Compliance Engineering Ireland Ltd
Clonross Lane, Derrockstown, Dunshaughlin, Co. Meath
Tel: +353 1 8256722 Fax: +353 1 8256733

Project Number: 16E086-6a

Prepared for:

IP Access Ltd

By

Compliance Engineering Ireland Ltd

Clonross Lane

Derrockstown

Dunshaughlin

Co. Meath

FCC Site Registration: 92592

FCC ID: QGGIPA248M

Date

15th June 2016

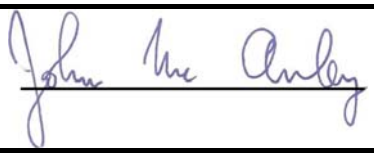
FCC EQUIPMENT AUTHORISATION

Test Report

EUT Description

Indoor Base Station.

Authorised :
John McAuley



1.1 EUT Description

The EUT is an indoor base station powered from a 12v dc mains adapter, operating on the following bands

Operating Band	Uplink	Downlink
	MHz	MHz
2	1850 – 1910	1930 – 1990
4	1710 – 1755	2110 – 2155
13	777 – 787	746 – 756
17	704 – 716	734 – 746

This report covers all Bands for Maximum Permissible Exposure

RF Exposure Exhibit– Technical Report

2.0 Maximum Permissible Exposure (MPE)

2.1 MPE Band 2

$$S = \frac{PG}{4\pi R^2}$$

where:

S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Conducted Output Power	24.11	dBm
Antenna Gain	4.7	dBi
Tune up factor	0	dB
Time Averaging Factor	0	dB
EIRP Peak	28.8	dBm
EIRP Peak	760	mW
Prediction distance:	20	cm
Prediction frequency:	1990	MHz
MPE limit for Uncontrolled/General Population exposure at prediction frequency:	1.00	mW/cm^2
Power density at prediction frequency:	0.151263	mW/cm^2
Power density at prediction frequency:	1.512628	W/m^2
Test Result	**Pass**	

The Conducted output power is the max combined output power from both ports transmitting simultaneously. This was calculated by converting the output powers from both ports to mW , adding the mW powers and then converting back to dBm. This was carried out for all output powers and the max was selected.

dBm to mW conversion => 10^(power dBm/10) mW

mW –to dBm conversion => 10*log(power mW) dBm

TX1 dBm	TX2 dBm	TX1 mW	TX2 mW	Sum mW	Sum dBm
21.16	21.04	130.62	127.057	257.67	24.11

2.2 MPE Band 4

$$S = \frac{PG}{4\pi R^2}$$

where:

S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Conducted Output Power	24.22	dBm
Antenna Gain	4.7	dBi
Tune up factor	0	dB
Time Averaging Factor	0	dB
EIRP Peak	28.9	dBm
EIRP Peak	780	mW
Prediction distance:	20	cm
Prediction frequency:	2155	MHz
MPE limit for Uncontrolled/General Population exposure at prediction frequency:	1.00	mW/cm^2
Power density at prediction frequency:	0.155142	mW/cm^2
Power density at prediction frequency:	1.551422	W/m^2
Test Result	**Pass**	

The Conducted output power is the max combined output power from both ports transmitting simultaneously. This was calculated by converting the output powers from both ports to mW , adding the mW powers and then converting back to dBm. This was carried out for all output powers and the max was selected.

dBm to mW conversion => 10^(power dBm/10) mW

mW –to dBm conversion => 10*log(power mW) dBm

TX1 dBm	TX2 dBm	TX1 mW	TX2 mW	Sum mW	Sum dBm
21.28	21.14	134.28	130.02	264.29	24.22

2.3 MPE Band 13

$$S = \frac{PG}{4\pi R^2}$$

where:

S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Conducted Output Power	24.27	dBm
Antenna Gain	2.3	dBi
Tune up factor	0	dB
Time Averaging Factor	0	dB
ERP Peak	24.4	dBm
ERP Peak	277	mW
Prediction distance:	20	cm
Prediction frequency:	756	MHz
MPE limit for Uncontrolled/General Population exposure at prediction frequency:	0.50	mW/cm^2
Power density at prediction frequency:	0.055046	mW/cm^2
Power density at prediction frequency:	0.550457	W/m^2
Test Result	Pass	

The Conducted output power is the max combined output power from both ports transmitting simultaneously. This was calculated by converting the output powers from both ports to mW , adding the mW powers and then converting back to dBm. This was carried out for all output powers and the max was selected.

dBm to mW conversion => 10^(power dBm/10) mW

mW –to dBm conversion => 10*log(power mW) dBm

TX1	TX2	TX1	TX2	Sum	Sum
dBm	dBm	mW	mW	mW	dBm
21.28	21.24	134.28	133.05	267.32	24.27

2.4 MPE Band 17

$$S = \frac{PG}{4\pi R^2}$$

where:

S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna

Conducted Output Power	24.3	dBm
Antenna Gain	2.3	dBi
Tune up factor	0	dB
Time Averaging Factor	0	dB
ERP Peak	24.5	dBm
ERP Peak	279	mW
Prediction distance:	20	cm
Prediction frequency:	746	MHz
MPE limit for Uncontrolled/General Population exposure at prediction frequency:	0.50	mW/cm^2
Power density at prediction frequency:	0.055428	mW/cm^2
Power density at prediction frequency:	0.554277	W/m^2
Test Result	Pass	

The Conducted output power is the max combined output power from both ports transmitting simultaneously. This was calculated by converting the output powers from both ports to mW , adding the mW powers and then converting back to dBm. This was carried out for all output powers and the max was selected.

dBm to mW conversion => 10^(power dBm/10) mW

mW –to dBm conversion => 10*log(power mW) dBm

TX1 dBm	TX2 dBm	TX1 mW	TX2 mW	Sum mW	Sum dBm
21.56	21	143.22	125.89	269.11	24.30

End of Report