Report On

Radio Testing of the
Nokia Solutions and Networks Oy
AirScale Base Station RRH 850 MHz
Radio Access technology: E-UTRA (FDD)
In accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22

COMMERCIAL-IN-CONFIDENCE

FCC ID: VBNAHCA-01

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Product Service

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REPORT SUMMARY

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1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Radio Testing of the Nokia Solutions and Networks Oy AirScale Base Station RRH 850 MHz Radio Access technology: E-UTRA (FDD) in accordance with FCC CFR 47 Part 2 and FCC CFR 47 Part 22.

Objective	To perform Radio Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Nokia Solutions and Networks Oy
Model Number(s)	AHCA
Serial Number(s)	L1171302314 L1171302323
Number of Samples Tested	2
Test Specification/Issue/Date	FCC CFR 47 Part 2 (2016) FCC CFR 47 Part 22 (2016)
Order Number Date	90772947 05 April 2017
Start of Test	14 April 2017
Finish of Test	22 May 2017
Name of Engineer(s)	Jari Vähämäki Kimmo Huuki

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SECTION 2

DISCLAIMERS AND COPYRIGHT

2.1 DISCLAIMERS AND COPYRIGHT

This report relates only to the actual item/items tested.

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ANNEX A

NOKIA SOLUTIONS AND NETWORKS OY TEST REPORT NO: D555647736

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Nokia Networks

TEST REPORT NO: D555647736

FCC ID: VBNAHCA-01

Date:	Oulu 23. May 2017
Pages:	427
Appendices:	-

Equipment Under Test:	Airscale Base Station RRH 850MHz Radio Access technology: E-UTRA (FDD)
Type:	AHCA
Manufacturer:	Nokia Solutions and Networks Oy
Address:	P.O. Box 319, Kaapelitie 4, FI-90620, Oulu, Finland
Task:	Conformance test according to the specificarions mentioned below
Test Specification(s):	FCC 47 CFR part 2 (2016) and FCC 47 CFR part 22 (2016)
Result:	The EUT complies with the requirements of the specification

The results relate only to the items tested as described in this test report.

Approved by:	**Date**	**Signature**
Jari Virta R&D Line Manager NSN	23. May 2017	

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1. SUMMARY

The following tests were performed according to the FCC rules in order to verify the compliance of the EUT with the FCC requirements:

Test No.	Measurement	FCC Rule	Page Number of this Report	Result
1	RF Power Output	§ 2.1046, § 22.913	9	compliant
2	Modulation Characteristics	§ 2.1047, § 2.201	27	compliant
3	Occupied Bandwidth	§ 2.1049	28	compliant
4	Spurious Emissions at Antenna Terminals	§ 2.1051, § 2.1057, § 22.917	42	compliant
5	Field Strength of Spurious Radiation	§ 2.1053, § 2.1057, § 22.917	70	compliant
6	Frequency Stability	§ 2.1055, § 22.355	72	compliant

Table 1 Results – Summary

In accordance with the FCC Rule §15.3 (z) the equipment was tested with the limits that are valid for an *unintentional radiator*.

Measurements guidance: FCC OET laboratory KDB: 662911 D01 Multiple Transmitter Output v01r02 and FCC KDB 971168 D01 Power Meas License Digital Systems v02r02.

1.1 Test Laboratory:

Nokia Solutions and Networks Oy

Kaapelitie 4,

FI-90620, Oulu, Finland

Jari Virta

FCC Reg. No: 411251

Testing laboratory accreditation number: T297

1.2 Time Schedule

Test No.	1, 2, 3, 4	5	6
Start of Test:	14 Apr 2017	2 May 2017	03 May 2017
End of Test:	18 May 2017	22 May 2017	10 May 2017

1.3 Participants

Name	Function	Signature
RF Test person (Nokia) Jari Vähämäki	Tests nos: 1,2,3,4,6 Setup of EUT (Configs A to E)	
RF Test person (Nokia) Kimmo Huuki	Tests nos: 1,2,3,4,6 Setup of EUT (Configs F to J)	

EMC Test person (Nokia) Sami Riuttanen	Test no 5, Setup of EUT	Sami Riuttanen

2. EQUIPMENT UNDER TEST

The EUT is a LTE Base transceiver station RRH 850 MHz with 4 power amplifiers.

The BTS performs the full RAN function of LTE system (evolved UTRA). This is sometimes referred to as collapsed RAN, where equivalent functions of former 3G BTS and 3G RNC are all integrated into BTS. BTS is connected directly to the core network via S1 interface, and to mobile stations via Air interface (Uu). In addition BTS's are optionally connected directly to each other via X2 interface for handover purposes.

The tested equipment is representative for serial production.

2.1 Configuration of EUT

The used different EUT configurations are shown by the following table.

Module Type	**Flexi Multiradio BTS RRH 850MHz**	
Radio Access Technology	E-UTRA	
Duplex mode	Frequency Division Duplex (FDD)	
Channel Bandwidth	Single carrier 5MHz (Config. A and F), Dual carrier 5MHz (Config. B and G), Triple carrier 5MHz (Config C and H), Single carrier 10MHz (Config D and I) Dual carrier 10MHz (Config E and J).	
Supply Voltage	48.0 V DC	
Frequency Bands		
Channel Bandwidth 5MHz	**Lowest** tunable freq. Singe carrier	871.5MHz
	Dual carriers	871.5/876.5MHz
	Triple carriers	871.5/876.5/881.5MHz
	Middle freq. Single carrier	881.5MHz
	Dual carriers	879/884MHz
	Triple carriers	876.5/881.5/886.5MHz
	Highest tunable freq. Single carrier	891.5MHz
	Dual carriers	886.5/891.5MHz
	Triple carriers	881.5/886.5/891.5MHz
Channel Bandwidth 10MHz	**Lowest** tunable freq. Singe carrier	874MHz
	Dual carriers	874/884MHz
	Middle freq. Single carrier	881.5MHz
	Dual carriers	876.5/886.5MHz
	Highest tunable freq. Single carrier	889MHz
	Dual carriers	879/889MHz
Single carrier		

Rated Output Power (Prat)	60W (47.8dBm) and 40W (46.0dBm) conducted / carrier	
Dual carrier		
Rated Output Power (Prat)	30W (44.8dBm) and 20W (43.0dBm) conducted / carrier	
Triple carrier		
Rated Output Power (Prat)	20W (43.0dBm) and 13.1W (41.2dBm) conducted / carrier	
	RX	**TX**
Number of Antenna Ports	4 (ANT1 to ANT4, 40W) 2 (ANT1 and ANT3, 60W)	4 (ANT1 to ANT4, 40W) 2 (ANT1 and ANT3, 60W)
MiMo	Yes	Yes

Table 2 Overview of EUT configuration

The tests were performed with two EUT at the antenna ports ANT1, ANT2, ANT3 or ANT4 in 40Wconfigs (A, B, C, D, E). ANT1 and ANT3 in 60W configs (F, G, H, I, J).

The used different EUT configurations are shown by the following table.

Module Name	Serial-No.	Module Type	Config.
AHCA	L1171302314	RRH	A, B, C, D, E
AHCA	L1171302323	RRH	F, G, H, I, J
Other Modules	**Module Type**		**Config.**
AMIA	AirScale Subrack		A, B, C, D, E, F, G, H, I, J
ASIA	AirScale Common unit		A, B, C, D, E, F, G, H, I, J
ABIA	AirScale Capacity unit		A, B, C, D, E, F, G, H, I, J

Table 3 Configuration of EUT

For a functional description of the modules, please refer to the appropriate related parts and exhibit sections of this certification application.

2.2 Operating Conditions

The EUT supports QPSK, 16QAM, 64QAM and 256QAM modulation. If not stated otherwise, the following standard setup procedure for the EUT was used:

The transmitter was set up according to 3GPP TS 36.141 E-UTRA Test Models (E-TM) for all tests:

- E-TM 1.1: All QPSK modulation testing
- E-TM 3.1: All 64QAM modulation testing
- E-TM 3.2: All 16QAM modulation testing
- E-TM 3.1A: All 256QAM modulation testing

During the measurements, one carrier channel was tested at a time. The carrier was set to the maximum power level to ensure the maximum emission amplitudes during all measurements.

During the tests, the Flexi Multiradio BTS is transmitting a pseudo random bit pattern on the data channels. This ensures that the measurements of the emission characteristics of the transmitter are pursuant to § 2.1049.

3. TEST CONFIGURATION

If not stated otherwise, the following measurement configuration was used to perform all measurements (see figure below).

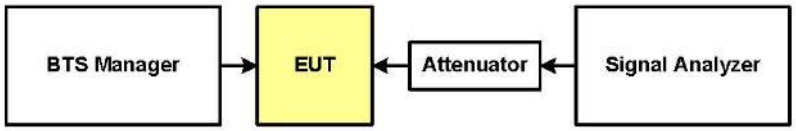

Figure 1 Test Configuration (single output)

The RF output of the transceiver (cell) under test is connected to a signal analyzer via a high power attenuator to protect the input of the signal analyzer from high RF power levels. A description of the analyzer settings is given in each of the sections describing the measurements. The other transceivers are terminated.

A complete list of the measurement equipment is included on page 90 of this measurement report.

3.1 Calibration of the Test Equipment

All relevant test equipment has a valid calibration from an external calibration laboratory. Additionally the signal analyzer has a built-in self-calibration procedure. This calibration procedure was activated prior to the measurements so that the analyzer is deemed accurate. High quality cables were used to connect the measurement equipment to the EUT. The actual loss of the attenuator and the cables was measured with a high precision network analyzer and taken into account for all measurements.

4. TEST RESULTS

4.1 Test No. 1: RF Power Output (§ 2.1046, § 22.913)

4.1.1. Limits

Para. No. 22.913 (a)(1)(i). Maximum ERP. The ERP of transmitters in the Cellular Radiotelephone Service must not exceed the limits in this section. The ERP of base stations and repeaters must not exceed 500 watts per emission.

4.1.2. Test Procedure and Results

Detachable Antenna: The maximum output power at the antenna terminals was measured using a signal analyzer.

The RF power was measured with a frequency sweep across the carrier (see screenshots). The carrier power was calculated from the signal analyzer by integration over the result. The base station maximum output power is the sum of the measured carrier power and the external attenuation (cable loss of the test set up).

For the MiMo output, RF power output was measured from each antenna port individually and the results summed mathematically in accordance to FCC KDB 662911 D01 -guidance.

Peak to average power (PAPR) was examined using CCDF method and 0.1% value recorded in dB to the tables below.

Measured laboratory room temperature and humidity during the tests				
Date	Temperature Min-Max:		Humidity Min-Max:	
11 Apr – 16 May 2017	25.3°C	26.9 °C	8.1 RH%	22.8 RH%

Config A:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
871.5	45.55	35.89	6.9	compliant
881.5	45.62	36.48	6.84	compliant
891.5	45.44	34.99	6.93	compliant
QPSK-Modulation ANT2				
871.5	45.6	36.31	6.87	compliant
881.5	45.72	37.33	6.84	compliant
891.5	45.5	35.48	6.99	compliant
QPSK-Modulation ANT3				
871.5	45.63	36.56	6.87	compliant
881.5	45.52	35.65	6.87	compliant
891.5	45.5	35.48	6.93	compliant
QPSK-Modulation ANT4				
871.5	45.42	34.83	6.84	compliant
881.5	45.6	36.31	6.87	compliant
891.5	45.56	35.97	6.93	compliant
QPSK-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5	51.63	143.59	-	compliant
881.5	51.64	145.75	-	compliant
891.5	51.52	141.93	-	compliant
16QAM-Modulation ANT1				
871.5	45.54	35.81	6.9	compliant
881.5	45.61	36.39	6.84	compliant
891.5	45.45	35.08	6.96	compliant
16QAM-Modulation ANT2				
871.5	45.64	36.64	6.85	compliant
881.5	45.6	36.31	6.87	compliant
891.5	45.55	35.89	6.96	compliant
16QAM-Modulation ANT3				
871.5	45.63	36.56	6.87	compliant

881.5	45.42	34.83	6.83	compliant
891.5	45.59	36.22	6.9	compliant
16QAM-Modulation ANT4				
871.5	45.42	34.83	6.9	compliant
881.5	45.61	36.39	6.9	compliant
891.5	45.58	36.14	6.96	compliant
16QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5	51.58	143.85	-	compliant
881.5	51.58	143.92	-	compliant
891.5	51.56	143.33	-	compliant
64QAM-Modulation ANT1				
871.5	45.53	35.73	6.9	compliant
881.5	45.62	36.48	6.87	compliant
891.5	45.53	35.73	6.99	compliant
64QAM-Modulation ANT2				
871.5	45.73	37.41	6.93	compliant
881.5	45.59	36.22	6.87	compliant
891.5	45.45	35.08	6.99	compliant
64QAM-Modulation ANT3				
871.5	45.63	36.56	6.93	compliant
881.5	45.48	35.32	6.87	compliant
891.5	45.49	35.40	6.99	compliant
64QAM-Modulation ANT4				
871.5	45.42	34.83	6.9	compliant
881.5	45.6	36.31	6.87	compliant
891.5	45.47	35.24	6.99	compliant
256QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5	51.6	144.53	-	compliant
881.5	51.59	144.33	-	compliant
891.5	51.51	141.44	-	compliant
256QAM-Modulation ANT1				
871.5	45.8	38.02	6.9	compliant
881.5	45.93	39.17	6.89	compliant
891.5	45.8	38.02	6.99	compliant
256QAM-Modulation ANT2				
871.5	45.62	36.48	6.93	compliant
881.5	45.67	36.90	6.87	compliant

891.5	45.73	37.41	6.99	compliant
256QAM-Modulation ANT3				
871.5	45.63	36.56	6.93	compliant
881.5	45.63	36.56	6.87	compliant
891.5	45.69	37.07	6.99	compliant
256QAM-Modulation ANT4				
871.5	45.84	38.37	6.93	compliant
881.5	45.61	36.39	6.87	compliant
891.5	45.57	36.06	6.99	compliant
256QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5	51.74	149.42	-	compliant
881.5	51.73	149.02	-	compliant
891.5	51.72	148.56	-	compliant

Table 4 RF Power Output (5 MHz Channel BW)

Config B:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
871.5/ 876.5	42.72/ 42.83	18.69/ 19.2	-	compliant
879.0/ 884.0	42.85/ 42.93	19.27/ 19.63	-	compliant
886.5/ 891.5	43.03/ 42.78	20.09/ 18.95	-	compliant
QPSK-Modulation ANT2				
871.5/ 876.5	42.64/ 42.79	18.38/ 19.01	-	compliant
879.0/ 884.0	42.71/ 42.89	18.68/ 19.44	-	compliant
886.5/ 891.5	42.96/ 42.68	19.79/ 18.55	-	compliant
QPSK-Modulation ANT3				
871.5/ 876.5	42.56/ 42.73	18.03/ 18.76	-	compliant
879.0/ 884.0	42.69/ 42.73	18.58/ 18.76	-	compliant
886.5/ 891.5	42.93/ 42.62	19.63/ 18.27	-	compliant
QPSK-Modulation ANT4				
871.5/ 876.5	42.66/ 42.89	18.45/ 19.47	-	compliant
879.0/ 884.0	42.64/ 42.77	18.35/ 18.92	-	compliant
886.5/ 891.5	42.82/ 42.52	19.16/ 17.87	-	compliant
QPSK-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5/ 876.5	48.66/ 48.81	73.55/ 76.44	-	compliant
879.0/ 884.0	48.7/ 48.82	74.88/ 76.75	-	compliant

886.5/ 891.5	48.83/ 48.56	78.67/ 73.63	-	compliant
16QAM-Modulation ANT1				
871.5/ 876.5	42.72/ 42.83	18.52/ 19.09	-	compliant
879.0/ 884.0	42.85/ 42.93	19.15/ 19.76	-	compliant
886.5/ 891.5	43.03/ 42.78	19.73/ 18.58	-	compliant
16QAM-Modulation ANT2				
871.5/ 876.5	42.64/ 42.79	18.35/ 19.04	-	compliant
879.0/ 884.0	42.71/ 42.89	18.91/ 19.23	-	compliant
886.5/ 891.5	42.96/ 42.68	19.48/ 18.61	-	compliant
16QAM-Modulation ANT3				
871.5/ 876.5	42.56/ 42.73	18.15/ 18.63	-	compliant
879.0/ 884.0	42.69/ 42.73	18.08/ 18.56	-	compliant
886.5/ 891.5	42.93/ 42.62	19.54/ 18.33	-	compliant
16QAM-Modulation ANT4				
871.5/ 876.5	42.66/ 42.89	18.55/ 19.06	-	compliant
879.0/ 884.0	42.64/ 42.77	18.27/ 18.55	-	compliant
886.5/ 891.5	42.82/ 42.52	19.12/ 17.97	-	compliant
16QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5/ 876.5	48.67/ 48.83	73.58/ 75.82	-	compliant
879.0/ 884.0	48.74/ 48.85	74.41/ 76.09	-	compliant
886.5/ 891.5	48.96/ 48.67	77.86/ 73.48	-	compliant
64QAM-Modulation ANT1				
871.5/ 876.5	42.68/ 42.81	18.47/ 19.28	-	compliant
879.0/ 884.0	42.82/ 42.96	19.16/ 19.63	-	compliant
886.5/ 891.5	42.95/ 42.69	16.56/ 15.63	-	compliant
64QAM-Modulation ANT2				
871.5/ 876.5	42.64/ 42.8	16.11/ 15.56	-	compliant
879.0/ 884.0	42.77/ 42.84	16.18/ 15.74	-	compliant
886.5/ 891.5	42.9/ 42.7	16.29/ 15.35	-	compliant
64QAM-Modulation ANT3				
871.5/ 876.5	42.59/ 42.7	15.38/ 15.78	-	compliant
879.0/ 884.0	42.57/ 42.69	15.56/ 15.92	-	compliant
886.5/ 891.5	42.91/ 42.63	15.21/ 12.88	-	compliant
64QAM-Modulation ANT4				
871.5/ 876.5	42.68/ 42.8	18.55/ 19.06	-	compliant
879.0/ 884.0	42.62/ 42.68	18.27/ 18.55	-	compliant
886.5/ 891.5	42.81/ 42.54	19.12/ 17.97	-	compliant

64QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5/ 876.5	48.67/ 48.8	73.58/ 75.82	-	compliant
879.0/ 884.0	48.72/ 48.81	74.41/ 76.09	-	compliant
886.5/ 891.5	48.91/ 48.66	77.86/ 73.48	-	compliant
256QAM-Modulation ANT1				
871.5/ 876.5	42.66/ 42.85	18.47/ 19.28	-	compliant
879.0/ 884.0	42.82/ 42.93	19.16/ 19.63	-	compliant
886.5/ 891.5	42.19/ 41.94	16.56/ 15.63	-	compliant
256QAM-Modulation ANT2				
871.5/ 876.5	42.07/ 41.92	16.11/ 15.56	-	compliant
879.0/ 884.0	42.09/ 41.97	16.18/ 15.74	-	compliant
886.5/ 891.5	42.12/ 41.86	16.29/ 15.35	-	compliant
256QAM-Modulation ANT3				
871.5/ 876.5	41.87/ 41.98	15.38/ 15.78	-	compliant
879.0/ 884.0	41.92/ 42.02	15.56/ 15.92	-	compliant
886.5/ 891.5	41.82/ 41.1	15.21/ 12.88	-	compliant
256QAM-Modulation ANT4				
871.5/ 876.5	41.97/ 41.12	15.74/ 12.94	-	compliant
879.0/ 884.0	41.99/ 41.86	15.81/ 15.35	-	compliant
886.5/ 891.5	41.98/ 41.78	15.78/ 15.07	-	compliant
256QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5/ 876.5	48.18/ 48.03	65.7/ 63.55	-	compliant
879.0/ 884.0	48.24/ 48.24	66.71/ 66.64	-	compliant
886.5/ 891.5	48.05/ 47.7	63.83/ 58.93	-	compliant

Table 5 RF Power Output (2 X 5 MHz Channel BW)

Config C:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
871.5/ 876.5/ 881.5	40.71/ 40.9/40.99	11.78/ 12.3/12.56	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.92/ 40.77/41.04	12.36/ 11.94/12.71	-	compliant
QPSK-Modulation ANT2				
871.5/ 876.5/ 881.5	40.65/ 40.84/40.95	11.61/ 12.13/12.45	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.89/ 40.99/40.72	12.27/ 12.56/11.8	-	compliant

QPSK-Modulation ANT3				
871.5/ 876.5/ 881.5	40.66/ 40.88/40.88	11.64/ 12.25/12.25	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.84/ 40.93/40.64	12.13/ 12.39/11.59	-	compliant
QPSK-Modulation ANT4				
871.5/ 876.5/ 881.5	40.65/ 40.84/40.92	11.61/ 12.13/12.36	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.82/ 40.88/40.62	12.08/ 12.25/11.53	-	compliant
QPSK-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5/ 876.5/ 881.5	46.69/ 46.89/46.96	46.65/ 48.82/49.61	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	46.89/ 46.91/46.78	48.85/ 49.13/47.63	-	compliant
16QAM-Modulation ANT1				
871.5/ 876.5/ 881.5	40.69/ 40.96/41.06	11.72/ 12.47/12.76	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.99/ 41.01/40.89	12.56/ 12.62/12.27	-	compliant
16QAM-Modulation ANT2				
871.5/ 876.5/ 881.5	40.68/ 40.91/40.97	11.69/ 12.33/12.5	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.9/ 41/40.8	12.3/ 12.59/12.02	-	compliant
16QAM-Modulation ANT3				
871.5/ 876.5/ 881.5	40.62/ 40.82/40.91	11.53/ 12.08/12.33	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.83/ 40.99/40.65	12.11/ 12.56/11.61	-	compliant
16QAM-Modulation ANT4				
871.5/ 876.5/ 881.5	40.69/ 40.99/40.89	11.72/ 12.56/12.27	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.85/ 40.9/40.62	12.16/ 12.3/11.53	-	compliant
16QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5/ 876.5/ 881.5	46.69/ 46.94/46.98	46.67/ 49.44/49.87	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	46.91/ 47/46.76	49.13/ 50.07/47.45	-	compliant
64QAM-Modulation ANT1				
871.5/ 876.5/ 881.5	40.75/ 40.97/40.85	11.89/ 12.5/12.16	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.94/ 41.03/40.76	12.42/ 12.68/11.91	-	compliant

64QAM-Modulation ANT2				
871.5/ 876.5/ 881.5	40.69/ 40.83/40.93	11.72/ 12.11/12.39	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.91/ 40.94/40.74	12.33/ 12.42/11.86	-	compliant
64QAM-Modulation ANT3				
871.5/ 876.5/ 881.5	40.68/ 40.79/40.85	11.69/ 11.99/12.16	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.86/ 40.92/40.65	12.19/ 12.36/11.61	-	compliant
64QAM-Modulation ANT4				
871.5/ 876.5/ 881.5	40.66/ 40.87/40.94	11.64/ 12.22/12.42	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.84/ 40.85/40.63	12.13/ 12.16/11.56	-	compliant
64QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5/ 876.5/ 881.5	46.72/ 46.89/46.91	46.72/ 46.89/46.91	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	46.91/ 46.96/46.72	49.07/ 49.61/46.95	-	compliant
256QAM-Modulation ANT1				
871.5/ 876.5/ 881.5	40.17/ 40.32/40.41	10.4/ 10.76/10.99	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.36/ 40.5/40.24	10.86/ 11.22/10.57	-	compliant
256QAM-Modulation ANT2				
871.5/ 876.5/ 881.5	40.07/ 40.25/40.41	10.16/ 10.59/10.99	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.36/ 40.44/40.22	10.86/ 11.07/10.52	-	compliant
256QAM-Modulation ANT3				
871.5/ 876.5/ 881.5	39.99/ 40.18/40.29	9.98/ 10.42/10.69	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.32/ 40.43/40.16	10.76/ 11.04/10.38	-	compliant
256QAM-Modulation ANT4				
871.5/ 876.5/ 881.5	40.1/ 40.29/40.4	10.23/ 10.69/10.96	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	40.23/ 40.35/40.1	10.54/ 10.84/10.23	-	compliant
256QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
871.5/ 876.5/ 881.5	46.1/ 46.28/46.4	40.77/ 42.47/43.64	-	compliant
876.5/ 881.5/ 886.5	-	-	-	compliant
881.5/ 886.5/ 891.5	46.34/ 46.45/46.2	43.04/ 44.17/41.7	-	compliant

Table 6 RF Power Output (3 X 5 MHz Channel BW)

Config D:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
874.0	45.71	37.24	7.83	compliant
881.5	45.79	37.93	7.83	compliant
889.0	45.74	37.50	7.86	compliant
QPSK-Modulation ANT2				
874.0	45.64	36.64	7.86	compliant
881.5	45.65	36.73	7.83	compliant
889.0	45.73	37.41	7.86	compliant
QPSK-Modulation ANT3				
874.0	45.59	36.22	7.86	compliant
881.5	45.58	36.14	7.83	compliant
889.0	45.68	36.98	7.86	compliant
QPSK-Modulation ANT4				
874.0	45.71	37.24	7.86	compliant
881.5	45.56	35.97	7.83	compliant
889.0	45.56	35.97	7.83	compliant
QPSK-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
874.0	51.68	147.35	-	compliant
881.5	51.67	146.78	-	compliant
889.0	51.70	147.87	-	compliant
16QAM-Modulation ANT1				
874.0	45.78	37.84	7.88	compliant
881.5	45.78	37.84	7.86	compliant
889.0	45.71	37.24	7.83	compliant
16QAM-Modulation ANT2				
874.0	45.67	36.90	7.88	compliant
881.5	45.69	37.07	7.86	compliant
889.0	45.71	37.24	7.83	compliant
16QAM-Modulation ANT3				
874.0	45.68	36.98	7.88	compliant
881.5	45.55	35.89	7.86	compliant
889.0	45.65	36.73	7.83	compliant
16QAM-Modulation ANT4				
874.0	45.73	37.41	7.88	compliant

881.5	45.55	35.89	7.86	compliant
889.0	45.56	35.97	7.83	compliant
16QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
874.0	51.74	149.14	-	compliant
881.5	51.66	146.70	-	compliant
889.0	51.68	147.18	-	compliant
64QAM-Modulation ANT1				
874.0	45.75	37.58	7.86	compliant
881.5	45.77	37.76	7.83	compliant
889.0	45.75	37.58	7.86	compliant
64QAM-Modulation ANT2				
874.0	45.65	36.73	7.86	compliant
881.5	45.63	36.56	7.86	compliant
889.0	45.74	37.50	7.83	compliant
64QAM-Modulation ANT3				
874.0	45.6	36.31	7.86	compliant
881.5	45.58	36.14	7.86	compliant
889.0	45.7	37.15	7.86	compliant
64QAM-Modulation ANT4				
874.0	45.69	37.07	7.86	compliant
881.5	45.55	35.89	7.86	compliant
889.0	45.59	36.22	7.83	compliant
256QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
874.0	51.69	147.69	-	compliant
881.5	51.65	146.35	-	compliant
889.0	51.72	148.46	-	compliant
256QAM-Modulation ANT1				
874.0	45.73	37.41	7.86	compliant
881.5	45.76	37.67	7.86	compliant
889.0	45.69	37.07	7.86	compliant
256QAM-Modulation ANT2				
874.0	45.65	36.73	7.86	compliant
881.5	45.63	36.56	7.83	compliant
889.0	45.69	37.07	7.83	compliant
256QAM-Modulation ANT3				
874.0	45.6	36.31	7.88	compliant
881.5	45.52	35.65	7.86	compliant

889.0	45.63	36.56	7.86	compliant
256QAM-Modulation ANT4				
874.0	45.69	37.07	7.88	compliant
881.5	45.54	35.81	7.86	compliant
889.0	45.56	35.97	7.83	compliant
256QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
874.0	51.69	147.52	-	compliant
881.5	51.63	145.68	-	compliant
889.0	51.66	146.67	-	compliant

Table 7 RF Power Output (1 X 10 MHz Channel BW)

Config E:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
874.0/ 884.0	42.67/ 42.38	18.49/ 17.3	-	compliant
876.5/ 886.5	42.73/ 42.93	18.75/ 19.63	-	compliant
879.0/ 889.0	42.73/ 42.77	18.75/ 18.92	-	compliant
QPSK-Modulation ANT2				
874.0/ 884.0	42.52/ 42.77	17.86/ 18.92	-	compliant
876.5/ 886.5	42.84/ 42.61	19.23/ 18.24	-	compliant
879.0/ 889.0	42.65/ 42.67	18.41/ 18.49	-	compliant
QPSK-Modulation ANT3				
874.0/ 884.0	42.46/ 42.73	17.62/ 18.75	-	compliant
876.5/ 886.5	42.58/ 42.78	18.11/ 18.97	-	compliant
879.0/ 889.0	42.6/ 42.61	18.2/ 18.24	-	compliant
QPSK-Modulation ANT4				
874.0/ 884.0	42.53/ 42.74	17.91/ 18.79	-	compliant
876.5/ 886.5	42.57/ 42.78	18.07/ 18.97	-	compliant
879.0/ 889.0	42.57/ 42.54	18.07/ 17.95	-	compliant
QPSK-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
874.0/ 884.0	48.66/ 48.81	73.5/ 76.03	-	compliant
876.5/ 886.5	48.7/ 48.82	74.17/ 76.15	-	compliant
879.0/ 889.0	48.83/ 48.56	76.32/ 71.81	-	compliant
16QAM-Modulation ANT1				
874.0/ 884.0	42.66/ 42.86	18.45/ 19.32	-	compliant
876.5/ 886.5	42.74/ 42.97	18.79/ 19.82	-	compliant

879.0/ 889.0	42.76/ 42.75	18.88/ 18.84	-	compliant
16QAM-Modulation ANT2				
874.0/ 884.0	42.52/ 42.79	17.86/ 19.01	-	compliant
876.5/ 886.5	42.71/ 42.82	18.66/ 19.14	-	compliant
879.0/ 889.0	42.68/ 42.64	18.54/ 18.37	-	compliant
16QAM-Modulation ANT3				
874.0/ 884.0	42.55/ 42.75	17.99/ 18.84	-	compliant
876.5/ 886.5	42.65/ 42.7	18.41/ 18.62	-	compliant
879.0/ 889.0	42.6/ 42.57	18.2/ 18.07	-	compliant
16QAM-Modulation ANT4				
874.0/ 884.0	42.54/ 42.75	17.95/ 18.84	-	compliant
876.5/ 886.5	42.6/ 42.83	18.2/ 19.19	-	compliant
879.0/ 889.0	42.53/ 42.53	17.91/ 17.91	-	compliant
16QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
874.0/ 884.0	48.67/ 48.83	73.55/ 76.44	-	compliant
876.5/ 886.5	48.74/ 48.85	74.88/ 76.75	-	compliant
879.0/ 889.0	48.96/ 48.67	78.67/ 73.63	-	compliant
64QAM-Modulation ANT1				
874.0/ 884.0	42.63/ 42.87	18.32/ 19.36	-	compliant
876.5/ 886.5	42.73/ 42.95	18.75/ 19.72	-	compliant
879.0/ 889.0	42.72/ 42.75	18.71/ 18.84	-	compliant
64QAM-Modulation ANT2				
874.0/ 884.0	42.51/ 42.75	17.82/ 18.84	-	compliant
876.5/ 886.5	42.62/ 42.83	18.28/ 19.19	-	compliant
879.0/ 889.0	42.63/ 42.71	18.32/ 18.66	-	compliant
64QAM-Modulation ANT3				
874.0/ 884.0	42.53/ 42.74	17.91/ 18.79	-	compliant
876.5/ 886.5	42.57/ 42.77	18.07/ 18.92	-	compliant
879.0/ 889.0	42.56/ 42.64	18.03/ 18.37	-	compliant
64QAM-Modulation ANT4				
874.0/ 884.0	42.54/ 42.78	17.95/ 18.97	-	compliant
876.5/ 886.5	42.56/ 42.77	18.03/ 18.92	-	compliant
879.0/ 889.0	42.53/ 42.59	17.91/ 18.16	-	compliant
64QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
874.0/ 884.0	48.67/ 48.8	73.58/ 75.82	-	compliant
876.5/ 886.5	48.72/ 48.81	74.41/ 76.09	-	compliant
879.0/ 889.0	48.91/ 48.66	77.86/ 73.48	-	compliant

256QAM-Modulation ANT1				
874.0/ 884.0	42.23/ 42.46	16.71/ 17.62	-	compliant
876.5/ 886.5	42.22/ 42.36	16.67/ 17.22	-	compliant
879.0/ 889.0	42.21/ 42.23	16.63/ 16.71	-	compliant
256QAM-Modulation ANT2				
874.0/ 884.0	42.09/ 42.44	16.18/ 17.54	-	compliant
876.5/ 886.5	42.12/ 42.35	16.29/ 17.18	-	compliant
879.0/ 889.0	42.13/ 42.18	16.33/ 16.52	-	compliant
256QAM-Modulation ANT3				
874.0/ 884.0	42.08/ 42.31	16.14/ 17.02	-	compliant
876.5/ 886.5	42.05/ 42.22	16.03/ 16.67	-	compliant
879.0/ 889.0	42.13/ 42.15	16.33/ 16.41	-	compliant
256QAM-Modulation ANT4				
874.0/ 884.0	42.07/ 42.3	16.11/ 16.98	-	compliant
876.5/ 886.5	42.14/ 42.3	16.37/ 16.98	-	compliant
879.0/ 889.0	42.03/ 42	15.96/ 15.85	-	compliant
256QAM-Modulation ANT1+ANT2+ANT3+ANT4 Calculated Total				
874.0/ 884.0	48.18/ 48.03	65.7/ 63.55	-	compliant
876.5/ 886.5	48.24/ 48.24	66.71/ 66.64	-	compliant
879.0/ 889.0	48.05/ 47.7	63.83/ 58.93	-	compliant

Table 8 RF Power Output (2 X 10 MHz Channel BW)

Config F:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
871.5	47.34	54.20	6.80	compliant
881.5	47.57	57.15	6.75	compliant
891.5	47.37	54.58	6.92	compliant
QPSK-Modulation ANT3				
871.5	47.41	55.08	6.80	compliant
881.5	47.71	59.02	6.75	compliant
891.5	47.23	52.84	6.92	compliant
QPSK-Modulation ANT1+ANT3 Calculated Total				
871.5	50.39	109.28	-	compliant
881.5	50.65	116.17	-	compliant
891.5	50.31	107.42	-	compliant
16QAM-Modulation ANT1				
871.5	47.38	54.70	6.80	compliant
881.5	47.59	57.41	6.75	compliant
891.5	47.40	54.95	6.90	compliant
16QAM-Modulation ANT3				
871.5	47.39	54.83	6.78	compliant

881.5	47.62	57.81	6.75	compliant
891.5	47.21	52.60	6.90	compliant
16QAM-Modulation ANT1+ANT3 Calculated Total				
871.5	50.40	109.53	-	compliant
881.5	50.62	115.22	-	compliant
891.5	50.32	107.56	-	compliant
64QAM-Modulation ANT1				
871.5	47.36	54.45	6.80	compliant
881.5	47.60	57.54	6.75	compliant
891.5	47.37	54.58	6.90	compliant
64QAM-Modulation ANT3				
871.5	47.38	54.70	6.80	compliant
881.5	47.60	57.54	6.75	compliant
891.5	47.22	52.72	6.90	compliant
64QAM-Modulation ANT1+ANT3 Calculated Total				
871.5	50.38	109.15	-	compliant
881.5	50.61	115.09	-	compliant
891.5	50.31	107.30	-	compliant
256QAM-Modulation ANT1				
871.5	46.68	46.56	6.80	compliant
881.5	46.98	49.89	7.31	compliant
891.5	46.77	47.53	7.38	compliant
256QAM-Modulation ANT3				
871.5	46.82	48.08	7.31	compliant
881.5	47.00	50.12	7.31	compliant
891.5	46.71	46.88	7.38	compliant
256QAM-Modulation ANT1+ANT3 Calculated Total				
871.5	49.76	94.64	-	compliant
881.5	50.00	100.01	-	compliant
891.5	49.75	94.41	-	compliant

Table 6 RF Power Output (5MHz channel BW)

Config G:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
871.5/876.5	44.26/44.42	26.67/27.67	-	compliant
879/884	44.48/44.56	28.05/28.58	-	compliant
886.5/891.5	44.53/44.26	28.38/26.67	-	compliant
QPSK-Modulation ANT3				
871.5/876.5	44.36/44.47	27.29/27.99	-	compliant
879/884	44.67/44.73	29.31/29.72	-	compliant
886.5/891.5	44.51/44.21	28.25/26.36	-	compliant
QPSK-Modulation ANT1+ANT3 Calculated Total				
871.5/876.5	50.40	109.62	-	compliant
879/884	50.63	115.66	-	compliant
886.5/891.5	50.40	109.66	-	compliant
16QAM-Modulation ANT1				
871.5/876.5	44.25/44.42	26.61/27.67	-	compliant
879/884	44.48/44.56	28.05/28.58	-	compliant

886.5/891.5	44.51/44.24	28.25/26.55	-	compliant
16QAM-Modulation ANT3				
871.5/876.5	44.42/44.53	27.67/28.38	-	compliant
879/884	44.68/44.77	29.38/29.99	-	compliant
886.5/891.5	44.49/44.19	28.12/26.24	-	compliant
16QAM-Modulation ANT1+ANT3 Calculated Total				
871.5/876.5	50.43	110.33	-	compliant
879/884	50.64	116.00	-	compliant
886.5/891.5	50.38	109.16	-	compliant
64QAM-Modulation ANT1				
871.5/876.5	44.25/44.38	26.61/27.42	-	compliant
879/884	44.50/44.56	28.18/28.58	-	compliant
886.5/891.5	44.55/44.25	28.51/26.61	-	compliant
64QAM-Modulation ANT3				
871.5/876.5	44.36/44.49	27.29/28.11	-	compliant
879/884	44.60/44.72	28.84/29.64	-	compliant
886.5/891.5	44.49/44.20	28.12/26.30	-	compliant
64QAM-Modulation ANT1+ANT3 Calculated Total				
871.5/876.5	50.39	109.43	-	compliant
879/884	50.62	115.25	-	compliant
886.5/891.5	50.40	109.54	-	compliant
256QAM-Modulation ANT1				
871.5/876.5	43.13/43.28	20.56/21.28	-	compliant
879/884	43.46/43.57	22.18/22.75	-	compliant
886.5/891.5	43.45/43.18	22.13/20.80	-	compliant
256QAM-Modulation ANT3				
871.5/876.5	43.26/43.37	21.18/21.73	-	compliant
879/884	43.45/43.53	22.13/22.54	-	compliant
886.5/891.5	43.50/43.19	22.39/20.84	-	compliant
256QAM-Modulation ANT1+ANT3 Calculated Total				
871.5/876.5	49.28	84.75	-	compliant
879/884	49.52	89.61	-	compliant
886.5/891.5	49.35	86.16	-	compliant

Table 7 RF Power Output (5+5MHz channel BW)

Config H:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
871.5/876.5/881.5	42.41/42.63/42.78	17.42/18.32/18.97	-	compliant
876.5/881.5/886.5	42.54/42.75/42.76	17.95/18.84/18.88	-	compliant
881.5/886.5/891.5	42.70/42.76/42.47	18.62/18.88/17.66	-	compliant
QPSK-Modulation ANT3				
871.5/876.5/881.5	42.45/42.63/42.75	17.58/18.32/18.84	-	compliant
876.5/881.5/886.5	42.51/42.75/42.76	17.82/18.84/18.88	-	compliant
881.5/886.5/891.5	42.66/42.73/42.45	18.45/18.75/17.58	-	compliant
QPSK-Modulation ANT1+ANT3 Calculated Total				
871.5/876.5/881.5	50.39	109.45	-	compliant
876.5/881.5/886.5	50.46	111.20	-	compliant
881.5/886.5/891.5	50.41	109.94	-	compliant
16QAM-Modulation ANT1				

871.5/876.5/881.5	42.42/42.65/42.79	17.46/18.41/19.01	-	compliant
876.5/881.5/886.5	42.53/42.73/42.72	17.91/18.75/18.71	-	compliant
881.5/886.5/891.5	42.72/42.75/42.47	18.71/18.84/17.66	-	compliant
16QAM-Modulation ANT3				
871.5/876.5/881.5	42.40/42.60/42.76	17.38/18.20/18.88	-	compliant
876.5/881.5/886.5	42.55/42.74/42.77	17.99/18.79/18.92	-	compliant
881.5/886.5/891.5	42.64/42.70/42.40	18.37/18.62/17.38	-	compliant
16QAM-Modulation ANT1+ANT3 Calculated Total				
871.5/876.5/881.5	50.38746	109.33165	-	compliant
876.5/881.5/886.5	50.45589	111.06814	-	compliant
881.5/886.5/891.5	50.39684	109.56795	-	compliant
64QAM-Modulation ANT1				
871.5/876.5/881.5	42.44/42.59/42.82	17.54/18.16/19.14	-	compliant
876.5/881.5/886.5	42.55/42.75/42.76	17.99/18.84/18.88	-	compliant
881.5/886.5/891.5	42.72/42.75/42.47	18.71/18.84/17.66	-	compliant
64QAM-Modulation ANT3				
871.5/876.5/881.5	42.43/42.60/42.77	17.50/18.20/18.92	-	compliant
876.5/881.5/886.5	42.54/42.72/42.74	17.95/18.71/18.79	-	compliant
881.5/886.5/891.5	42.65/42.69/42.37	18.41/18.58/17.26	-	compliant
64QAM-Modulation ANT1+ANT3 Calculated Total				
871.5/876.5/881.5	50.39	109.46	-	compliant
876.5/881.5/886.5	50.46	111.15	-	compliant
881.5/886.5/891.5	50.39	109.45	-	compliant
256QAM-Modulation ANT1				
871.5/876.5/881.5	41.28/41.45/41.65	13.43/13.96/14.62	-	compliant
876.5/881.5/886.5	41.38/41.60/41.67	13.74/14.45/14.69	-	compliant
881.5/886.5/891.5	41.57/41.63/41.38	14.35/14.55/13.74	-	compliant
256QAM-Modulation ANT3				
871.5/876.5/881.5	41.36/41.52/41.72	13.68/14.19/14.86	-	compliant
876.5/881.5/886.5	41.50/41.69/41.70	14.13/14.76/14.79	-	compliant
881.5/886.5/891.5	41.55/41.65/41.36	14.29/14.62/13.68	-	compliant
256QAM-Modulation ANT1+ANT3 Calculated Total				
871.5/876.5/881.5	49.28	84.74	-	compliant
876.5/881.5/886.5	49.37	86.56	-	compliant
881.5/886.5/891.5	49.31	85.24	-	compliant

Table 8 RF Power Output (5+5+5MHz channel BW)

Config I:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
874	47.33	54.08	6.92	compliant
881.5	47.55	56.89	6.75	compliant
889	47.42	55.21	7.00	compliant
QPSK-Modulation ANT3				
874	47.37	54.58	6.92	compliant
881.5	47.55	56.89	6.75	compliant
889	47.42	55.21	7.00	compliant
QPSK-Modulation ANT1+ANT3 Calculated Total				
874	50.36035	108.65	-	compliant
881.5	50.56030	113.77	-	compliant

889	50.43	110.42	-	compliant
16QAM-Modulation ANT1				
874	47.34	54.20	6.92	compliant
881.5	47.55	56.89	6.75	compliant
889	47.49	56.10	6.97	compliant
16QAM-Modulation ANT3				
874	47.40	54.95	6.90	compliant
881.5	47.54	56.75	6.75	compliant
889	47.38	54.70	6.97	compliant
16QAM-Modulation ANT1+ANT3 Calculated Total				
874	50.38	109.15	-	compliant
881.5	50.56	113.64	-	compliant
889	50.45	110.81	-	compliant
64QAM-Modulation ANT1				
874	47.33	54.08	6.95	compliant
881.5	47.51	56.36	6.75	compliant
889	47.50	56.23	7.00	compliant
64QAM-Modulation ANT3				
874	47.41	55.08	6.92	compliant
881.5	47.56	57.02	6.75	compliant
889	47.41	55.08	7.00	compliant
64QAM-Modulation ANT1+ANT3 Calculated Total				
874	50.38	109.16	-	compliant
881.5	50.55	113.38	-	compliant
889	50.47	111.31	-	compliant
256QAM-Modulation ANT1				
874	46.79	47.75	7.38	compliant
881.5	47.06	50.82	7.28	compliant
889	46.96	49.66	7.40	compliant
256QAM-Modulation ANT3				
874	46.92	49.20	7.38	compliant
881.5	47.09	51.17	7.28	compliant
889	46.89	48.87	7.40	compliant
256QAM-Modulation ANT1+ANT3 Calculated Total				
874	49.87	96.96	-	compliant
881.5	50.09	101.98	-	compliant
889	49.94	98.52	-	compliant

Table 9 RF Power Output (10MHz channel BW)

Config J:

Carrier Frequency [MHz]	RF Power Output		PAPR	Result
	[dBm]	[W]	[dB]	
QPSK-Modulation ANT1				
874/884	44.35/44.63	27.23/29.04	-	compliant
876.5/886.5	44.37/44.60	27.35/28.84	-	compliant
879.5/889	44.45/44.39	27.86/27.48	-	compliant
QPSK-Modulation ANT3				
874/884	44.35/44.61	27.23/28.91	-	compliant
876.5/886.5	44.40/44.58	27.54/28.71	-	compliant

879.5/889	44.56/44.49	28.58/28.12	-	compliant
QPSK-Modulation ANT1+ANT3 Calculated Total				
874/884	50.51	112.40	-	compliant
876.5/886.5	50.51	112.44	-	compliant
879.5/889	50.49	112.04	-	compliant
16QAM-Modulation ANT1				
874/884	44.41/44.69	27.61/29.44	-	compliant
876.5/886.5	44.44/44.46	27.80/29.24	-	compliant
879.5/889	44.45/44.40	27.86/27.54	-	compliant
16QAM-Modulation ANT3				
874/884	44.38/44.62	27.42/28.97	-	compliant
876.5/886.5	44.46/44.66	27.93/29.24	-	compliant
879.5/889	44.44/44.34	27.80/27.16	-	compliant
16QAM-Modulation ANT1+ANT3 Calculated Total				
874/884	50.55	113.44	-	compliant
876.5/886.5	50.58	114.21	-	compliant
879.5/889	50.43	110.37	-	compliant
64QAM-Modulation ANT1				
874/884	44.36/44.65	27.28978/29.17427	-	compliant
876.5/886.5	44.39/44.59	27.47894/28.77398	-	compliant
879.5/889	44.47/44.43	27.98981/27.73320	-	compliant
64QAM-Modulation ANT3				
874/884	44.32/44.60	27.04/28.84	-	compliant
876.5/886.5	44.44/44.66	27.80/29.24	-	compliant
879.5/889	44.54/44.50	28.44/28.18	-	compliant
64QAM-Modulation ANT1+ANT3 Calculated Total				
874/884	50.51	112.34	-	compliant
876.5/886.5	50.54	113.29	-	compliant
879.5/889	50.51	112.35	-	compliant
256QAM-Modulation ANT1				
874/884	43.19/43.46	20.84/22.18	-	compliant
876.5/886.5	43.35/43.57	21.63/22.75	-	compliant
879.5/889	43.42/43.37	21.98/21.72	-	compliant
256QAM-Modulation ANT3				
874/884	43.28/43.53	21.28/22.54	-	compliant
876.5/886.5	43.25/43.47	21.13/22.23	-	compliant
879.5/889	44.38/44.34	21.78/21.58	-	compliant
256QAM-Modulation ANT1+ANT3 Calculated Total				
874/884	49.39	86.85	-	compliant
876.5/886.5	49.43	87.75	-	compliant
879.5/889	49.40	87.06	-	compliant

Table 10 RF Power Output (10+10MHz channel BW)

The base station maximum output power was found to be compliant with the manufacturer's specifications and with all requirements of the FCC rules.

4.2 Test No. 2: Modulation Characteristics (§ 2.1047, § 2.201)

The occupied bandwidth was measured to be 4.5MHz (Config. A and F), 9.5MHz (Config. B and G), 14.5MHz (Config. C and H), 9MHz (Config. D and I) and 18MHz (Config. D and I) which represents the 99% power bandwidth (see the following section and screenshots on pages 96).

Therefore, the modulation characteristic of the base stations transceiver are:

Config A and F: 4M50D9W (Channel bandwidth 5MHz)

Config B and G: 9M50D9W (Channel bandwidth 5+5MHz)

Config C and H: 14M50D9W (Channel bandwidth 5+5+5MHz)

Config D and I: 9M00D9W (Channel bandwidth 10MHz)

Config E and J: 19M00D9W (Channel bandwidth 10+10MHz)

No further testing is required under this section of the FCC rules. No measurements other than the occupied bandwidth are required.

Sample modulation screenshots are on page 92, in I/Q constellation diagrams and tables, showing QPSK, 16QAM, 64QAM and 256QAM –modulation generation.

The modulation characteristics were found to be compliant with the manufacturer's specifications and with all requirements of the FCC rules.

4.3 Test No. 3: Occupied Bandwidth (§ 2.1049)

4.3.1. Limits

Para. No. 2.1049. The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power.

4.3.2. Test Procedure and Results

The 99% occupied bandwidth of the carrier emission is measured using a signal analyzer with Resolution Bandwidth set to 100-200 kHz (at least 1% of the bandwidth; see screenshots on page 96 for details). The following tables summarize the results:

Measured laboratory room temperature and humidity during the tests				
Date	Temperature Min-Max:		Humidity Min-Max:	
11 Apr – 16 May 2017	25.3°C	26.9 °C	8.1 RH%	22.8 RH%

Config A:

Carrier Frequency [MHz]	Occupied Bandwidth [MHz]	Result
QPSK-Modulation ANT1		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
QPSK-Modulation ANT2		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
QPSK-Modulation ANT3		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
QPSK-Modulation ANT4		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
16QAM-Modulation ANT1		
871.5	4.47	compliant
881.5	4.47	compliant

891.5	4.47	compliant
16QAM-Modulation ANT2		
871.5	4.47	compliant
881.5	4.47	compliant
891.5	4.47	compliant
16QAM-Modulation ANT3		
871.5	4.47	compliant
881.5	4.47	compliant
891.5	4.47	compliant
16QAM-Modulation ANT4		
871.5	4.47	compliant
881.5	4.47	compliant
891.5	4.47	compliant
64QAM-Modulation ANT1		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
64QAM-Modulation ANT2		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
64QAM-Modulation ANT3		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
64QAM-Modulation ANT4		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
256QAM-Modulation ANT1		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
256QAM-Modulation ANT2		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
256QAM-Modulation ANT3		
871.5	4.49	compliant

881.5	4.49	compliant
891.5	4.49	compliant
256QAM-Modulation ANT4		
871.5	4.49	compliant
881.5	4.49	compliant
891.5	4.49	compliant
Measurement Uncertainty:		±48kHz

Table 10 Occupied Bandwidth (5 MHz Channel BW)

Config B:

Carrier Frequency [MHz]	Occupied Bandwidth [MHz]	Result
QPSK-Modulation ANT1		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.44	compliant
QPSK-Modulation ANT2		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.44	compliant
QPSK-Modulation ANT3		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.44	compliant
QPSK-Modulation ANT4		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.44	compliant
16QAM-Modulation ANT1		
871.5/ 876.5	9.41	compliant
879.0/ 884.0	9.41	compliant
886.5/ 891.5	9.41	compliant
16QAM-Modulation ANT2		
871.5/ 876.5	9.41	compliant
879.0/ 884.0	9.41	compliant
886.5/ 891.5	9.41	compliant
16QAM-Modulation ANT3		
871.5/ 876.5	9.38	compliant
879.0/ 884.0	9.41	compliant

886.5/ 891.5	9.41	compliant
16QAM-Modulation ANT4		
871.5/ 876.5	9.41	compliant
879.0/ 884.0	9.42	compliant
886.5/ 891.5	9.41	compliant
64QAM-Modulation ANT1		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.44	compliant
64QAM-Modulation ANT2		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.44	compliant
64QAM-Modulation ANT3		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.41	compliant
64QAM-Modulation ANT4		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.44	compliant
256QAM-Modulation ANT1		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.44	compliant
256QAM-Modulation ANT2		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.44	compliant
886.5/ 891.5	9.44	compliant
256QAM-Modulation ANT3		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.42	compliant
886.5/ 891.5	9.41	compliant
256QAM-Modulation ANT4		
871.5/ 876.5	9.44	compliant
879.0/ 884.0	9.42	compliant
886.5/ 891.5	9.42	compliant
Measurement Uncertainty:		±48kHz

Table 11 Occupied Bandwidth (2 X 5 MHz Channel BW)

Config C:

Carrier Frequency [MHz]	Occupied Bandwidth [MHz]	Result
QPSK-Modulation ANT1		
871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.4	compliant
881.5/ 886.5/ 891.5	14.4	compliant
QPSK-Modulation ANT2		
871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.43	compliant
881.5/ 886.5/ 891.5	14.4	compliant
QPSK-Modulation ANT3		
871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.43	compliant
881.5/ 886.5/ 891.5	14.4	compliant
QPSK-Modulation ANT4		
871.5/ 876.5/ 881.5	14.43	compliant
876.5/ 881.5/ 886.5	14.43	compliant
881.5/ 886.5/ 891.5	14.4	compliant
16QAM-Modulation ANT1		
871.5/ 876.5/ 881.5	14.37	compliant
876.5/ 881.5/ 886.5	14.37	compliant
881.5/ 886.5/ 891.5	14.34	compliant
16QAM-Modulation ANT2		
871.5/ 876.5/ 881.5	14.37	compliant
876.5/ 881.5/ 886.5	14.34	compliant
881.5/ 886.5/ 891.5	14.34	compliant
16QAM-Modulation ANT3		
871.5/ 876.5/ 881.5	14.34	compliant
876.5/ 881.5/ 886.5	14.34	compliant
881.5/ 886.5/ 891.5	14.37	compliant
16QAM-Modulation ANT4		
871.5/ 876.5/ 881.5	14.32	compliant
876.5/ 881.5/ 886.5	14.34	compliant
881.5/ 886.5/ 891.5	14.37	compliant
64QAM-Modulation ANT1		

871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.4	compliant
881.5/ 886.5/ 891.5	14.4	compliant
64QAM-Modulation ANT2		
871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.37	compliant
881.5/ 886.5/ 891.5	14.4	compliant
64QAM-Modulation ANT3		
871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.43	compliant
881.5/ 886.5/ 891.5	14.4	compliant
64QAM-Modulation ANT4		
871.5/ 876.5/ 881.5	14.37	compliant
876.5/ 881.5/ 886.5	14.43	compliant
881.5/ 886.5/ 891.5	14.4	compliant
256QAM-Modulation ANT1		
871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.4	compliant
881.5/ 886.5/ 891.5	14.4	compliant
256QAM-Modulation ANT2		
871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.43	compliant
881.5/ 886.5/ 891.5	14.4	compliant
256QAM-Modulation ANT3		
871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.43	compliant
881.5/ 886.5/ 891.5	14.4	compliant
256QAM-Modulation ANT4		
871.5/ 876.5/ 881.5	14.4	compliant
876.5/ 881.5/ 886.5	14.43	compliant
881.5/ 886.5/ 891.5	14.4	compliant
Measurement Uncertainty:		±48kHz

Table 12 Occupied Bandwidth (3 X 5 MHz Channel BW)

Config D:

Carrier Frequency [MHz]	Occupied Bandwidth [MHz]	Result
QPSK-Modulation ANT1		

874.0	8.98	compliant
881.5	8.94	compliant
889.0	8.92	compliant
QPSK-Modulation ANT2		
874.0	8.94	compliant
881.5	8.94	compliant
889.0	8.92	compliant
QPSK-Modulation ANT3		
874.0	8.94	compliant
881.5	8.94	compliant
889.0	8.92	compliant
QPSK-Modulation ANT4		
874.0	8.98	compliant
881.5	8.94	compliant
889.0	8.92	compliant
16QAM-Modulation ANT1		
874.0	8.96	compliant
881.5	8.92	compliant
889.0	8.92	compliant
16QAM-Modulation ANT2		
874.0	8.92	compliant
881.5	8.92	compliant
889.0	8.92	compliant
16QAM-Modulation ANT3		
874.0	8.9	compliant
881.5	8.92	compliant
889.0	8.92	compliant
16QAM-Modulation ANT4		
874.0	8.96	compliant
881.5	8.92	compliant
889.0	8.92	compliant
64QAM-Modulation ANT1		
874.0	8.98	compliant
881.5	8.94	compliant
889.0	8.92	compliant
64QAM-Modulation ANT2		
874.0	8.92	compliant
881.5	8.94	compliant
889.0	8.92	compliant