

## 7.0 Intermodulation Pursuant 47 CFR Part 90.219 (d)(6)(i)

### 7.1 Methodology

Measurements were performed with 2-tone CW at identical input amplitude which produced integrated maximum rated output power. Two tests were done for low and high edge of the operating band. The 3<sup>rd</sup> order intermodulation product was made to be on the first and the last channel location.

A brief summary of the applicable FCC specifications are listed in the table below.

#### 90.219 Use of signal boosters.

(d) Deployment rules.

(6) Good engineering practice must be used in regard to the radiation of intermodulation products and noise, such that interference to licensed communications systems is avoided. In the event of harmful interference caused by any given deployment, the FCC may require additional attenuation or filtering of the emissions and/or noise from signal boosters or signal booster systems, as necessary to eliminate the interference.

(i) In general, the ERP of intermodulation products should not exceed -30 dBm in 10 kHz measurement bandwidth.

Worst-case data is shown in the figures in sections 7.2.

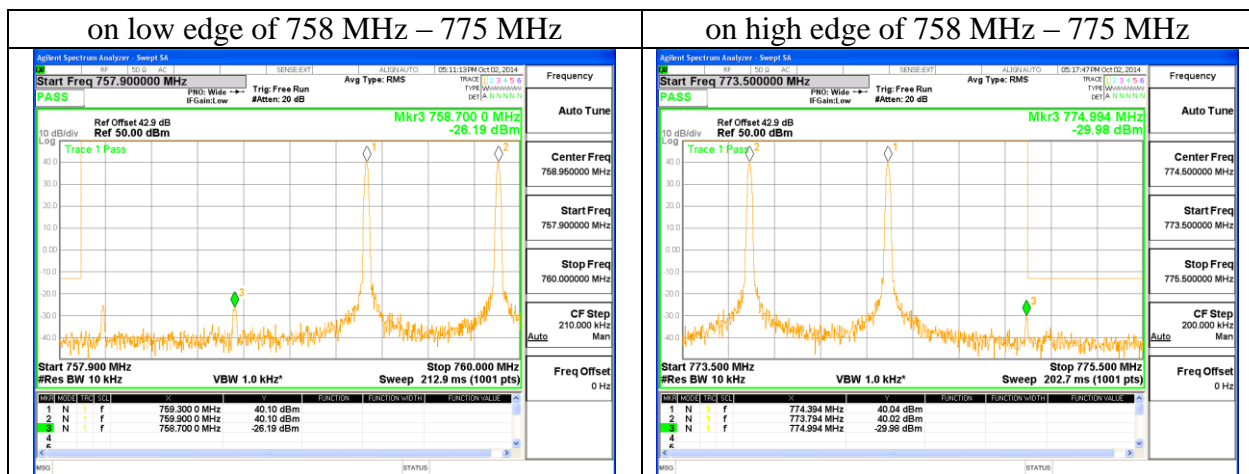
### 7.2 Test Results

The worst intermodulation product was with amplitude of -23.65 dBm when the integrated transmission power of two tones was 43 dBm.

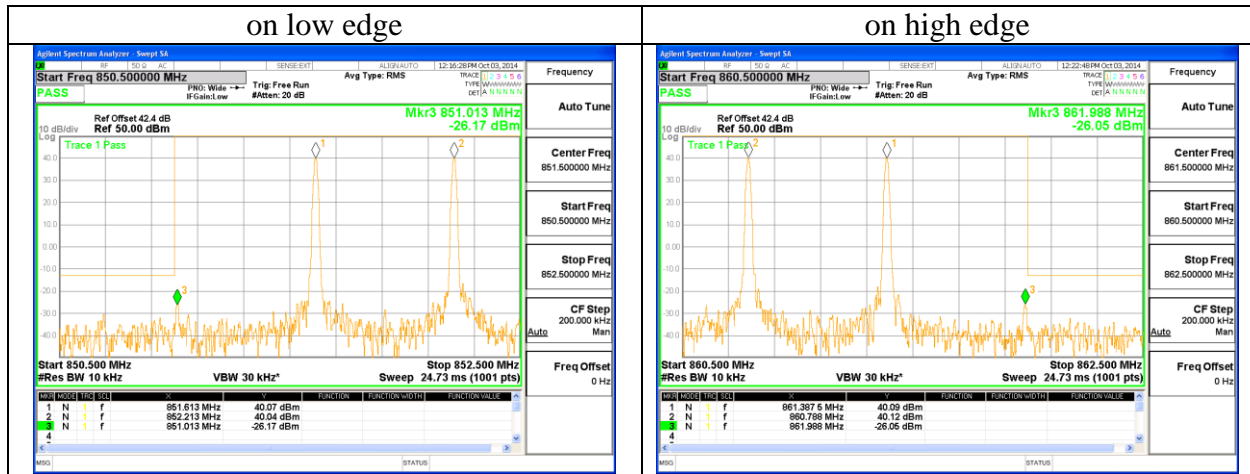
In section 2.0, a sum of the minimum cable loss and maximum antenna gain of 6.7dB was proposed for deploying the t43 remote unit in order to comply with condition that the radiated power of any retransmitted channel should not exceed 5 W ERP (pursuant 90.219).

Considering the 6.7 dB extra loss applied, the ERP of the intermodulation product would be less than -30 dBm / 10 kHz and therefore meets the booster's deployment rule.

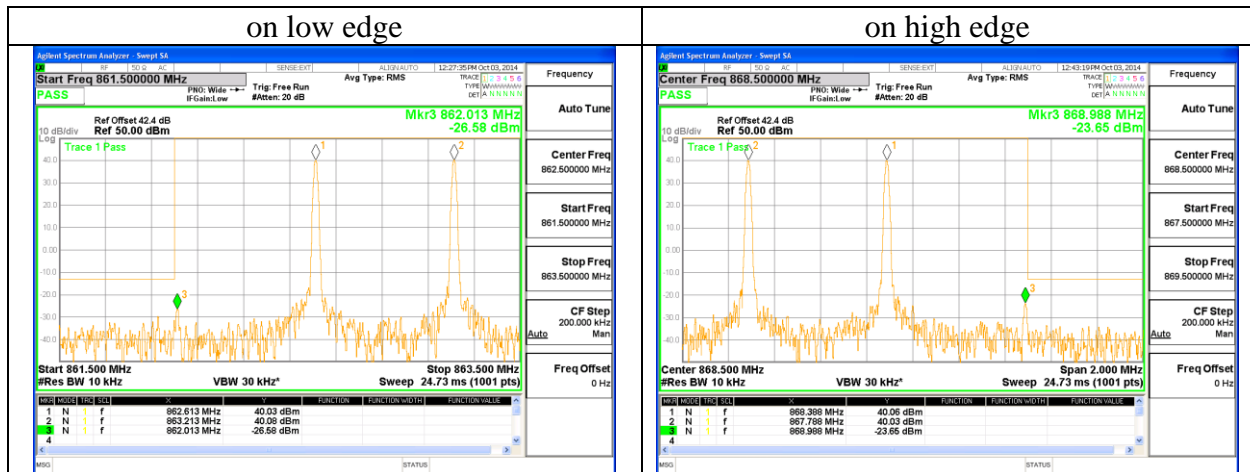
### 700 MHz band



## 851 - 862 MHz Band



## 862 - 869 MHz Band



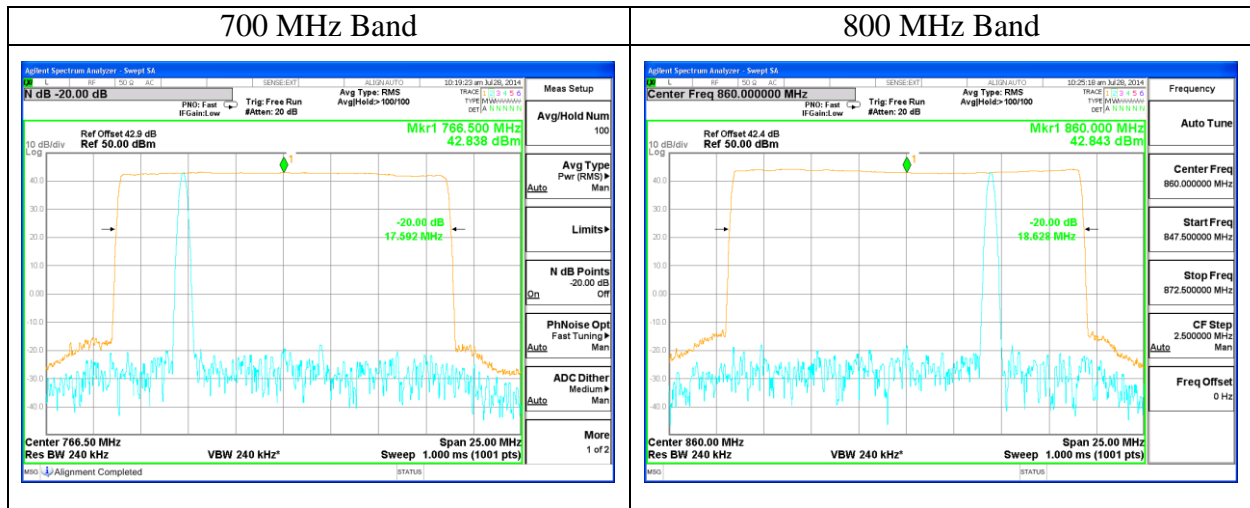
## 8.0 Passband Gain and Bandwidth

### 8.1 Methodology

Measurements were performed at CW signal for sweeping across the measured frequency span.

Test data were shown in section 8.2 for each band.

### 8.2 Test Results



Operating Band	Nominal Input @ tHost (dBm)	Passband Gain	20 dB Passband Bandwidth (MHz)
700	-17	60.8	17.59
800	-17	60.8	18.63

Table 8-1 RF Output Passband Gain and Bandwidth

## 9.0 In Band and Out of Band Noise

### 9.1 Methodology

Noise level was measured with no signal input into the unit.

A brief summary of the applicable FCC specifications are listed in the table below.

#### 90.219 Use of signal boosters.

(d) Deployment rules.

(6) Good engineering practice must be used in regard to the radiation of intermodulation products and noise, such that interference to licensed communications systems is avoided. In the event of harmful interference caused by any given deployment, the FCC may require additional attenuation or filtering of the emissions and/or noise from signal boosters or signal booster systems, as necessary to eliminate the interference.

(ii) In general, the ERP of noise within the passband should not exceed -43 dBm in 10 kHz measurement bandwidth.

(iii) In general, the ERP of noise on spectrum more than 1 MHz outside of the passband should not exceed -70 dBm in a 10 kHz measurement bandwidth.

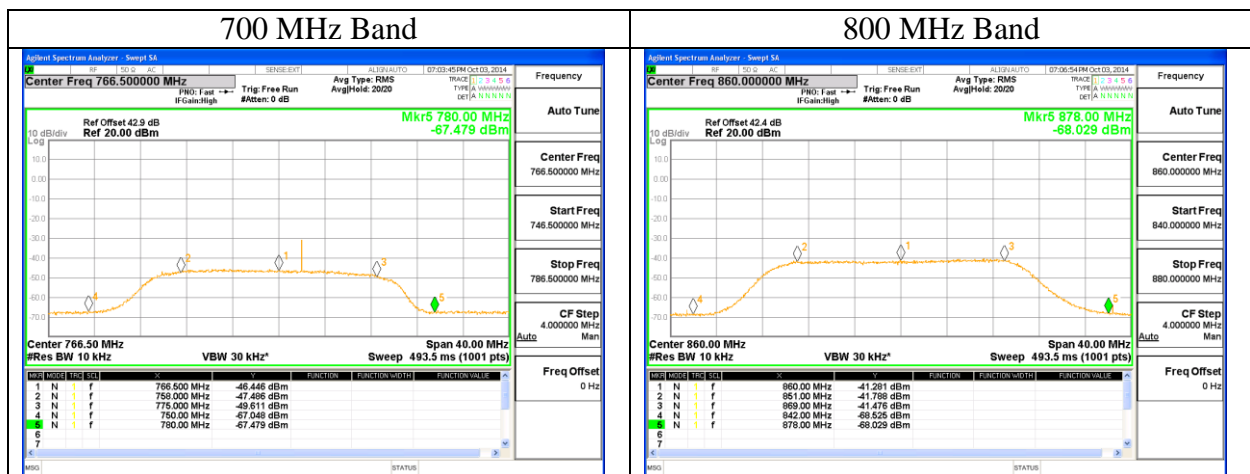
Test data were shown in section 9.2.

### 9.2 Test Results

The measured conducted noise level is maximum -41.28 dBm / 10 kHz in band and -67.048 dBm / 10 kHz out of band.

In section 2.0, a sum of the minimum cable loss and maximum antenna gain of 6.7dB was proposed for deploying the t43 remote unit in order to comply with condition that the radiated power of any retransmitted channel should not exceed 5 W ERP (pursuant 90.219).

Considering the 6.7 dB extra loss applied, the ERP of the noise level would be less than -43 dBm / 10 kHz in band and be less than -70 dBm / 10 kHz out of band as well. Hence the noise level meets the booster's deployment rule.



## 10.0 Noise Figure

### 10.1 Methodology

Agilent SNS Noise Source was used to test the noise figure on the uplink path. The noise figure was measured by a proceeding noise path calibration.

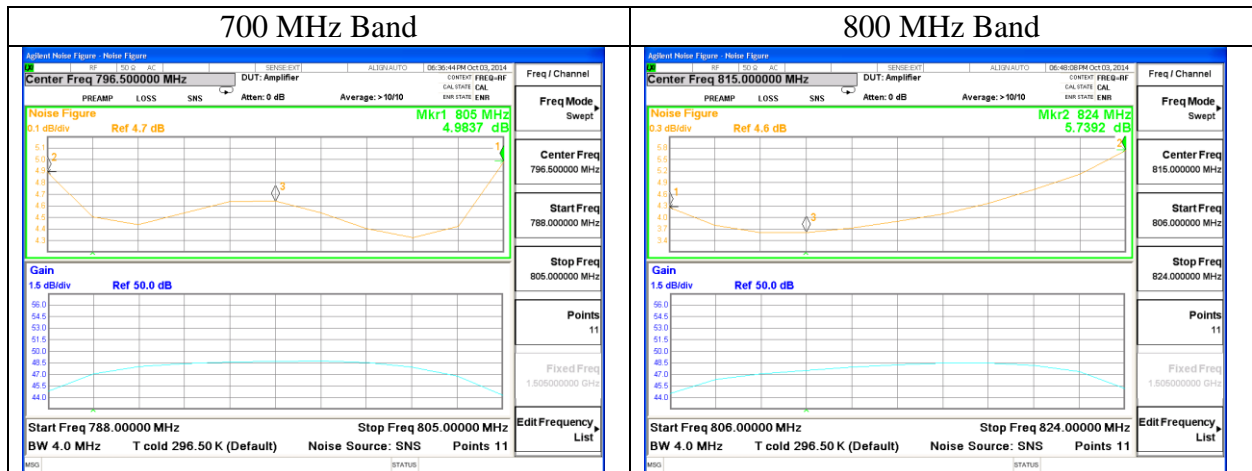
A brief summary of the applicable FCC specifications are listed in the table below.

- 90.219 (e)  
 A signal booster must meet  
 (2) The noise figure of a signal booster must not exceed 9 dB in either direction

Test data were shown in section 10.2.

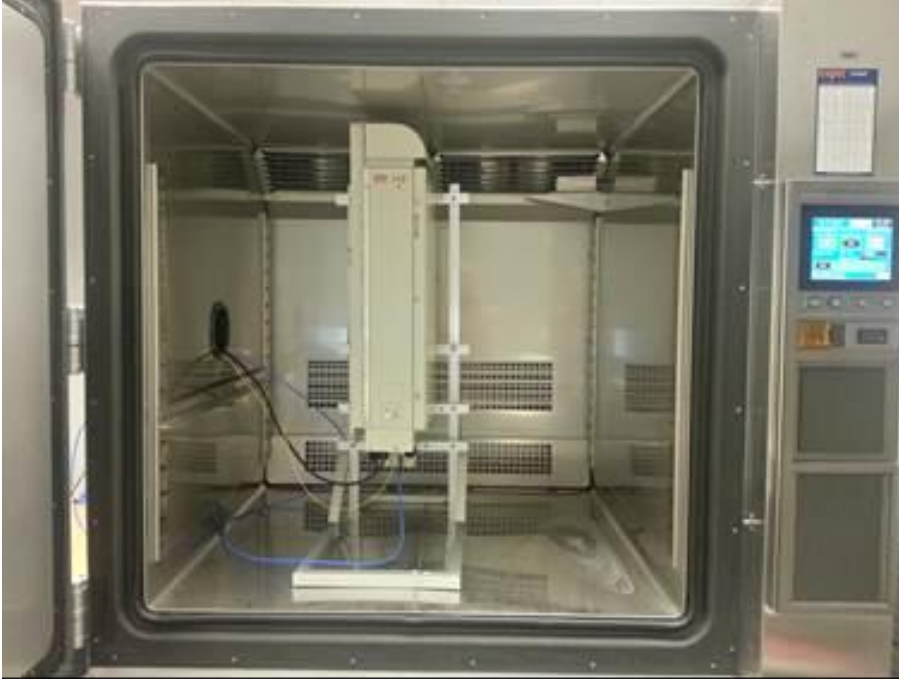
### 10.2 Test Results

Operating Band	Min. NF reading (dB)	Max NF reading (dB)
700	4.64	4.98
800	3.63	5.74



## Appendix A: Test Setup Photos

### *Conducted Test Setup – EUT*



### *Conducted Test Setup – Measurement Instruments*

