



Broadcast Engineering Services of Bonny Doon, Inc.

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Donald E. Mussell Jr. NCE-CBT
Consulting Engineer

**Engineering Statement
in support of a Minor Amendment
to an application for minor change to
KTUH Honolulu, Hawaii
BPED-20101026AAL**

KTUH, licensed to the University of Hawaii, is requesting an amendment to the current minor change application to KTUH (BPED-20101026AAL) to Channel 211 and an upgrade from Class A to Class C1. The applicant proposes to utilize a non-directional antenna system, separate from the combined antenna with KIPO (BLED-20100119ABP) and KHPR (BPED-20081208AAA), both on the same tower and also licensed to Honolulu. This amendment incorporates RFR calculations appropriate for a shared antenna site. KTUH proposes to increase power to 6 kilowatts.

This proposal is free from overlap, either caused or received, except for a construction permit in Lihue, on the island of Kaua'i (BNPED-20071019AFY). However, this overlap is entirely over the open waters of the Pacific Ocean, and therefore complies with FCC 73.509(e). There are no other FM or TV facilities in the entire state of Hawaii that are affected or overlapped by this proposal. An allocation study, along with detail maps, is attached to this statement

The proposed antenna system is a Shively 6600-3, a 3 bay, .9 wave spaced horizontally polarized design. This antenna will produce a calculated worst-case RFR energy field of 22.72 microwatts per squared centimeter at a distance of 8.4 meters from the base of the tower support structure. When the calculated RF level is combined with the existing calculated RFR level of the co-located facilities of KIPO and KHPR, the total calculated RFR level on the ground at the tower site will be just under 167 microwatts per squared centimeter. This is just over 77% of the public limit, and is therefore compliant with the FCC rules concerning RFR both on and adjacent to the proposed tower location. There are no other broadcast facilities within 2 miles of this site.

This proposal is well within the limitations of the FCC's Waipahu monitoring station. The RF limitation at the Waipahu monitoring facility is 27 mV/m. The distance to the monitoring station is 19.33 kilometers. The straight-line radial between the proposed tower site and the monitoring station is 284.11 degrees true, with an average height above average terrain of 563.7 meters. The effective radiated power in the 284 degree azimuth will be 6 KW, which produces a calculated level of 13.7 mV/m (50,10) at the monitoring station. The resulting signal level from this proposal complies with the specified RF field strength limitations at the monitoring facility.

The University of Hawaii is ready to construct the KTUH facility with these specified changes. Once this modification is granted, construction will commence on the transmission facilities and will be completed well within the time limitations imposed by the underlying construction permit.

Respectfully submitted,

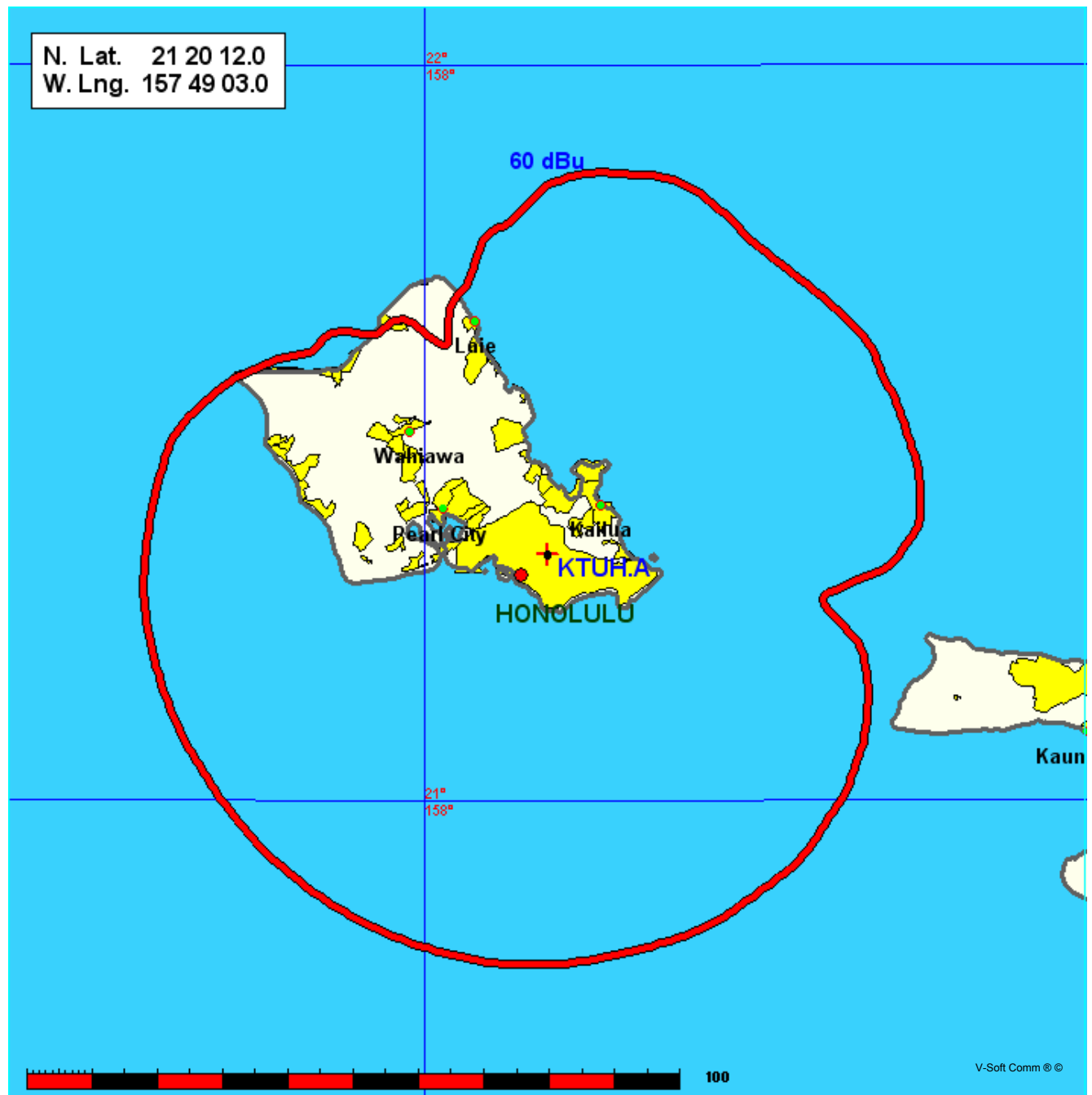
A handwritten signature in black ink, appearing to read 'D. Mussell Jr.', with a stylized, cursive flourish at the end.

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February 21, 2011

KTUH Proposed 60 dbu Contour
The University of Hawaii

Coverage Study - FCC NGDC 30 Sec
02-19-2011

KTUH-A CH211 C1, 6.0 kW, 497.4M HAAT, 615.0M COR AMSL
Service Contour = 60 dBu. Population = 870,825



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KTUH Minor Amendment Allocation Study
The University of Hawaii
CH# 211C1 - 90.1 MHz, Pwr= 6 kw, HAAT= 497.4 M, COR= 615 M
Average Protected F(50-50)= 56.93 km
Omni-directional

DISPLAY DATES
DATA 02-18-11
SEARCH 02-19-11

REFERENCE
21 20 12.0 N.
157 49 03.0 W.

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
211C2 KTUH Honolulu		APP DCX HI		0.0 0.0	0.0 BPED20101026AAL	21 20 12.0 157 49 03.0	5.500 508	133.1 622	55.2 The Universit	-188.7*	-189.0*
212A KTUH Honolulu		LIC _C_ HI		188.5 8.5	3.7 BLED20010820AAQ	21 18 14.0 157 49 22.0	3.000 -25	19.5 77	13.2 The Universit	-78.3*	-101.7*
211C3 NEW Lihue		CP _CX HI		291.9 111.3	181.1 BNPED20071019AFY	21 56 10.0 159 26 43.0	4.000 237	116.4 414	46.5 Calvary Chapel kauai	4.9	-4.9
213C3 NEW Hauula		CP _CX HI		332.7 152.6	41.5 BNPED20071019AOZ	21 40 09.0 158 00 09.0	2.200 273	2.7 363	12.3 Halau Lokahi Public Charte	0.2	25.1

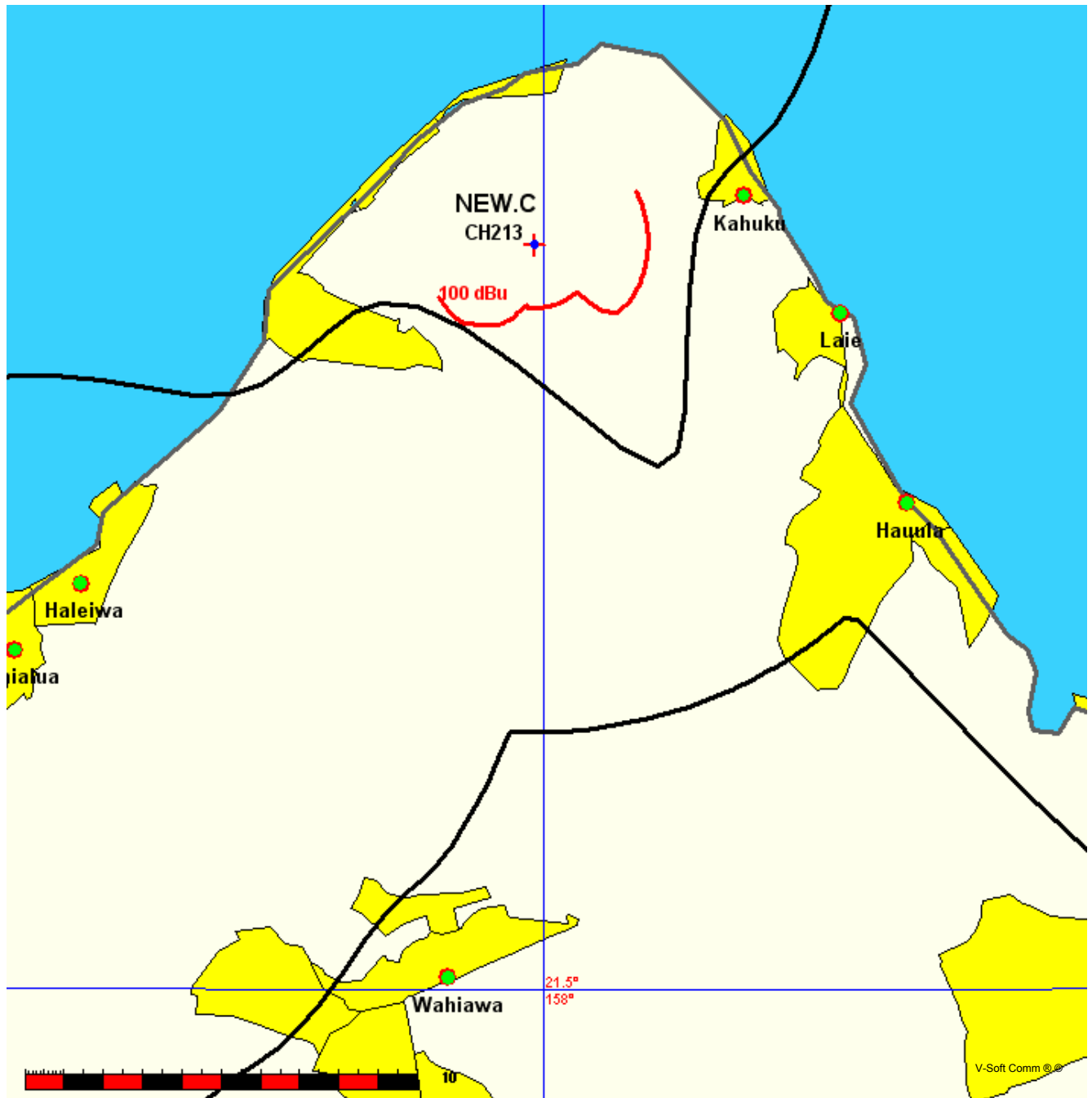
Terrain database is FCC NGDC 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= - Zone 2, Co to 3rd adjacent.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside protected contour.

KTUH - New Hau'ula
The University of Hawaii

FMCommander Single Allocation Study - 02-19-2011 - FCC NGDC 30 Sec
KTUH.A's Overlaps (In= 0.22 km, Out= 25.09 km)

KTUH.A CH 211 C1
Lat= 21 20 12.0, Lng= 157 49 03.0
6.0 kW 497.4 M HAAT, 615 M COR
Prot.= 60 dBu, Intef.= 100 dBu

NEW-C CH 213 C3 BNPED20071019AOZ
Lat= 21 40 09.0, Lng= 158 00 09.0
2.2 kW 273 M HAAT, 363 M COR
Prot.= 60 dBu, Intef.= 100 dBu

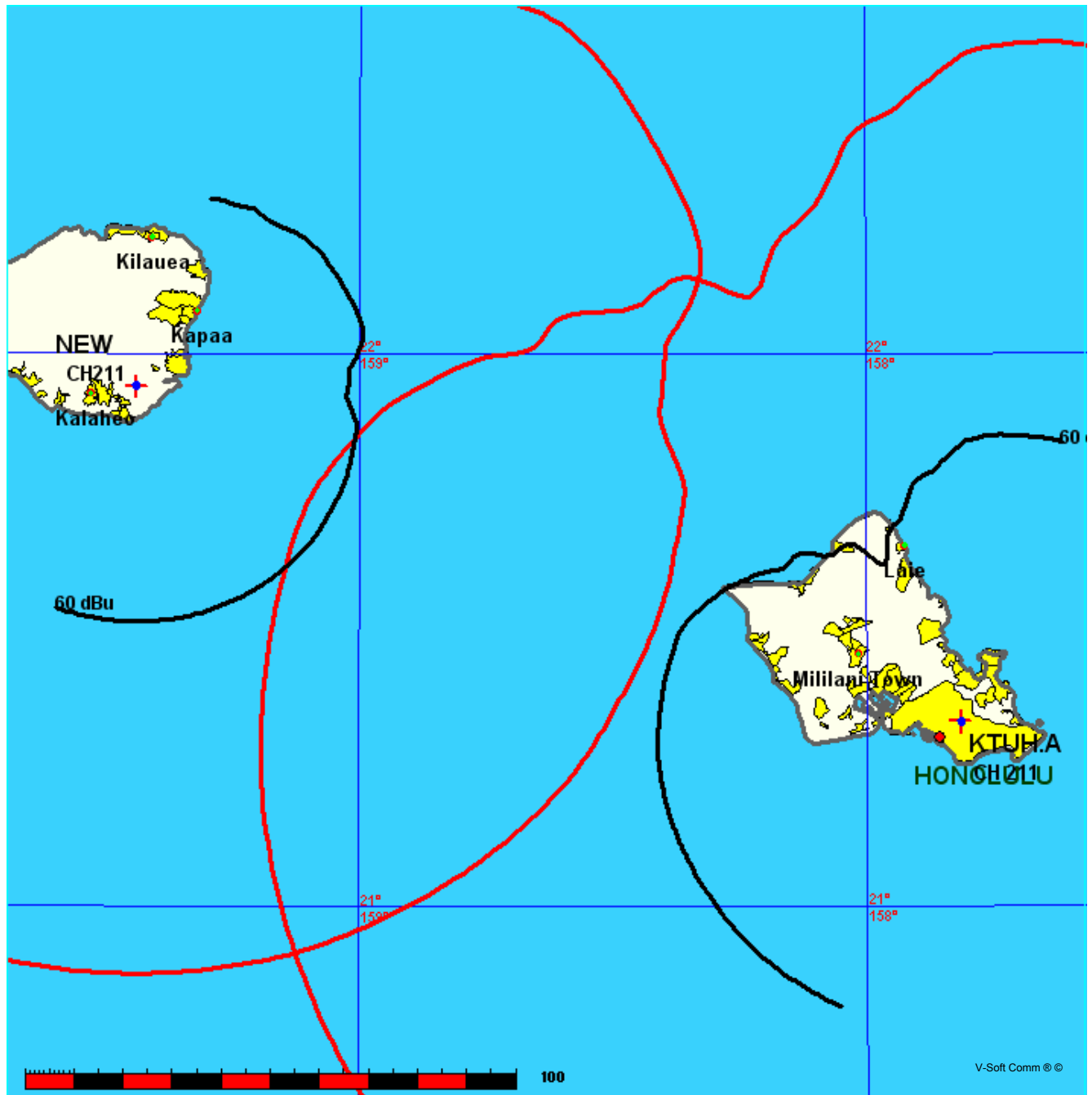


KTUH - New Lihue
The University of Hawaii

FMCommander Single Allocation Study - 02-19-2011 - FCC NGDC 30 Sec
KTUH.A's Overlaps (In= 4.91 km, Out= -4.86 km)

KTUH.A CH 211 C1
Lat= 21 20 12.0, Lng= 157 49 03.0
6.0 kW 497.4 M HAAT, 615 M COR
Prot.= 60 dBu, Intef.= 40 dBu

NEW CH 211 C3 BNPED20071019AFY
Lat= 21 56 10.0, Lng= 159 26 43.0
4.0 kW 237 M HAAT, 414 M COR
Prot.= 60 dBu, Intef.= 40 dBu



State of Hawaii)
Kilauea)
County of Kauai)

That he is recognized as a Broadcast Technologist by the Society of Broadcast Engineers, License # 22301, and a member of the Society of Broadcast Engineers since 1980;

That he has submitted many applications to the Federal Communications Commission for broadcast and auxiliary broadcast construction permits and licenses, and that his experience in Radio and Television broadcast engineering extends over four decades;.



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