

**Panasonic Avionics Corporation
Modification of Call Sign WH2XCJ
T-PED Interference Ground Testing at
Smith Reynolds Airport, Winston-Salem, North Carolina
July 24, 2015**

MODIFICATION NARRATIVE

Panasonic Avionics Corporation (“Panasonic”) respectfully requests a modification of its existing two-year experimental license (Call Sign WH2XCJ) to include additional commercial airfield test sites and add five frequency bands to the list of test frequencies on which Panasonic will conduct ground testing in support of Panasonic’s Global Communications Suite (“GCS”) featuring the “eXconnect” Ku-band aeronautical mobile-satellite service (“AMSS”) off-board link and onboard connectivity for transmit portable devices (“T-PEDs”).

Background

Currently, Panasonic holds the following additional experimental licenses and STAs to conduct T-PED interference testing at multiple airfields:

- Call Sign WG2XEE, a two-year experimental license at San Francisco International Airport, Denver International Airport, Chicago O’Hare International Airport, Melbourne (FL) International Airport and Griffis International Airfield in Rome, NY (valid until June 2016);
- Call Sign WG2XRN, a two-year experimental license at George Bush Intercontinental Airport in Houston, TX (valid until August 2015);
- Call Sign WG2XGI, a two-year experimental license at Tampa (FL) International Airport and Lake City, (FL) Gateway Airport (valid until November 2016);
- Call Sign WF2XLF, a two-year experimental license at Paine Field / Snohomish County Airport in Everett, WA, Texas Technical College Waco Airport, Southern California Logistics Airport in Victorville, CA, and Pied-Triad International Airport in Greensboro, NC (valid until November 2016);
- Call Sign WG2XRL, a two-year experimental license at Washington Dulles International Airport (valid until August 2015);
- Call Sign WG2XRK, a two-year experimental license at Newark Liberty International Airport (valid until September 2015);
- Call Sign WG2XZX, a two-year experimental license at Guam International Airport and Honolulu International Airport (valid until November 2016);
- Call Sign WG2XZY, a two-year experimental license at Dallas Fort Worth International Airport (valid until April 2016);
- Call Sign WH2XTL, a two-year experimental license at Sussex County Airport in Georgetown, DE (valid until July 2017); and
- Call Sign WH2XTK, a two-year experimental license at Chennault International Airport in Lake Charles, LA and Miami International Airport (valid until August 2017).

Panasonic is seeking to consolidate its T-PED interference testing operations and plans to use the same test frequencies at each of the commercial airfields.

Testing Sites

Panasonic respectfully requests a modification of its existing experimental license to include the following test sites from its previously authorized experimental licenses and STAs:

- Melbourne International Airport, Melbourne, Florida 32901
(Geographic Coordinates: 28° 06' 10" N.; 80° 38' 43" W.)
(FAA NG T120193)
- Griffiss International Airfield, Rome, New York 13441
(Geographic Coordinates: 43° 14' 01" N.; 75° 24' 25" W.)
(FAA NG T120191)
- San Francisco International Airport, San Francisco, California 94128
(Geographic Coordinates: 37° 38' 10" N.; 122° 23' 57" W.)
(FAA NG T120177)
- Denver International Airport, Denver, Colorado 80249
(Geographic Coordinates: 39° 50' 57" N.; 104° 40' 25" W.)
(FAA NG T120176)
- O'Hare International Airport, Chicago, Illinois 60666
(Geographic Coordinates: 42° 0' 30" N.; 87° 55' 22" W.)
(FAA NG T120180)
- George Bush Intercontinental Airport, Houston, Texas 77066
(Geographic Coordinates: 29° 59' 15" N.; 95° 20' 01" W.)
(FAA NG T120337)
- Lake City Gateway Airport, Lake City, Florida 32035
(Geographic Coordinates: 30° 10' 07" N.; 82° 34' 11" W.)
(FAA NG T120199)
- Tampa International Airport, Tampa, Florida 33614
(Geographic Coordinates: 27° 58' 35" N.; 82° 31' 30" W.)
(FAA NG T120200)
- Southern California Logistics Airport, Victorville, California 92394
(Geographic Coordinates: 34° 35' 51" N.; 117° 22' 59" W.)
(FAA NG T120440)

- Paine Field / Snohomish County Airport, Everett, Washington 98204
(Geographic Coordinates: 47° 54' 22" N.; 122° 16' 53" W.)
(FAA NG T120444)
- Piedmont-Triad International Airport, Greensboro, North Carolina 27409
(Geographic Coordinates: 36° 05' 52" N.; 79° 56' 14" W.)
(FAA NG T114570)
- Texas State Technical College Waco Airport, Waco, Texas 76708
(Geographic Coordinates: 31° 38' 16" N.; 97° 4' 45" W.)
(FAA NG T120429)
- Washington Dulles International Airport, Sterling, Virginia 20166
(Geographic Coordinates: 38° 56' 40" N.; 77° 27' 19" W.)
(FAA NG T130210)
- Newark Liberty International Airport, Newark, New Jersey 07114
(Geographic Coordinates: 40° 41' 29" N.; 74° 10' 29" W.)
(FAA NG T130211)
- Antonio B. Won Pat Guam International Airport, Tamuning, Guam 96911
(Geographic Coordinates: 13° 29' 36" N.; 144° 46' 37" E.)
(FAA NG T130266)
- Honolulu International Airport, 110 Lauhoe Place, Honolulu, Hawaii 96819
(Geographic Coordinates: 21° 18' 57" N.; 157° 55' 03" W.)
(FAA NG T130267)
- Dallas/Fort Worth International Airport, DFW Airport, Texas 75261
(Geographic Coordinates: 32° 53' 49" N.; 97° 02' 17" W.)
(FAA NG T130276)
- Chennault International Airport, Lake Charles, Louisiana 70615
(Geographic Coordinates: 30° 12' 59" N.; 93° 09' 52" W.)
(FAA NG T150134)
- Miami International Airport, Miami, Florida 33122
(Geographic Coordinates: 25° 48' 25" N.; 80° 17' 01" W.)
(FAA NG T150188)
- Sussex County Airport, Georgetown, Delaware 19947
(Geographic Coordinates: 38° 41' 27" N.; 75° 21' 21" W.)
(FAA NG T178533)

Testing Plan and Frequencies

Panasonic also respectfully requests a modification of its existing experimental license to add six frequency bands to the list of test frequencies on which Panasonic will conduct ground testing in support of the GCS. Panasonic has sought and received FCC experimental authorization to conduct T-PED interference testing at airfields using the same test frequency bands that are proposed in the instant modification. Most recently, the FCC authorized Panasonic to conduct testing under Call Sign WH2XTL (File No. 0038-EX-PL-2015), a two-year experimental license at the Sussex County Airport in Georgetown, Delaware, and Call Sign WH2XTK (File No. 0036-EX-PL-2015), a two-year experimental license at Chennault International Airport in Lake Charles, LA and Miami International Airport in Florida.

Attached is Table 1, which lists the amended test frequency bands. Also listed are the proposed wireless standards and associated technical information for each test band: modulation (pulse or continuous wave), maximum EIRP, maximum ERP, emission designator, among others. A single 1 MHz test frequency in each uplink band, also identified, will be used for testing. Specifically, Panasonic seeks to add the following frequency bands to each of the test sites:

- 614-698 MHz: 656 MHz
- 1427.9-1447.9 MHz: 1438 MHz
- 1447.9-1462.9 MHz: 1455 MHz
- 1626.5-1660.5 MHz: 1644 MHz
- 1710-1785 MHz: 1748 MHz
- 2300-2400 MHz: 2350 MHz

The modification to the two-year experimental license does not make any other changes to information included in the original application.

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Table 1 - T-PED EMI Test Frequencies / Transmit Power Requirements

Wireless Standard	Frequency start of band (MHz)	Frequency end of band (MHz)	Test Frequency (MHz)	Modulation	Test Waveform	Target EIRP (dBm)	Target EIRP (W)	Target ERP (W) ②	Emissic Code
CDMA 2000	410	420	415	CW	2	42.0	15.8	13.7	N0N
GSM 400	450.4	457.6	454	Pulse	1	45.0	31.7	29.5	P0N
CDMA 2000	450	460	455	CW	2	42.0	15.8	13.7	N0N
CDMA 2000	479	484	482	CW	2	42.0	15.8	13.7	N0N
600 MHz Band	614.0	698.0	656	CW	2	45.0	31.7	29.6	N0N
600 MHz Band	614.0	698.0	656	Pulse	1	45.0	31.7	29.6	P0N
CDMA 2000	776	794	785	CW	2	42.0	15.8	13.7	N0N
CDMA 2000	806	849	828	CW	2	42.0	15.8	13.7	N0N
CDMAone	824	849	828	CW	2	42.0	15.8	13.7	N0N
UMTS FDD	824	849	828	CW	2	42.0	15.8	13.7	N0N
GSM 850	824	849	828	Pulse	1	45.0	31.7	29.5	P0N
IS-136	824	849	828	Pulse	1	45.0	31.7	29.5	P0N
UMTS TDD	824	849	828	Pulse	1	45.0	31.7	29.5	P0N
CDMA 2000	870	925	898	CW	2	42.0	15.8	13.7	N0N
GSM 900	876	915	913	Pulse	1	45.0	31.7	29.5	P0N
LTE E-UTRA Band 11	1427.9	1447.9	1438	CW	2	35.0	3.16	1.06	N0N
LTE E-UTRA Band 11	1427.9	1447.9	1438	Pulse	1	35.0	3.16	1.06	P0N
LTE E-UTRA Band 21	1447.9	1462.9	1455	CW	2	35.0	3.16	1.06	N0N
LTE E-UTRA Band 21	1447.9	1462.9	1455	Pulse	1	35.0	3.16	1.06	P0N
Mobile Sat	1613.8	1626.5	1626	Pulse	1	42.0	15.8	13.7	P0N
LTE E-UTRA Band 24	1626.5	1660.5	1644	CW	2	35.0	3.16	1.06	N0N
LTE E-UTRA Band 24	1626.5	1660.5	1644	Pulse	1	35.0	3.16	1.06	P0N

CDMA 2000	1710	1785	1748	CW	2	42.0	15.8	13.7	N0N
DCS 1800	1710	1785	1748	Pulse	1	42.0	15.8	13.7	P0N
CDMA 2000	1850	1910	1884	CW	2	42.0	15.8	13.7	N0N
UMTS FDD	1850	1910	1884	CW	2	42.0	15.8	13.7	N0N
CDMAone	1850	1910	1884	CW	2	42.0	15.8	13.7	N0N
UMTS TDD	1850	1910	1884	Pulse	1	42.0	15.8	13.7	P0N
PCS 1900	1850	1910	1884	Pulse	1	42.0	15.8	13.7	P0N
IS-136	1850	1910	1884	Pulse	1	42.0	15.8	13.7	P0N
UMTS TDD	1900	1920	1910	Pulse	1	36.0	4.0	1.8	P0N
CDMA 2000	1920	1980	1949	CW	2	42.0	15.8	13.7	N0N
UMTS FDD	1920	1980	1949	CW	2	42.0	15.8	13.7	N0N
UMTS TDD	2010	2025	2018	Pulse	1	36.0	4.0	1.8	P0N
UMTS/3G/PCN	2110	2170	2140	CW	2	36.0	4.0	1.8	N0N
LTE E-UTRA Band 40	2300	2400	2350	CW	2	35.0	3.16	1.06	N0N
LTE E-UTRA Band 40	2300	2400	2350	Pulse	1	35.0	3.16	1.06	P0N
802.11b/g	2400	2497	2412	Pulse	1	37.0	5.0	2.9	P0N
802.11b/g			2437	Pulse	1	37.0	5.0	2.9	P0N
802.11b/g			2462	Pulse	1	37.0	5.0	2.9	P0N
FDD LTE	2500	2685	2595	Pulse	2	42.0	15.8	13.7	P0N
FDD LTE	2500	2685	2595	CW	1	42.0	15.8	13.7	N0N
Wi-Max	3400	3600	3450	Pulse	2	42.0	15.8	13.7	P0N
Wi-Max	3400	3600	3450	CW	1	42.0	15.8	13.7	N0N
802.11a/n	5150	5250	5170	Pulse	1	37.0	5.0	2.9	P0N
802.11a/n	5250	5350	5300	Pulse	1	37.0	5.0	2.9	P0N
802.11a	5470	5725	5580	Pulse	1	37.0	5.0	2.9	P0N
802/11a/n	5725	5825	5825	Pulse	1	37.0	5.0	2.9	P0N