MPE CALCULATIONS - FCC

1.0 APPLICANT:

DATE:	7/29/2019
NAME OF APPLICANT:	Ademco Inc.
FCC ID:	CFS8DL-GRIPDF1

2.0 FCC RULES CONCERNING MAXIMUM PERMISSIBLE RF EXPOSURE:

§ CFR 47 1.1310 Radiofrequency radiation exposure limits.

The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in § 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of § 2.1093 of this chapter. Further information on evaluating compliance with these limits can be found in the FCC's OST/OET Bulletin Number 65, ''Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation.''

NOTE TO INTRODUCTORY PARAGRAPH:
These limits are generally based on recommended exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP) in ''Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,'' NCRP Report No. 86, Sections 17.4.1, 17.4.1.1, 17.4.2 and 17.4.3. Copyright NCRP, 1986, Bethesda, Maryland 20814. In the frequency range from 100 MHz to 1500 MHz, exposure limits for field strength and power density are also generally based on guidelines recommended by the American National Standards Institute (ANSI) in Section 4.1 of ''IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,''
ANSI/IEEE C95.1–1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers.

3.0 UUT POWER OUTPUT AND ANTENNA GAIN

RF6 Ant 1: 6.6 dBi, RF6 Ant 2: 4.7 dBi => Max = 6.6 dBi
Bluetooth Ant 1: 6 dBi

3.1 MPE CALCULATIONS:

FCC GENERAL POPULATION / UNCONTROLED EXPOSURE LIMITS:
FOR 300 MHz to 1,500 MHz use F / 1500 mW/cm^2; (§1.1310(e))
FOR 1,500 to 100,000 MHz use 1 $mW/cm^{2;}$ (§1.1310(e))

EQUATIONS:
MAX AVG EIRP (mW) = $10^{\{(MAX\ COND\ PWR.\ +\ ANT\ GAIN\ +\ DUTY\ FACTOR)/10)\}}$
THE FRIIS TRANSMISSION EQUATION = EIRP X DUTY CYCLE / (4 X PI X 20 CM^2)
MEASURED POWER:
- FOR Bluetooth RADIO (2480 MHz), MAX MEAS. POWER = -0.08 dBm.
- FOR RF6 RADIO (2405 MHz), MAX MEAS. POWER = 22.37 dBm.

BANDS AND FCC IDs

BAND	FCC ID
ALL	CFS8DL-GRIPDF

BAND:	CH No:	FREQ(Mhz)	TRP dbm	MAX COND. PWR or EIRP(dBm)	ANTENNA GAIN(db):	DUTY FACTOR (dB)	MAX AVG EIRP (mW)	FRISS mW/CM^2 :	EXP LIMIT mW/CM^2 :	% OF LIMIT:
Bluetooth	39	2480	N/A	-0.08	6	0.00	3.908	0.0007776	1.0000	0.0778
RF6	11	2405	N/A	22.37	6.6	11.70	53.333	0.0106104	1.0000	1.0610
							SUM TOTALS =>	0.0113879		1.1388

MAXIMUM MPE OF THE AIO BASE UNIT AS % OF LIMIT IS: 1.1388

4.0 RESULTS:

TEST RESULT: PASS
In the configuration tested the EUT complied with the standards specified above.