2.5 System Configurations

| Device reference | Manufacturer | Description                     | Model Number | Serial Number                                           |
|------------------|--------------|---------------------------------|--------------|---------------------------------------------------------|
| A                | ClearOne     | Dialog 20 Handheld Transmitter: | 910-6103-XXX | 1 (Conducted measurements)<br>2 (Radiated measurements) |
| B                | ClearOne     | Dialog 20 Receiver              | 910-6100-XXX | 20                                                      |

### 3 Bandwidth

#### 3.1 Test Result

| Test Description         | Test Specification |                                  | Test Result |
|--------------------------|--------------------|----------------------------------|-------------|
| 6 dB bandwidth / 99% OBW | 15.247(d)          | RSS-247 S5.2 (1)<br>RSS-GEN S6.6 | Compliant   |

#### 3.2 Test Method

The procedures from ANSI C63.10: 2013 clause 11.8 and 558074 D01 DTS Meas Guidance v03r05 were used to determine the 6 dB bandwidth and 99% OBW.

#### 3.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.5 °C

Relative Humidity: 33.3 %

#### 3.4 Test Equipment

Test End Date: 16-Nov-2016

Tester: JOP

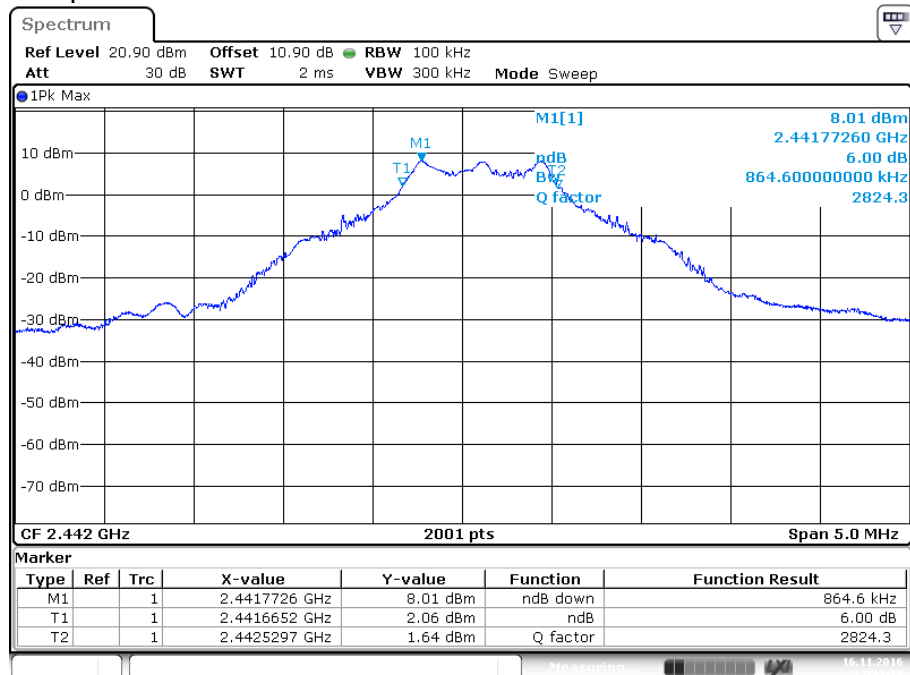
| Equipment        | Model | Manufacturer    | Asset Number | Cal Due Date |
|------------------|-------|-----------------|--------------|--------------|
| SIGNAL ANALYZER  | FSV30 | ROHDE & SCHWARZ | B085749      | 8-Oct-2017   |
| RF CABLE         | 1134  | GORE            | B094785      | 26-Jul-2017  |
| ATTENUATOR, 10DB | 10DB  | ROHDE & SCHWARZ | B095593      | 27-Jul-2017  |

Note: The equipment calibration period is 1 year except for the FSV which is on a 2-year calibration cycle.

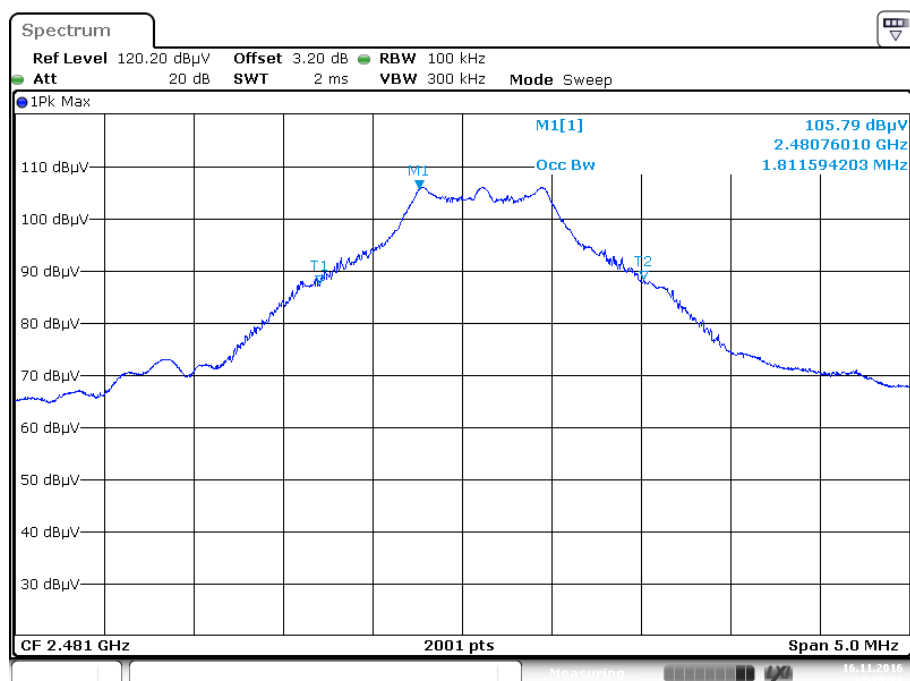
#### 3.5 Test Data

| Channel | 6dB Bandwidth (MHz) | Occupied Bandwidth (99%) (MHz) |
|---------|---------------------|--------------------------------|
| 3       | 0.887               | 1.805                          |
| 42      | 0.865               | 1.814                          |
| 81      | 0.877               | 1.812                          |

## Sample Plots



Date: 16.NOV.2016 15:32:39



Date: 16.NOV.2016 14:20:31

## 4 Output Power

### 4.1 Test Result

| Test Description  | Test Specification |                  | Test Result |
|-------------------|--------------------|------------------|-------------|
| Peak Output Power | 15.247(b) (3)      | RSS-247 S5.4 (4) | Compliant   |

### 4.2 Test Method

Fundamental power measurements were recorded using the peak power procedures from ANSI C63.10: 2013 clause 11.9 and KDB 558074 D01 Measurement Guidance v03r05.

#### Limit

(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. For using antennas with greater than 6dBi of gain, the limit is reduced in dB by the amount the gain exceeds 6dBi

### 4.3 Test Site

SGS EMC Laboratory, Suwanee, GA

#### Environmental Conditions

Temperature: 23.5 °C

Relative Humidity: 33.3 %

### 4.4 Test Equipment

Test End Date: 16-Nov-2016

Tester: JOP

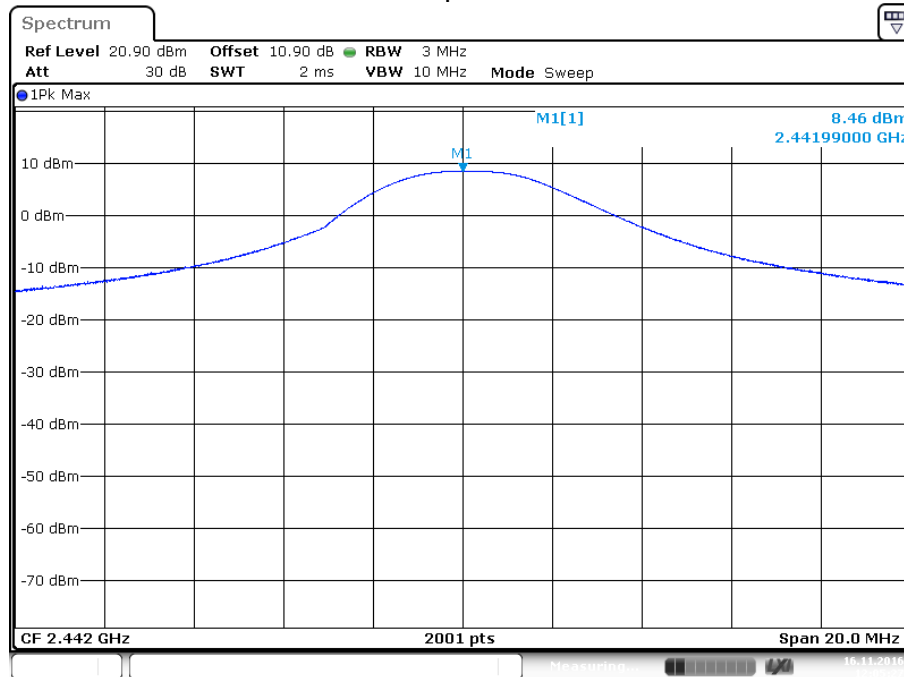
| Equipment        | Model | Manufacturer    | Asset Number | Cal Due Date |
|------------------|-------|-----------------|--------------|--------------|
| SIGNAL ANALYZER  | FSV30 | ROHDE & SCHWARZ | B085749      | 8-Oct-2017   |
| RF CABLE         | 1134  | GORE            | B094785      | 26-Jul-2017  |
| ATTENUATOR, 10DB | 10DB  | ROHDE & SCHWARZ | B095593      | 27-Jul-2017  |

Note: The equipment calibration period is 1 year except for the FSV which is on a 2-year calibration cycle.

## 4.5 Test Data

| Channel | Frequency (MHz) | Peak Power (dBm) | Limit (30dBm) | Margin (dB) |
|---------|-----------------|------------------|---------------|-------------|
| 3       | 2403            | 7.32             | 30            | -22.68      |
| 42      | 2442            | 8.46             | 30            | -21.54      |
| 81      | 2481            | 2.2              | 30            | -27.8       |

Sample Plot



Date: 16.NOV.2016 12:05:27

## 5 Power Spectral Density

### 5.1 Test Result

| Test Description       | Test Specification |                  | Test Result |
|------------------------|--------------------|------------------|-------------|
| Power Spectral Density | 15.247(e)          | RSS-247 S5.2 (2) | Compliant   |

### 5.2 Test Method

Fundamental power spectral density measurements were recorded using the peak PSD procedures from ANSI C63.10: 2013 clause 11.10 and KDB 558074 D01 Measurement Guidance v03r05.

#### Limit

The limit is 8 dBm.

### 5.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.5 °C

Relative Humidity: 33.3 %

### 5.4 Test Equipment

Test End Date: 16-Nov-2016

Tester: JOP

| Equipment        | Model | Manufacturer    | Asset Number | Cal Due Date |
|------------------|-------|-----------------|--------------|--------------|
| SIGNAL ANALYZER  | FSV30 | ROHDE & SCHWARZ | B085749      | 8-Oct-2017   |
| RF CABLE         | 1134  | GORE            | B094785      | 26-Jul-2017  |
| ATTENUATOR, 10DB | 10DB  | ROHDE & SCHWARZ | B095593      | 27-Jul-2017  |

Note: The equipment calibration period is 1 year except for the FSV which is on a 2-year calibration cycle.

### 5.5 Test Data

| Channel | Frequency (MHz) | Peak PSD (dBm) | Limit (30dBm) | Margin (dB) |
|---------|-----------------|----------------|---------------|-------------|
| 3       | 2403            | -0.09          | 8             | -8.09       |
| 42      | 2442            | 0.63           | 8             | -7.37       |
| 81      | 2481            | -0.27          | 8             | -8.27       |

### Sample Plot



Date: 16.NOV.2016 15:28:23

## 6 Conducted Spurious Emissions

### 6.1 Test Result

| Test Description             | Test Specification |              | Test Result |
|------------------------------|--------------------|--------------|-------------|
| Conducted Spurious Emissions | 15.247(d)          | RSS-247 S5.5 | Compliant   |

### 6.2 Test Method

Spurious emissions in non-restricted frequency bands were recorded using the methods defined in ANSI C63.10: 2013 clause 11.11 and KDB 558074 D01 Measurement Guidance v03r05.

Lowest, middle, and highest channels were investigated.

Because the maximum conducted peak output power was used to determine compliance with the output power limits, the limit is 20 dB below the maximum in-band peak PSD level in 100 kHz.

### 6.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.5 °C

Relative Humidity: 33.3 %

### 6.4 Test Equipment

Test End Date: 16-Nov-2016

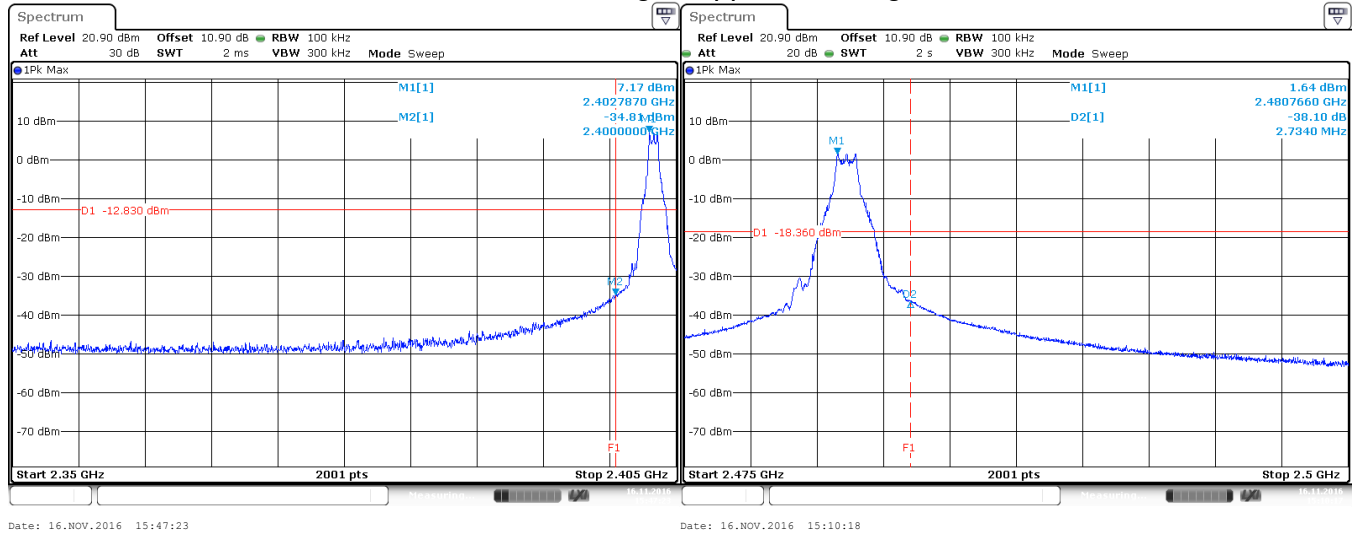
Tester: JOP

| Equipment        | Model | Manufacturer    | Asset Number | Cal Due Date |
|------------------|-------|-----------------|--------------|--------------|
| SIGNAL ANALYZER  | FSV30 | ROHDE & SCHWARZ | B085749      | 8-Oct-2017   |
| RF CABLE         | 1134  | GORE            | B094785      | 26-Jul-2017  |
| ATTENUATOR, 10DB | 10DB  | ROHDE & SCHWARZ | B095593      | 27-Jul-2017  |

Note: The equipment calibration period is 1 year except for the FSV which is on a 2-year calibration cycle.

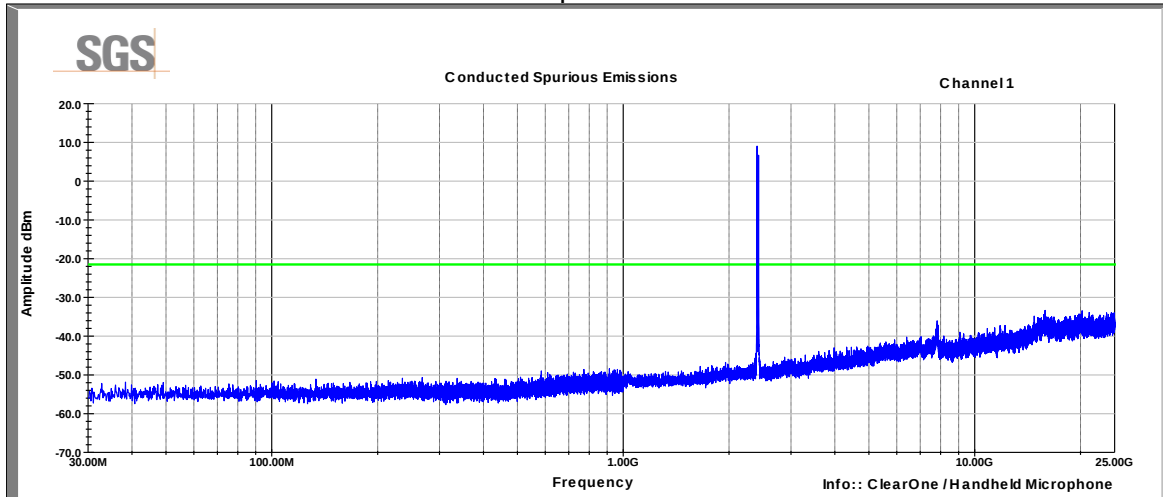
## 6.5 Test Data – DTS Bandedge

Lower band edge / Upper band edge

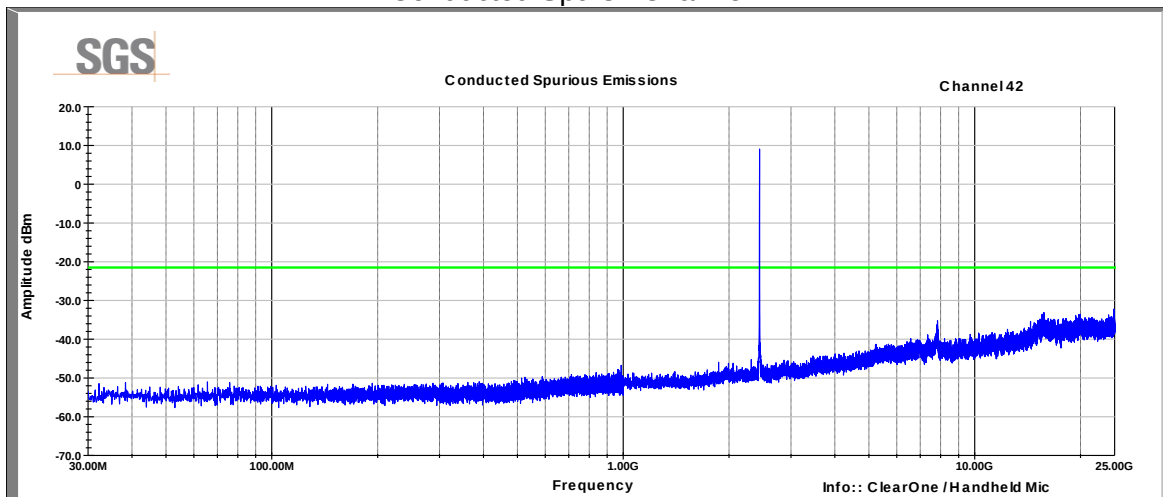


## 6.6 Test Data – Conducted Spurious Emissions

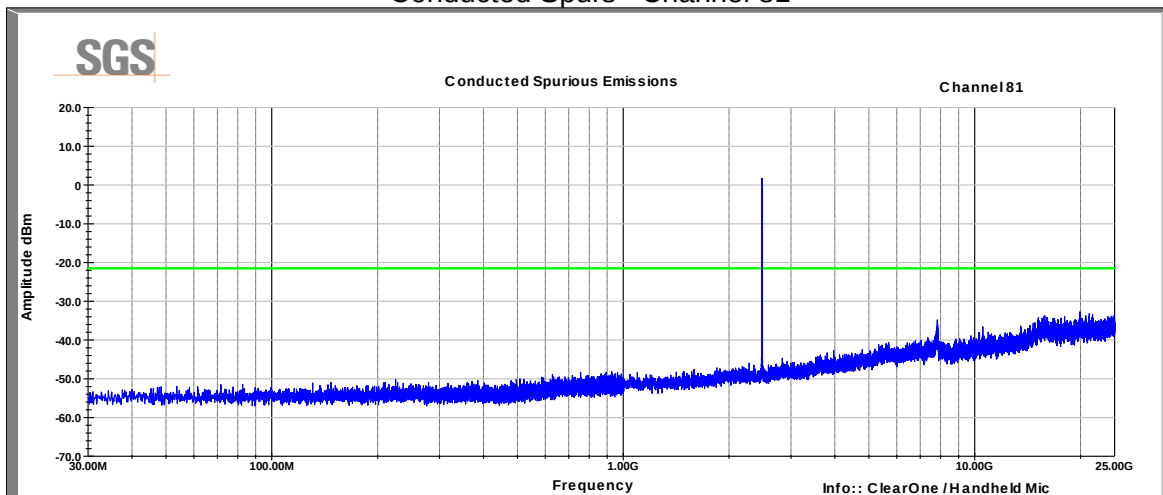
### Conducted Spurs –Channel 03



### Conducted Spurs –Channel 42



### Conducted Spurs –Channel 81



## 7 Field Strength of Spurious Radiation

### 7.1 Test Result

| Test Description   | Test Specification    |              | Test Result |
|--------------------|-----------------------|--------------|-------------|
| Spurious Emissions | 15.247 (d) and 15.209 | RSS-247 S5.5 | Compliant   |

### 7.2 Test Method

Radiated emission measurements were performed with the antenna installed as intended. The measurement methods defined in ANSI C63.4: 2014 were used.

Lowest, middle, and highest channels were investigated.

Test distance:

9k to 30 MHz – Near field prescan to determine if there were any emissions.

30 to 1000 MHz - The EUT to measurement antenna distance was 3 meters

1 to 18 GHz - The EUT to measurement antenna distance was 3 meters

18 to 26 GHz - The EUT to measurement antenna distance was 1 meter

Limits within restricted bands of operation:

| Frequency      | Limits <sup>(1)</sup> |                     | Peak Limits<br>dBuV/m |
|----------------|-----------------------|---------------------|-----------------------|
|                | Microvolts/m          | dBuV/m              |                       |
| 30 - 88 MHz    | 100                   | 40 <sup>(2)</sup>   | --                    |
| 88 - 216 MHz   | 150                   | 43.5 <sup>(2)</sup> | --                    |
| 216 - 960 MHz  | 200                   | 46 <sup>(2)</sup>   | --                    |
| 960 - 1000 MHz | 500                   | 54 <sup>(2)</sup>   | --                    |
| 1 - 40 GHz     | 500                   | 54 <sup>(3)</sup>   | 74                    |

(1) These limits are applicable to emissions outside of the intentional transmit frequency band.

(2) Quasi-peak limit

(3) Average limit

### 7.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 21.7 °C

Relative Humidity: 32.9 %

## 7.4 Test Equipment

Test Date: 29-Nov-2016

Tester: FN

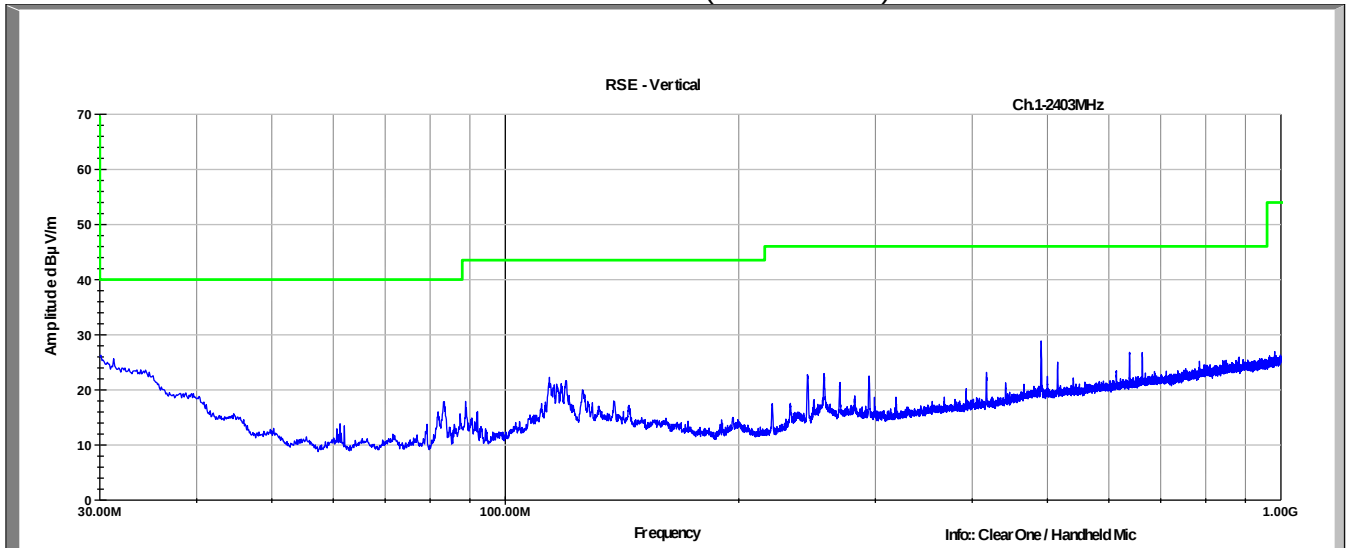
| Equipment           | Model         | Manufacturer    | Asset Number | Cal Due Date |
|---------------------|---------------|-----------------|--------------|--------------|
| EMI TEST RECEIVER   | ESU40         | ROHDE & SCHWARZ | B079629      | 20-Jun-2017  |
| ANTENNA, BILOG      | JB6           | SUNOL           | B079690      | 10-Nov-2017  |
| RF CABLE            | SF106         | HUBER & SUHNER  | B079716      | 27-Jul-2017  |
| RF CABLE            | SF106         | HUBER & SUHNER  | B079713      | 27-Jul-2017  |
| RF CABLE            | SF106         | HUBER & SUHNER  | B085892      | 27-Jul-2017  |
| RF CABLE            | SUCOFLEX 100  | HUBER & SUHNER  | B108523      | 4-Aug-2017   |
| LOW NOISE AMPLIFIER | TS-PR18       | ROHDE & SCHWARZ | B094463      | 16-Feb-2017  |
| DRG HORN (MEDIUM)   | 3117          | ETS LINDGREN    | B079699      | 26-Apr-2017  |
| RF CABLE            | SF106         | HUBER & SUHNER  | B079712      | 27-Jul-2017  |
| RF CABLE            | SF102         | HUBER & SUHNER  | B079822      | 27-Jul-2017  |
| RF CABLE            | SF102         | HUBER & SUHNER  | B079823      | 27-Jul-2017  |
| DRG HORN (SMALL)    | 3116B         | ETS LINDGREN    | B079695      | 15-Jul-2017  |
| LOW NOISE AMPLIFIER | NSP1800-25-HG | MITEQ           | B085930      | 29-Jul-2017  |
| FILTER, BAND REJECT | BRM50702      | MICRO-TRONICS   | B079791      | 29-Jul-2017  |

Note: The equipment calibration period is 1 year.

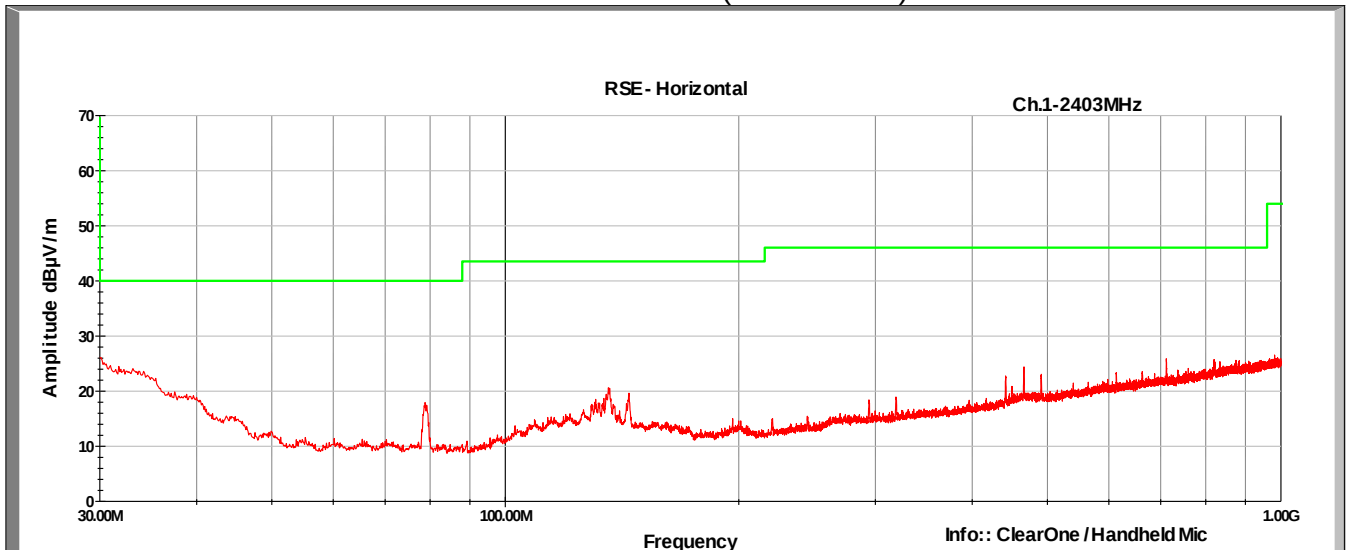
## 7.5 Peak Plots

No emissions from the radio were detected in the 9kHz to 30MHz range.

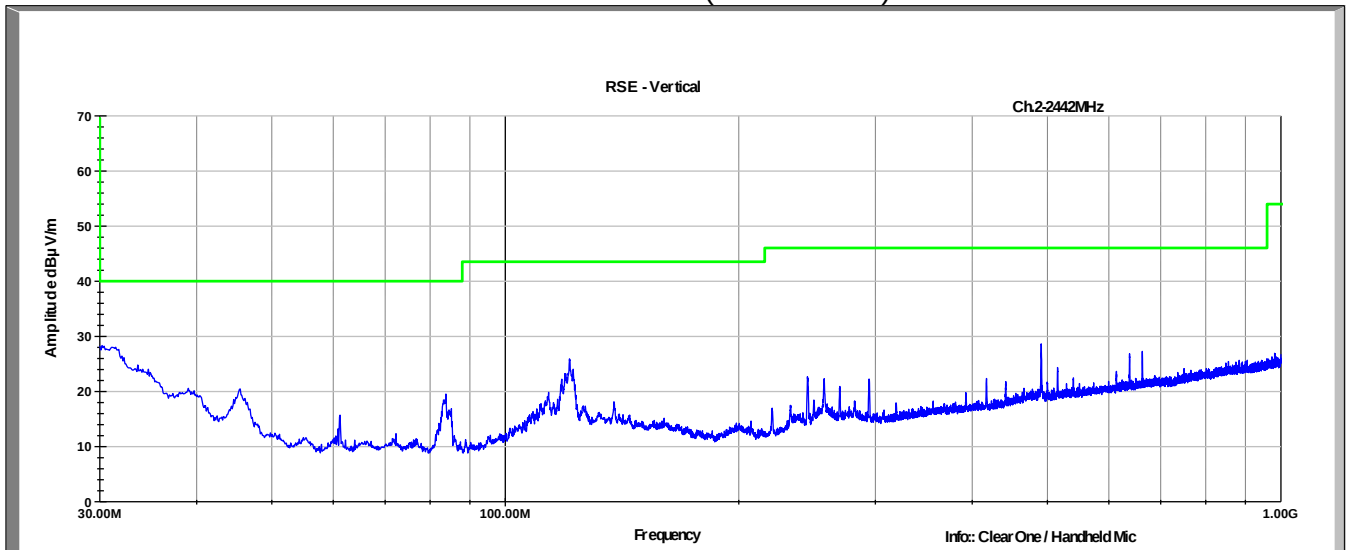
Low Channel (Channel 03)  
Peak Plot Vertical (30-1000MHz)



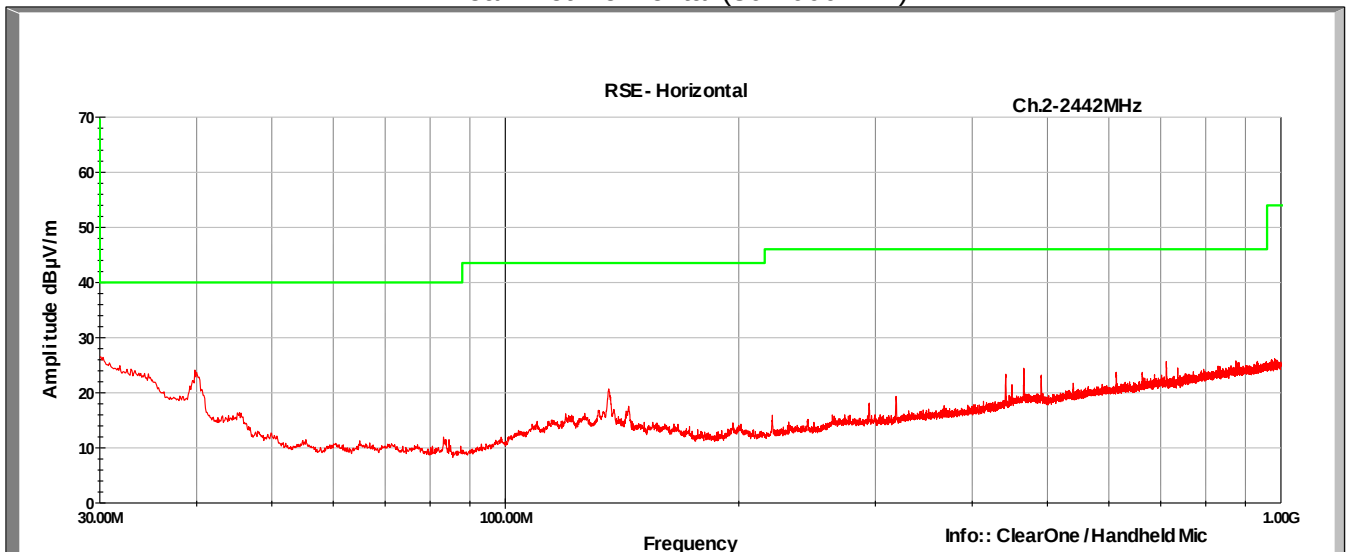
Low Channel (Channel 03)  
Peak Plot Horizontal (30-1000MHz)



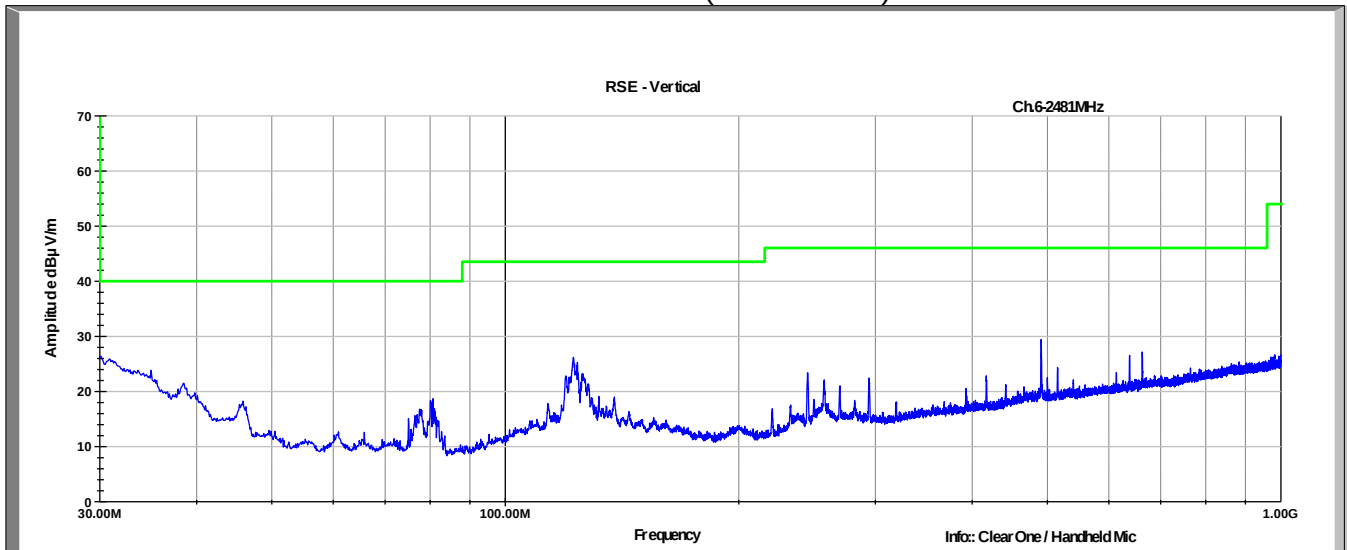
Mid Channel (Channel 42)  
Peak Plot Vertical (30-1000MHz)



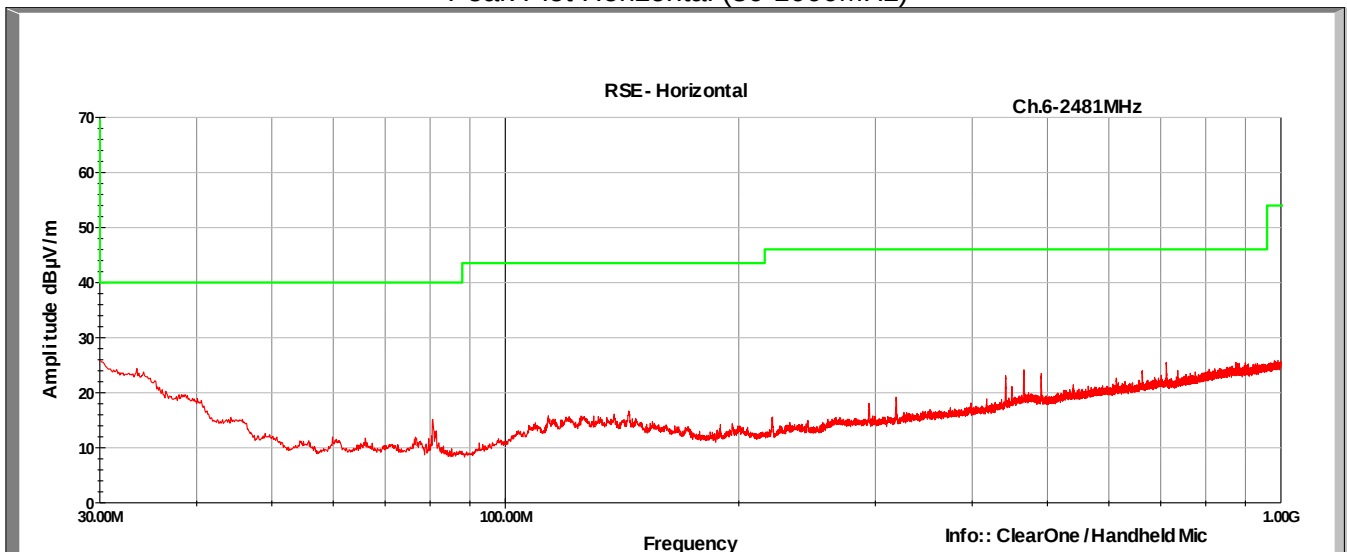
Mid Channel (Channel 42)  
Peak Plot Horizontal (30-1000MHz)



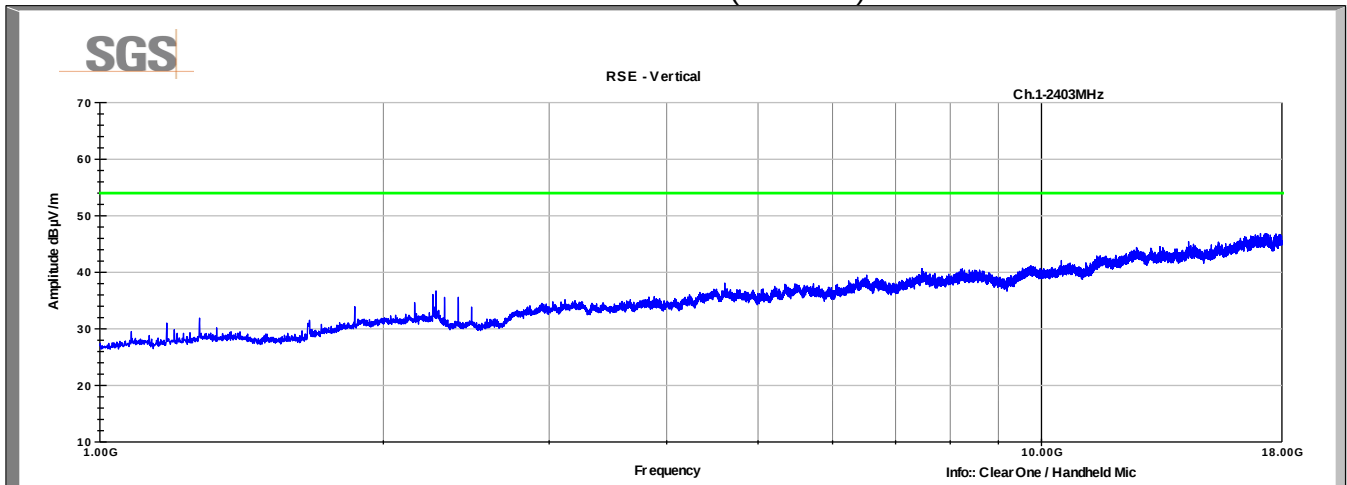
### High Channel (Channel 81) Peak Plot Vertical (30-1000MHz)



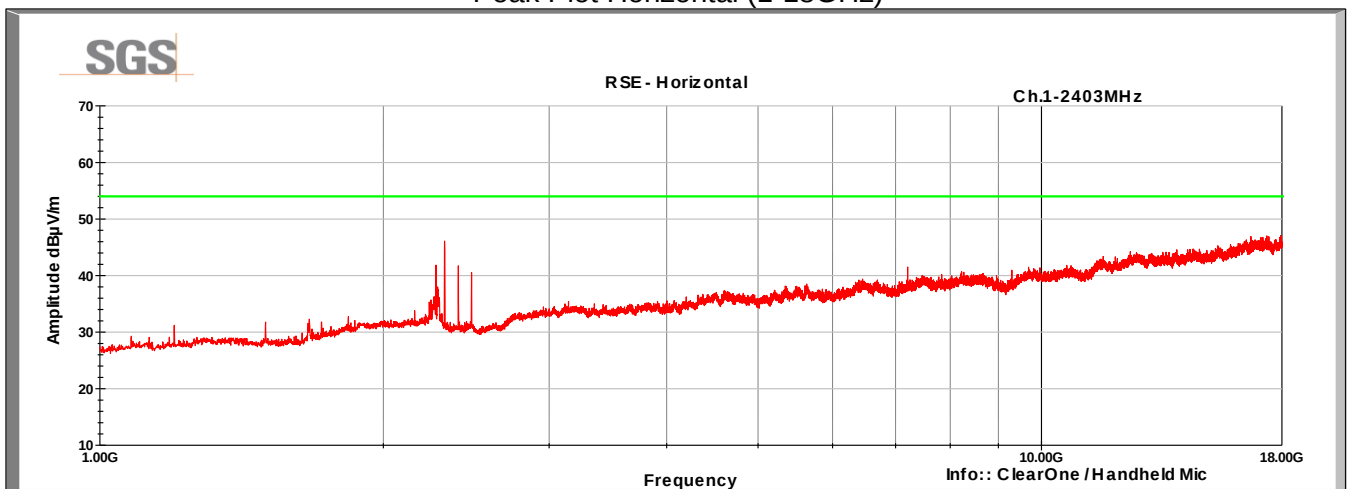
### High Channel (Channel 81) Peak Plot Horizontal (30-1000MHz)



Low Channel (Channel 03)  
Peak Plot Vertical (1-18GHz)

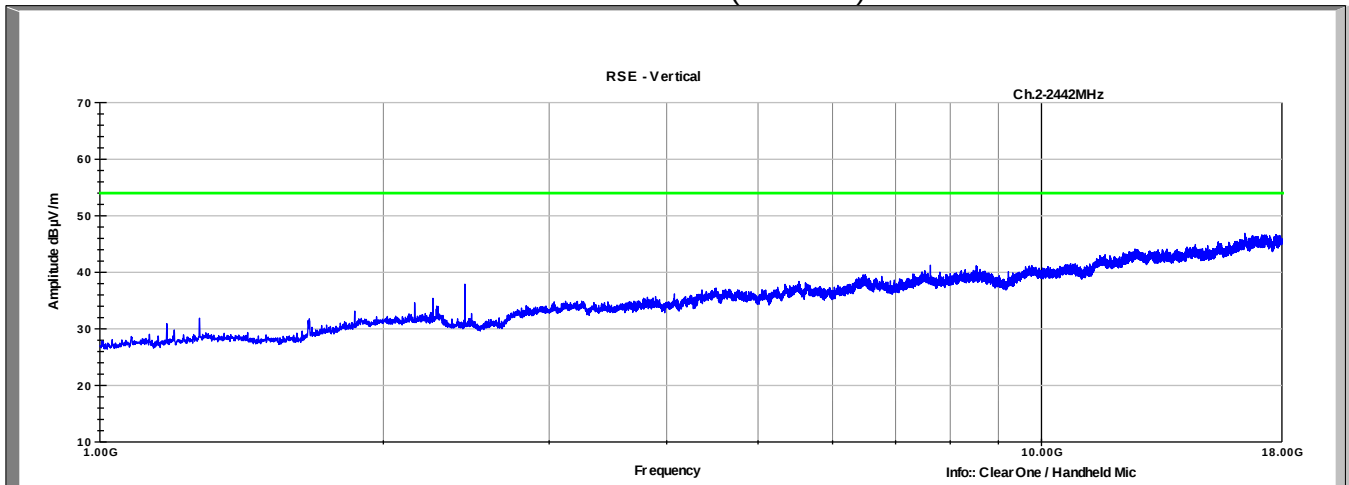


Low Channel (Channel 03)  
Peak Plot Horizontal (1-18GHz)

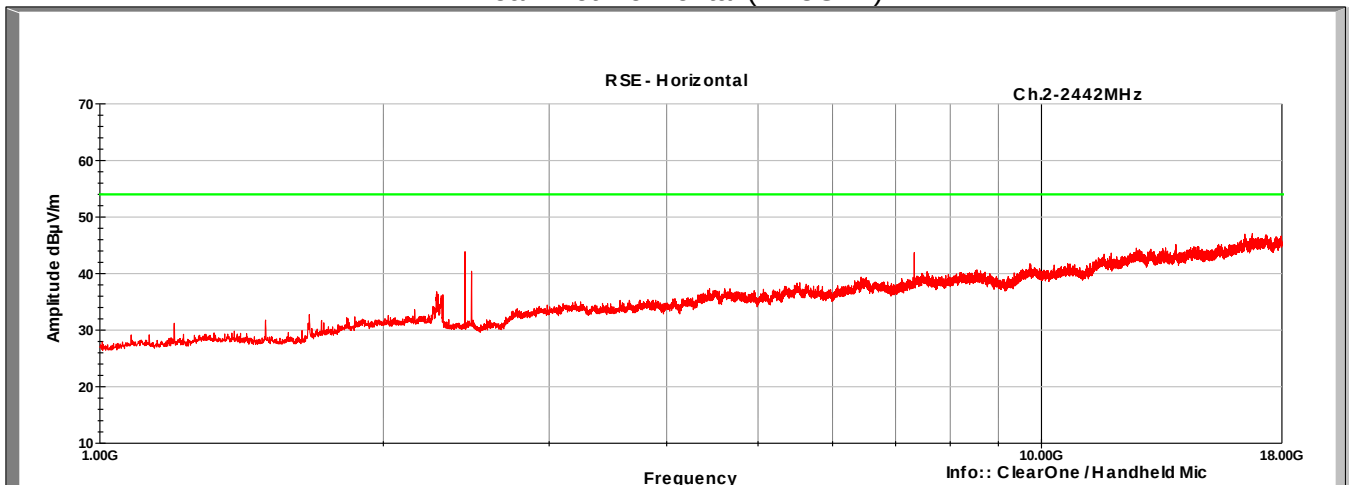


Worst case spurious emission: 2.32345GHz, 46.1dBµV/m Peak (7.9dB Margin)

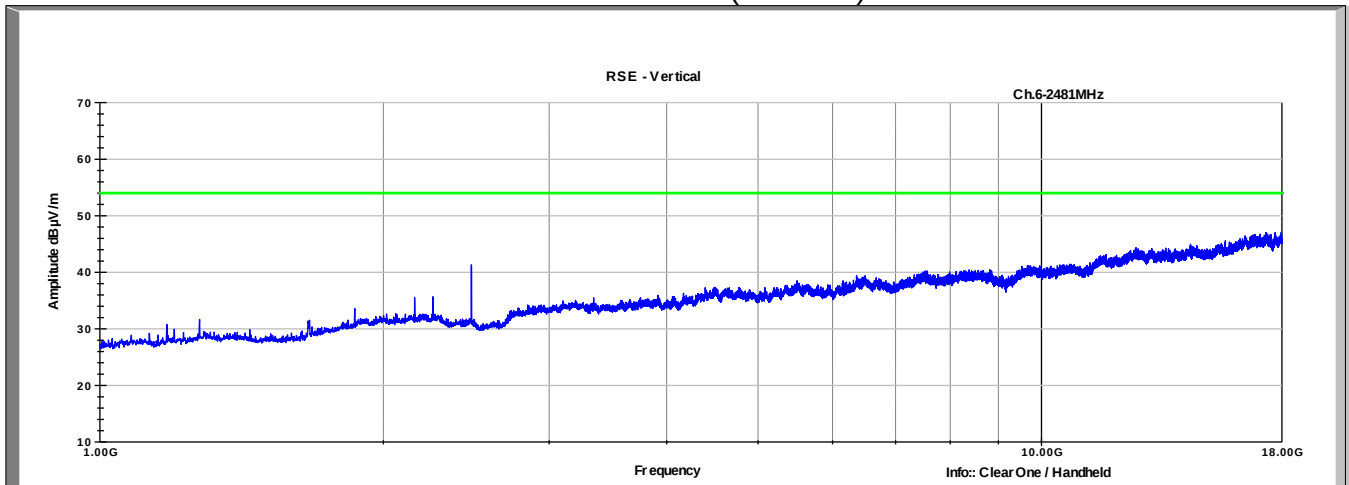
### Mid Channel (Channel 42) Peak Plot Vertical (1-18GHz)



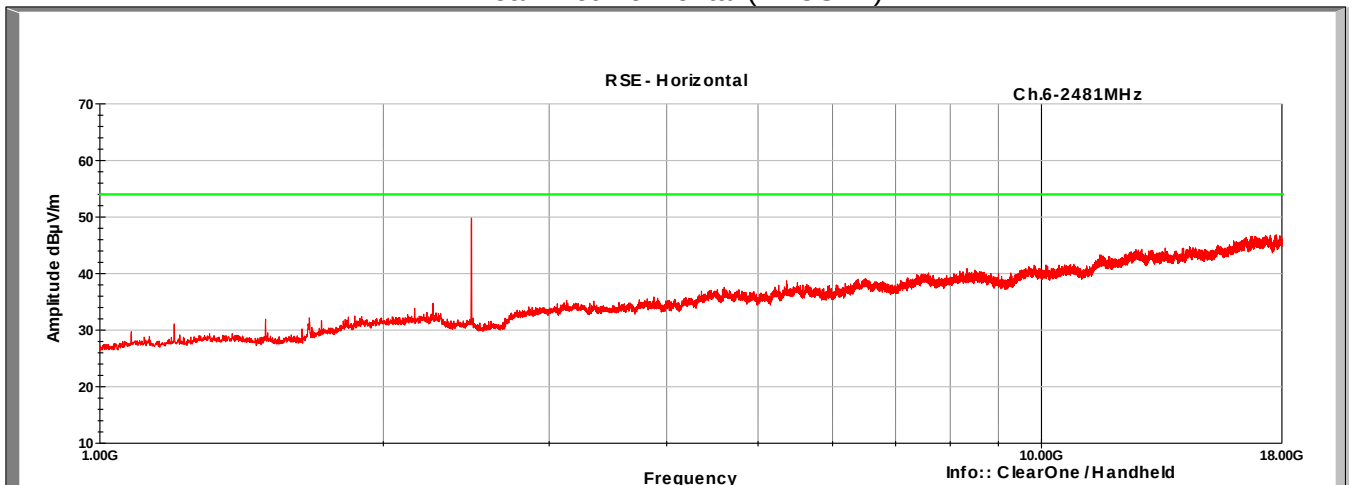
### Mid Channel (Channel 42) Peak Plot Horizontal (1-18GHz)



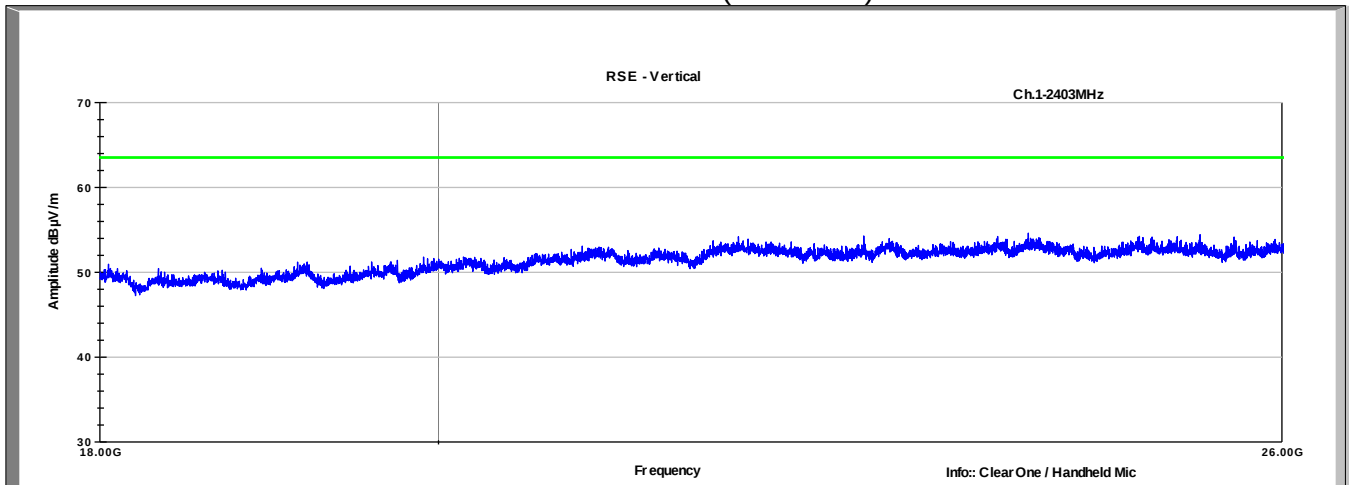
High Channel (Channel 81)  
Peak Plot Vertical (1-18GHz)



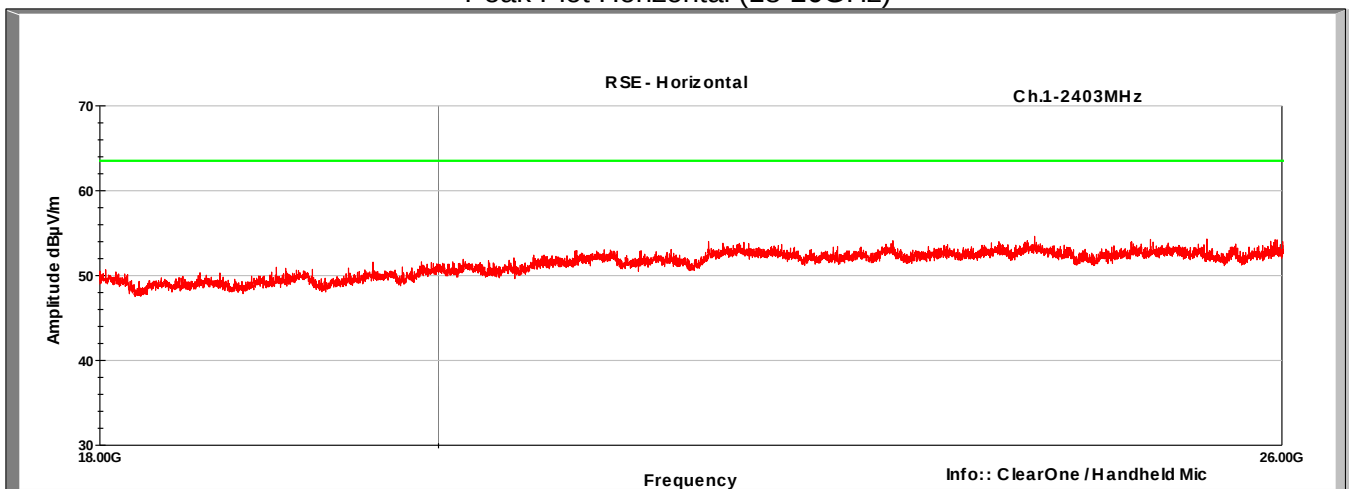
High Channel (Channel 81)  
Peak Plot Horizontal (1-18GHz)



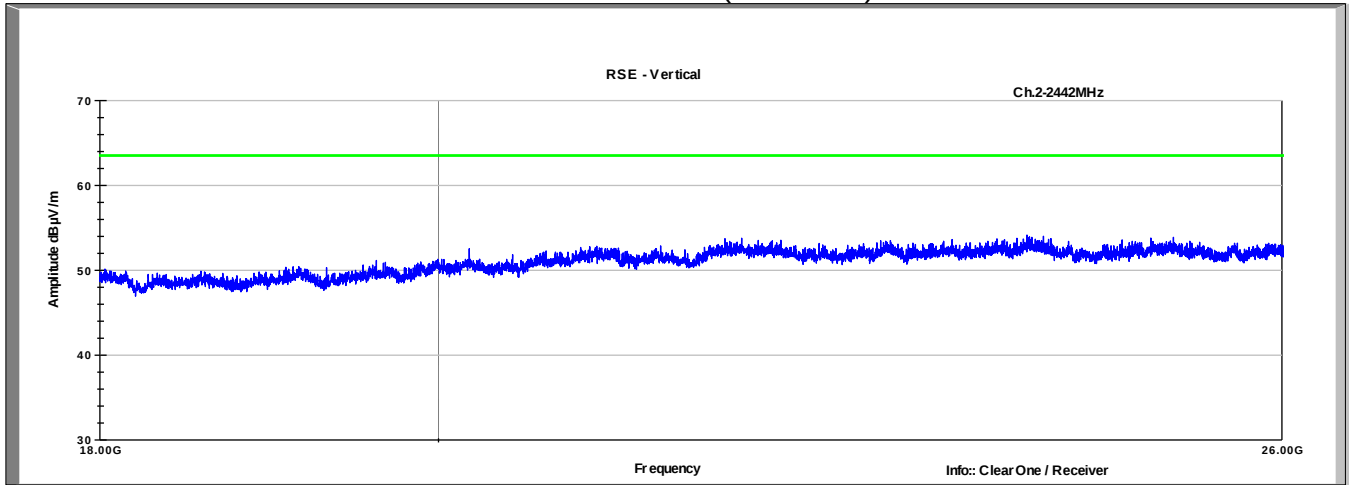
Low Channel (Channel 03)  
Peak Plot Vertical (18-26GHz)



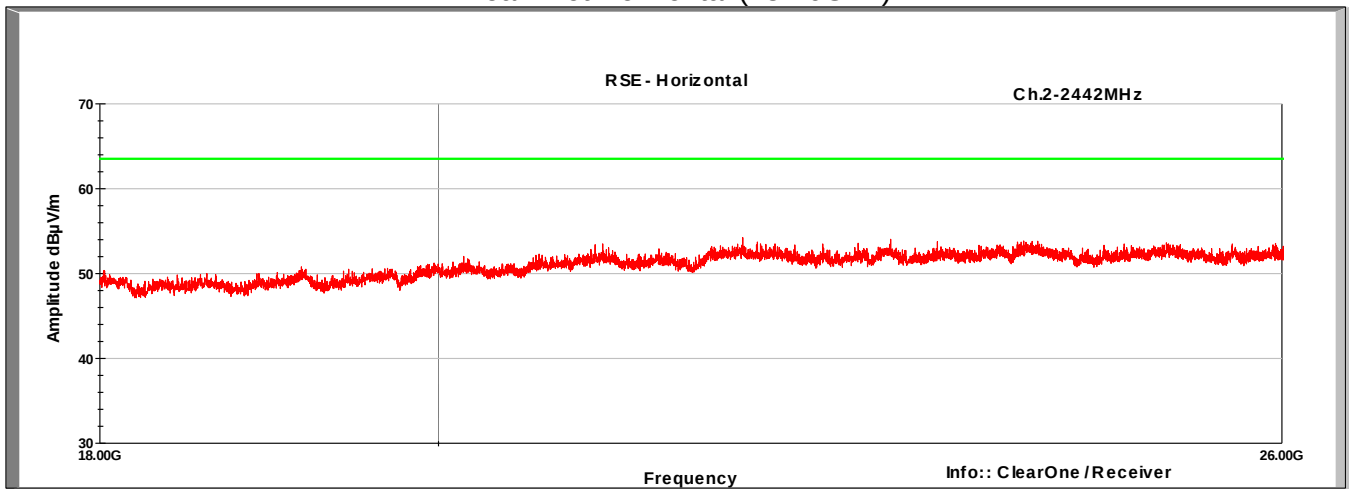
Low Channel (Channel 03)  
Peak Plot Horizontal (18-26GHz)



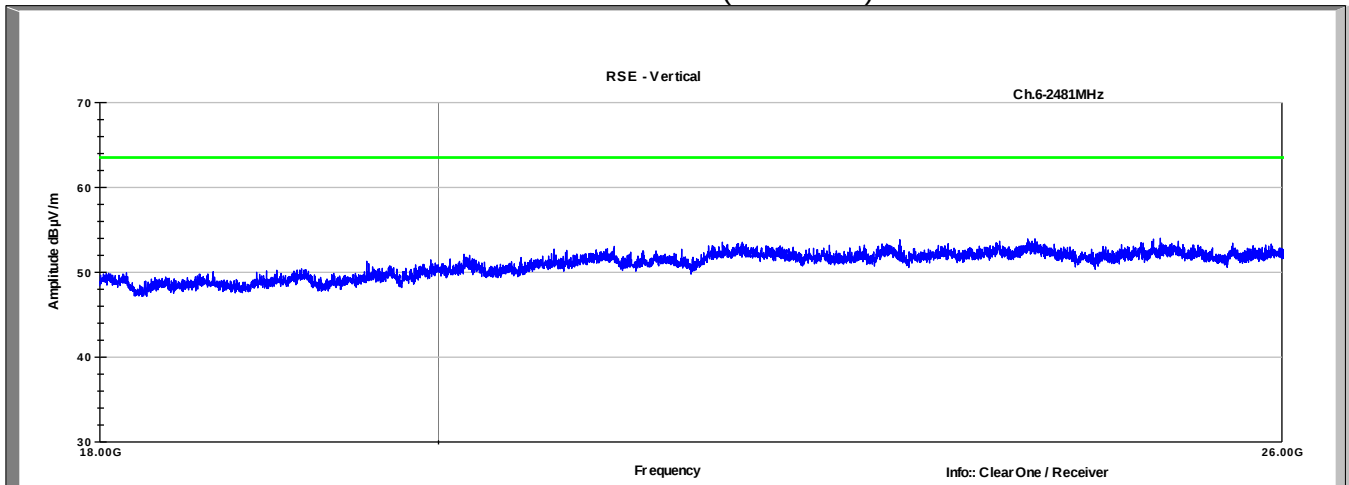
Mid Channel (Channel 42)  
Peak Plot Vertical (18-26GHz)



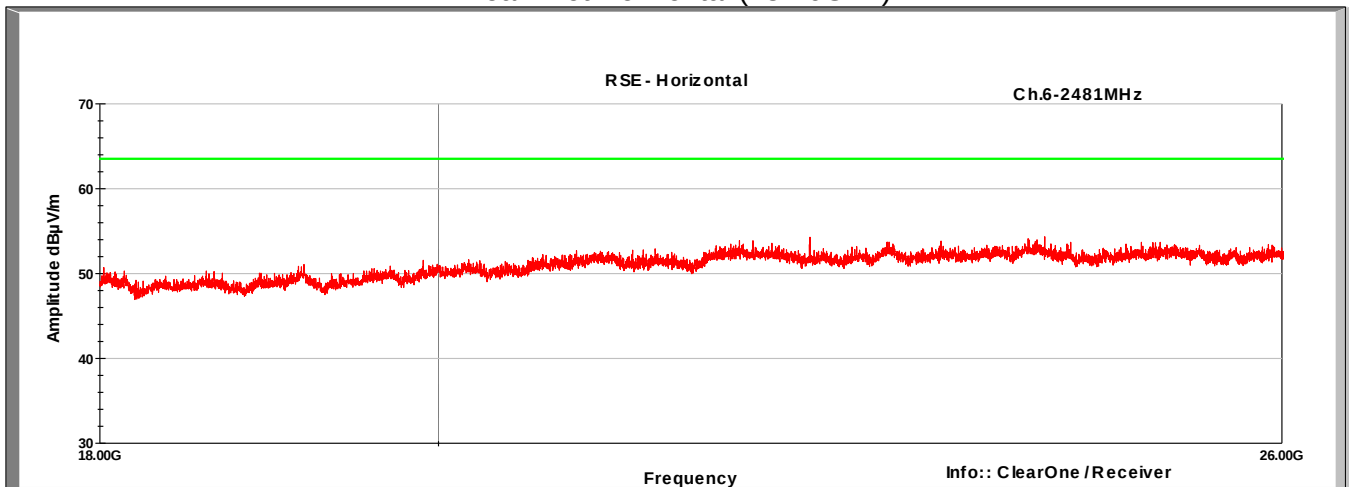
Mid Channel (Channel 42)  
Peak Plot Horizontal (18-26GHz)



### High Channel (Channel 81) Peak Plot Vertical (18-26GHz)



### High Channel (Channel 81) Peak Plot Horizontal (18-26GHz)



## 8 Radiated Emissions at Band Edge / Restricted Band

### 8.1 Test Result

| Test Description                     | Test Specification    | Test Result |
|--------------------------------------|-----------------------|-------------|
| Field strength of spurious radiation | 15.247 (d) and 15.209 | Compliant   |

### 8.2 Test Method

Peak and average field strength measurements were performed at the restricted band edges of 2390MHz and 2483.5MHz.. Measurements were made using the conducted methods defined in FCC KDB publication 558074 D01 DTS Meas Guidance v03r05. At the upper band edge, the marker-delta method defined in ANSI C63.10, Section 6.10.6 was employed.

Offset was determined using the following equation from the KDB:

Offset =  $-20 \cdot \log(D) + 104.8 - 107 + CL + DC + AG$

Where:

D (Distance) = 3m

CL (Cable Loss) = 10.9dB

DC (Duty Cycle) = 63.7%,  $10 \cdot \log(1/DC) = 2\text{dB}$

AG (Antenna Gain) = 2dBi

Offset =  $-20 \cdot \log(3) + 104.8 - 107 + 10.9 + 2 + 2 = 3.2$

### 8.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.5 °C

Relative Humidity: 33.3 %

### 8.4 Test Equipment

Test End Date: 16-Nov-2016

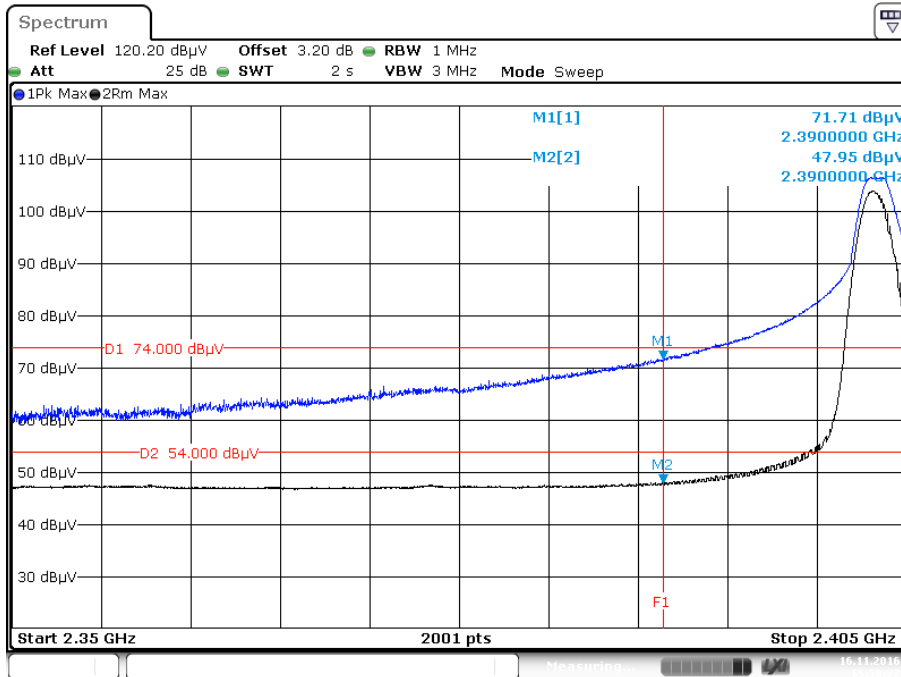
Tester: JOP

| Equipment        | Model | Manufacturer    | Asset Number | Cal Due Date |
|------------------|-------|-----------------|--------------|--------------|
| SIGNAL ANALYZER  | FSV30 | ROHDE & SCHWARZ | B085749      | 8-Oct-2017   |
| RF CABLE         | 1134  | GORE            | B094785      | 26-Jul-2017  |
| ATTENUATOR, 10DB | 10DB  | ROHDE & SCHWARZ | B095593      | 27-Jul-2017  |

Note: The equipment calibration period is 1 year except for the FSV which is on a 2-year calibration cycle.

## 8.5 Test Data

### Channel 03

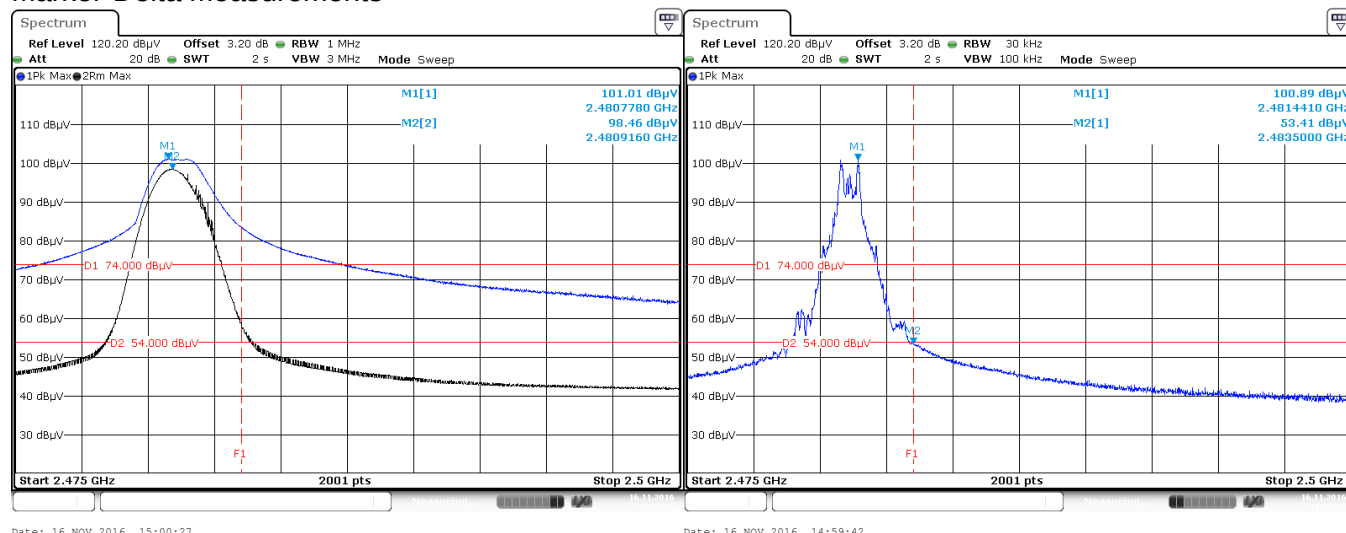


Date: 16.NOV.2016 15:50:28

| Channel | Frequency (MHz) | Reading (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Measurement Detector |
|---------|-----------------|------------------|----------------|-------------|----------------------|
| 3       | 2390            | 71.71            | 74             | -2.29       | Peak                 |
| 3       | 2390            | 47.95            | 54             | -6.05       | RMS                  |

## Channel 81

### Marker-Delta Measurements



Date: 16.NOV.2016 15:00:27

Date: 16.NOV.2016 14:59:42

| Marker-Delta Method |                                      |                                       |                                         |                    |                                           |                        |                     |
|---------------------|--------------------------------------|---------------------------------------|-----------------------------------------|--------------------|-------------------------------------------|------------------------|---------------------|
| Detector            | A<br>2481MHz<br>1MHz RBW<br>(dBuV/m) | B<br>2481MHz<br>30kHz RBW<br>(dBuV/m) | C<br>2483.5MHz<br>30kHz RBW<br>(dBuV/m) | D<br>Delta<br>(dB) | E<br>Corrected<br>Measurement<br>(dBuV/m) | F<br>Limit<br>(dBuV/m) | G<br>Margin<br>(dB) |
| Peak                | 101.1                                | 100.89                                | 53.41                                   | 47.48              | 53.62                                     | 74                     | -20.4               |
| Average             | 98.46                                |                                       |                                         | 47.48              | 50.98                                     | 54                     | -3.0                |

Formulas:  
D=B-C  
E=A-D  
G=E-F

## 9 Conducted Emissions

### 9.1 Test Result

| Test Description             | Basic Standards                | Test Result |
|------------------------------|--------------------------------|-------------|
| Conducted Emissions, Class B | 15.107, 15.207<br>RSS-GEN S8.8 | Compliant   |

### 9.2 Test Method

With the receivers resolution bandwidth was set to 9 kHz the initial preliminary exploratory scans were performed over the measuring frequency range (0.15MHz to 30MHz) using a max hold mode incorporating a Peak detector and Average detector and using the TILE! software. The final test data was measured using a Quasi-Peak detector and Average detector and compared against the limits indicated in the table below.

| Frequency Range | Class A Limits (dBuV) | Class B Limits (dBuV)       |
|-----------------|-----------------------|-----------------------------|
| 0.15 to 0.5 MHz | Avg 66<br>QP 79       | Avg 56 to 46<br>QP 66 to 56 |
| 0.5 to 5 MHz    | Avg 60<br>QP 73       | Avg 46<br>Pk 56             |
| 5 to 30 MHz     | Avg 60<br>QP 73       | Avg 50<br>Pk 60             |

### 9.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.5°C

Relative Humidity: 50.3%

### 9.4 Test Equipment

Test Date: 3-Nov-2016

Tester: FRN

| Equipment                            | Model  | Manufacturer    | Asset Number | Cal Due Date |
|--------------------------------------|--------|-----------------|--------------|--------------|
| EMI TEST RECEIVER                    | ESU8   | ROHDE & SCHWARZ | B085759      | 21-Jul-2017  |
| LINE IMPEDANCE STABILIZATION NETWORK | NNB 51 | TESEQ           | B087573      | 12-Nov-2016  |
| RF CABLE                             | SF106  | HUBER & SUHNER  | B079661      | 29-Jul-2017  |

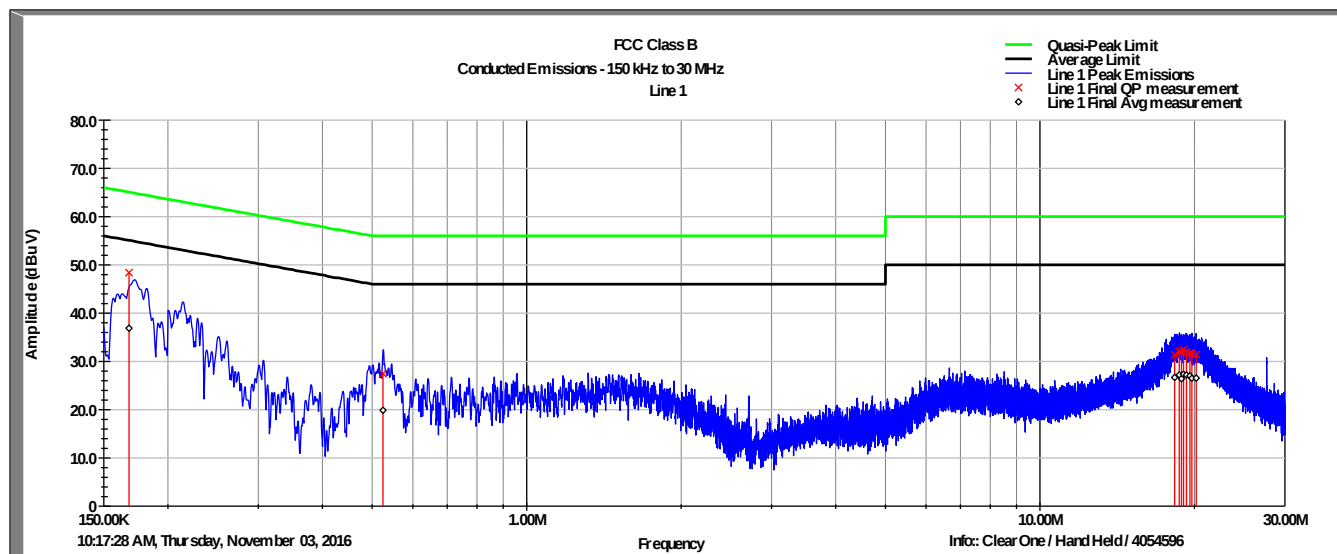
Note: The equipment calibration period is 1 year.

Software:

“Conducted Emissions” TILE! profile dated 2013

## 9.5 Test Data

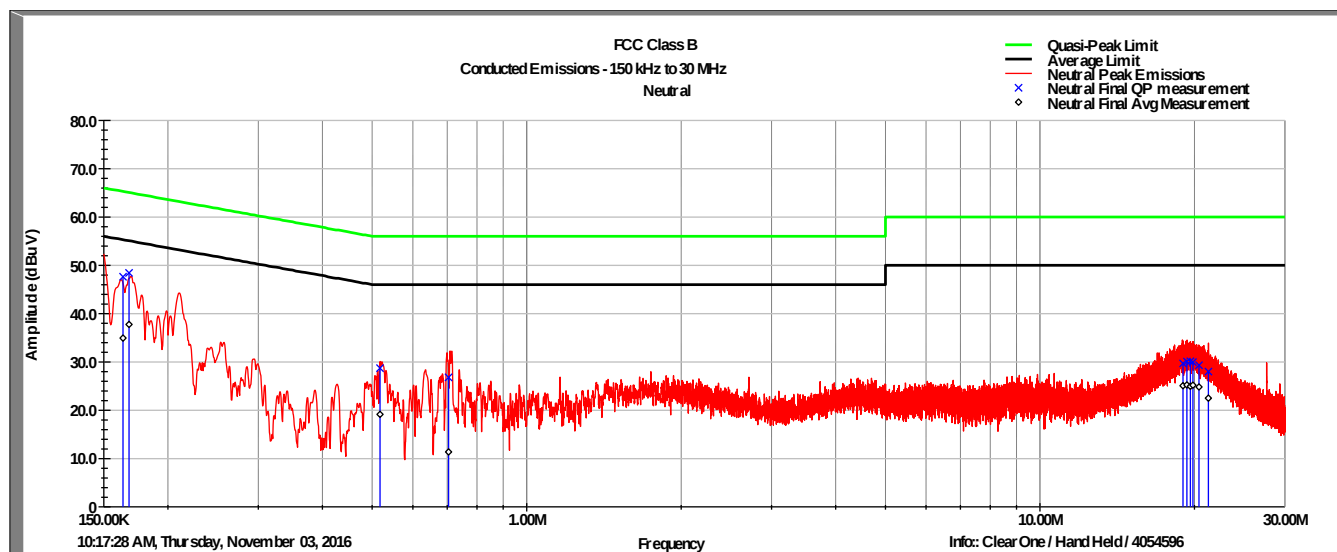
Line 1 Conducted Emissions Plot



Line 1 Conducted Emissions Data

| Frequency<br>MHz | QP Value<br>dBuV | QP Limit<br>dBuV | QP Margin<br>dB | Avg Value<br>dBuV | Avg Limit<br>dBuV | Avg Margin<br>dB |
|------------------|------------------|------------------|-----------------|-------------------|-------------------|------------------|
| 0.168            | 48.4             | 65.1             | -16.7           | 36.9              | 55.1              | -18.2            |
| 0.525            | 27.4             | 56.0             | -28.6           | 19.9              | 46.0              | -26.1            |
| 18.297           | 31.4             | 60.0             | -28.6           | 26.7              | 50.0              | -23.3            |
| 18.683           | 32.0             | 60.0             | -28.0           | 27.2              | 50.0              | -22.8            |
| 18.862           | 32.1             | 60.0             | -27.9           | 26.4              | 50.0              | -23.6            |
| 19.042           | 32.4             | 60.0             | -27.6           | 27.3              | 50.0              | -22.7            |
| 19.287           | 32.0             | 60.0             | -28.0           | 27.2              | 50.0              | -22.8            |
| 19.595           | 31.7             | 60.0             | -28.3           | 27.0              | 50.0              | -23.0            |
| 19.766           | 31.7             | 60.0             | -28.3           | 26.5              | 50.0              | -23.5            |
| 20.160           | 31.4             | 60.0             | -28.6           | 26.5              | 50.0              | -23.5            |

## Neutral Conducted Emissions Plot



## Neutral Conducted Emissions Data

| Frequency<br>MHz | QP Value<br>dBuV | QP Limit<br>dBuV | QP Margin<br>dB | Avg Value<br>dBuV | Avg Limit<br>dBuV | Avg Margin<br>dB |
|------------------|------------------|------------------|-----------------|-------------------|-------------------|------------------|
| 0.164            | 47.6             | 65.3             | -17.7           | 34.9              | 55.3              | -20.4            |
| 0.168            | 48.4             | 65.1             | -16.6           | 37.8              | 55.1              | -17.3            |
| 0.518            | 28.7             | 56.0             | -27.3           | 19.1              | 46.0              | -26.9            |
| 0.704            | 26.8             | 56.0             | -29.2           | 11.4              | 46.0              | -34.6            |
| 18.994           | 29.7             | 60.0             | -30.3           | 25.1              | 50.0              | -24.9            |
| 19.331           | 30.1             | 60.0             | -29.9           | 25.2              | 50.0              | -24.8            |
| 19.637           | 30.1             | 60.0             | -29.9           | 24.9              | 50.0              | -25.1            |
| 19.863           | 30.0             | 60.0             | -30.0           | 25.2              | 50.0              | -24.8            |
| 20.410           | 29.3             | 60.0             | -30.7           | 24.8              | 50.0              | -25.2            |
| 21.294           | 28.0             | 60.0             | -32.0           | 22.5              | 50.0              | -27.5            |

## 10 Revision History

| Revision Level | Description of changes | Revision Date    |
|----------------|------------------------|------------------|
| 0              | Initial release        | 01 December 2016 |
|                |                        |                  |
|                |                        |                  |
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