

**Educational Media Foundation**  
5700 West Oaks Boulevard  
Rocklin, CA 95765

Marion, AL  
*WFMA*

### **Purpose of Application**

The purpose of this minor modification of a licensed facility is to propose a change in the make and model of the WFMA transmit antenna. Since WFMA operates with a directional array, this minor mod application is required prior to the change. Due to the increased number of antenna bays, the licensed center of radiation above ground level is reduced by 3.3 meters. No change in location is proposed.

**Channel Study****1. Compliance with 47 C.F.R. 73.207**

The proposed facility meets all minimum distance separation requirements with regard to co-channel, first, second, or third adjacent channel stations, and those separated by 53/54 channels, except the licensed facilities of the following station:

Station	Channel	City of License	Facility ID	Distance Short-Spaced
WNMQ	276C2	Columbus, MS	54535	10.6km

This application proposes contour protection (47 C.F.R. 73.215. 47 C.F.R. 73.215(e)) for WNMQ.

The minimum separation requirement between a class C2 and a class C2 facility (WFMA.P and WNMQ), which are first adjacent channels, is 117 km. Exhibit 1-A shows that WNMQ is separated from the proposed facility by 118.89 km.

Therefore, the proposed facility is permitted to use contour protection toward the short-spaced facility (See Exhibit 2 for compliance with contour protection requirements).

## WFMA Site Spacing

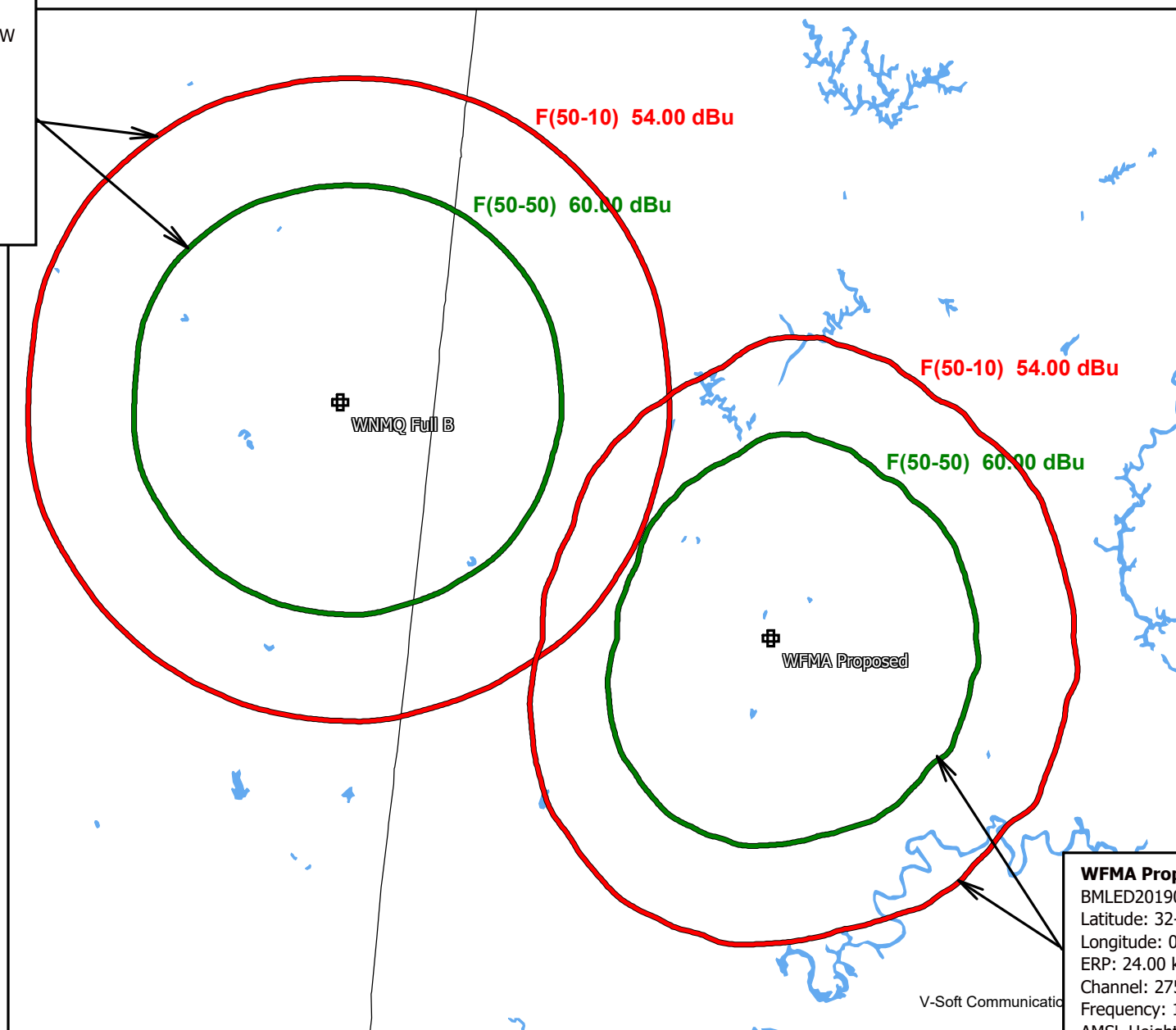
REFERENCE					DISPLAY DATES		
32 49 46.30 N.				CLASS = C2	DATA	10-18-22	
87 25 46.30 W.				Current Spacings to 3rd Adj.	SEARCH	11-08-22	
----- Channel 275 - 102.9 MHz -----							
Call	Channel	Location		Azi	Dist	FCC	Margin
WFMA	LIC-Z 275C2	Marion	AL	51.6	0.01	189.5	-189.5
WTUS-LP	LIC 277L1	Tuscaloosa	AL	347.8	37.52	52.5	-15.0
WNMQ	LIC 276C2	Columbus	MS	299.1	118.89	129.5	-10.6
W276DP	LIC-D 276D	Tuscaloosa	AL	336.8	56.23	59.5	-3.3
WKXX	LIC 275A	Attalla	AL	41.4	170.49	165.5	5.0
WVRK	LIC-N 275C	Columbus	GA	102.2	254.07	248.5	5.6
WDXB	LIC 273C1	Pelham	AL	36.7	85.29	78.5	6.8
WMXS	LIC 277C	Montgomery	AL	112.0	125.00	104.5	20.5
W276BQ	LIC 276D	Birmingham	AL	36.7	85.29	59.5	25.8
WWMR	LIC 275C3	Saltillo	MS	330.0	203.27	176.5	26.8
W221DB	LIC 221D	Tuscaloosa	AL	352.5	43.02	14.5	28.5
W221DB	CP 221D	Tuscaloosa	AL	352.5	43.02	14.5	28.5
WMSI-FM	LIC-N 275C	Jackson	MS	256.9	285.71	248.5	37.2
WYVC	LIC 272A	Camden	AL	170.9	98.23	54.5	43.7
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All separation margins include rounding							

Compliance with 73.215 with WNMQ  
Note: WNMQ Considered with 50kw at 150m HAAT

Exhibit 2

**WNMQ Full B**

BLH19900507KA  
Latitude: 33-20-40.40 N  
Longitude: 088-32-47.10 W  
ERP: 50.00 kW  
Channel: 276  
Frequency: 103.1 MHz  
AMSL Height: 220.5 m  
Elevation: 78.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None



**WFMA Proposed**

BMLED20190607AAD  
Latitude: 32-49-46.30 N  
Longitude: 087-25-46.30 W  
ERP: 24.00 kW  
Channel: 275  
Frequency: 102.9 MHz  
AMSL Height: 295.7 m  
Elevation: 125.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: None

Scale 1:1,500,000  
0 20 40 60 km

Overlap Population Report  
WFMA Proposed (275) / Marion, AL

Overlap Area Type: Intersection

Areas Included:

WFMA Proposed (275): FCC F(50-50) 70.00 dBu (FCC HAAT)

PGON: Marion, AL

Population Database: 2020 US Census (PL)

Total Population: 3,176

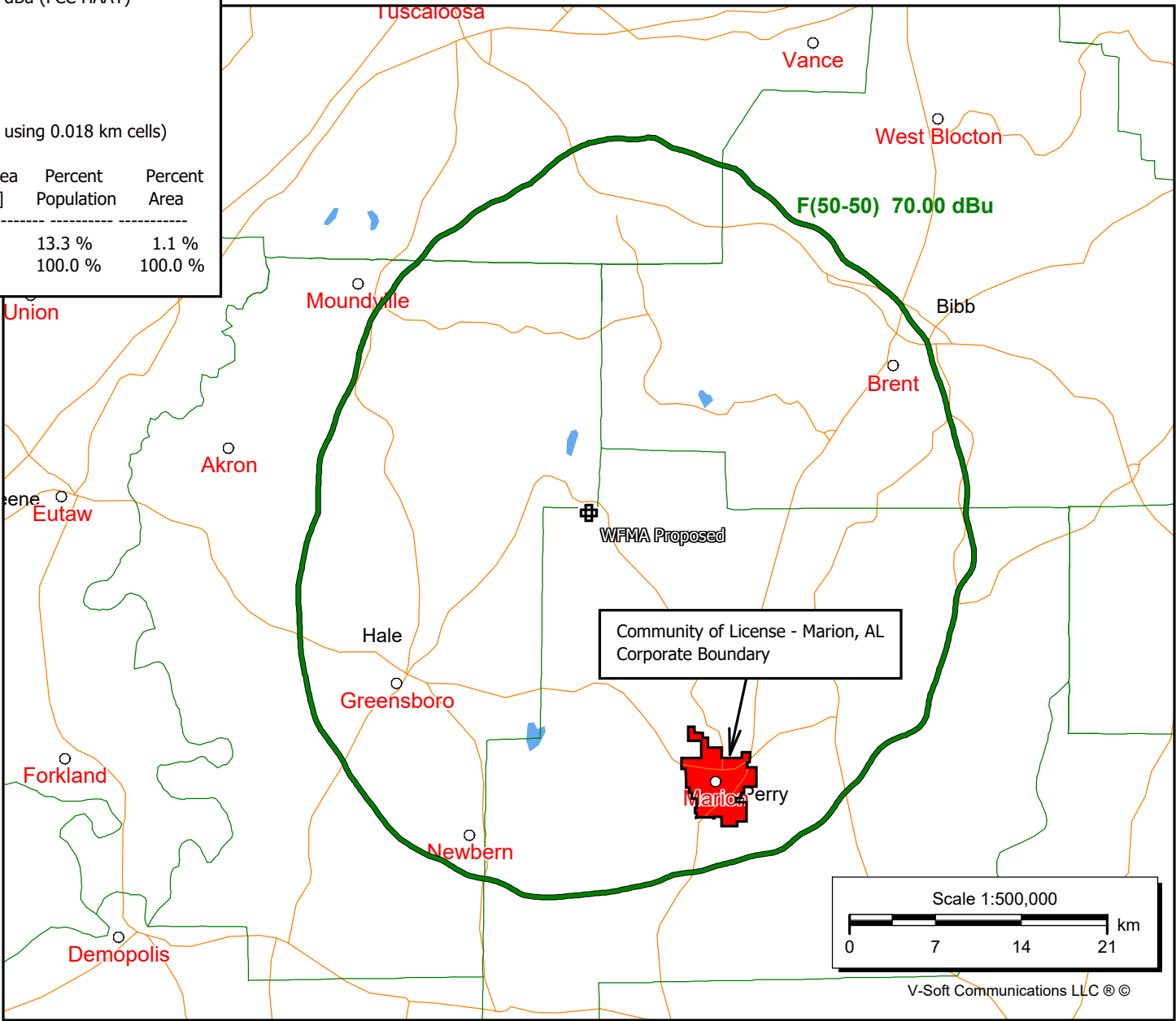
Overlap Area: 27.63 sq. km (Area determined using 0.018 km cells)

Area Description	Total Population	Total Area [sq. km]	Percent Population	Percent Area
WFMA Proposed (275):	23,865	2,564	13.3 %	1.1 %
PGON: Marion, AL	3,176	27.63	100.0 %	100.0 %

WFMA Community of License Coverage

Note: 100% of the Area and Population are contained within the 70dbu Service Contour

Exhibit 3



**WFMA Proposed**

BMLED20190607AAD  
Latitude: 32-49-46.30 N  
Longitude: 087-25-46.30 W  
ERP: 24.00 kW  
Channel: 275  
Frequency: 102.9 MHz  
AMSL Height: 299.0 m  
Elevation: 125.0 m  
Horiz. Pattern: Directional  
Vert. Pattern: No  
Prop Model: None

## **Environmental Protection**

### **Human exposure to excess levels of radiofrequency radiation.**

The proposed facility is to be built using an 8-bay full-waved EPA Type 3 Circularly Polarized ERI Rototiller Antenna, Model LP-8E-DA.

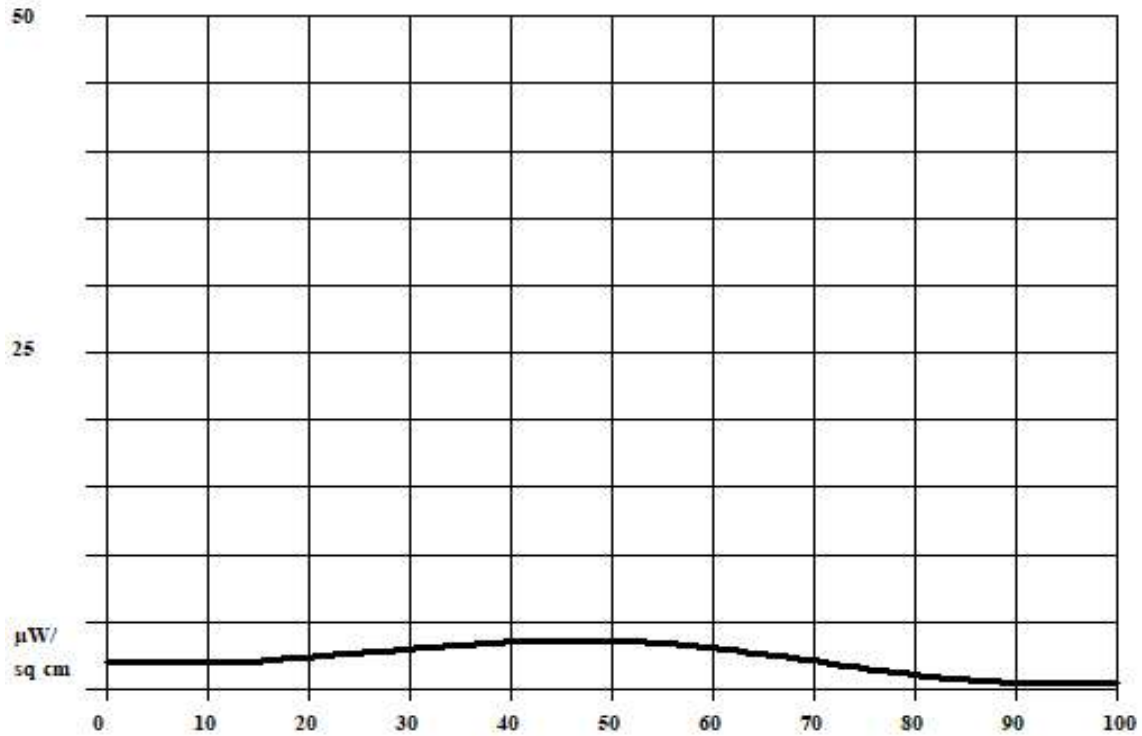
According to OET 65, "Applicants and licensees should be able to calculate, based on considerations of frequency, power and antenna characteristics the distance from their transmitter where their signal produces an RF field equal to, or greater than, the 5% threshold limit. The applicant or licensee then shares responsibility for compliance in any accessible area or areas within this 5% "contour" where the appropriate limits are found to be exceeded."

The proposed facility's maximum contribution to RF on the site is  $3.2\mu\text{W}/\text{cm}^2$  at a distance of 46 meters from the tower, which is 1.6% of the uncontrolled (public) exposure limit.

Therefore, because the proposed facility will not cause an RF field that is equal to or greater than 5% of the  $200\text{ uW}/\text{cm}^2$  limit for uncontrolled exposure at any point, the proposed facility complies with the requirements of OET 65.

EMF will fully cooperate with other site users to temporarily reduce power or cease broadcasting, as necessary, to protect workers and others having access to the site from excessive levels of RF Radiation.

Environment = Uncontrolled, Maximum = 200  $\mu\text{W}/\text{sq cm}$   
**ERI/JAMPRO JBCP "Roto" (EPA)-Type 3, 8 Bays, Spac= 1, H=24 kW, V=24 kW, 170.7 MA**



HORZ. DISTANCE FROM FM RADIATOR VS POWER DENSITY (Microwatt/Square cm)  
 Dist(Meters) PD (H) PD (V) Total( $\mu\text{W}/\text{cm}^2$ ) Percent Max.

0	0.83	0.83	1.65	0.8
1	0.83	0.83	1.65	0.8
2	0.83	0.83	1.65	0.8
3	0.83	0.83	1.65	0.8
4	0.83	0.83	1.65	0.8
5	0.82	0.82	1.65	0.8
6	0.82	0.82	1.65	0.8
7	0.82	0.82	1.65	0.8
8	0.82	0.82	1.65	0.8
9	0.82	0.82	1.65	0.8
10	0.82	0.82	1.64	0.8
11	0.82	0.82	1.64	0.8
12	0.82	0.82	1.64	0.8
13	0.82	0.82	1.64	0.8
14	0.82	0.82	1.64	0.8
15	0.82	0.82	1.64	0.8
16	0.85	0.85	1.70	0.8
17	0.88	0.88	1.76	0.9
18	0.91	0.91	1.82	0.9
19	0.94	0.94	1.88	0.9
20	0.97	0.97	1.94	1.0
21	1.00	1.00	2.01	1.0
22	1.03	1.03	2.07	1.0
23	1.06	1.06	2.13	1.1
24	1.10	1.10	2.19	1.1
25	1.13	1.13	2.25	1.1

Dist(Meters)	PD (H)	PD (V)	Total(uW/cm2)	Percent Max.
26	1.16	1.16	2.31	1.2
27	1.18	1.18	2.37	1.2
28	1.21	1.21	2.43	1.2
29	1.24	1.24	2.48	1.2
30	1.27	1.27	2.54	1.3
31	1.31	1.29	2.60	1.3
32	1.36	1.31	2.67	1.3
33	1.40	1.32	2.73	1.4
34	1.45	1.34	2.79	1.4
35	1.49	1.36	2.84	1.4
36	1.53	1.37	2.90	1.4
37	1.57	1.38	2.95	1.5
38	1.60	1.39	2.99	1.5
39	1.64	1.40	3.04	1.5
40	1.67	1.41	3.08	1.5
41	1.70	1.41	3.11	1.6
42	1.73	1.41	3.14	1.6
43	1.75	1.41	3.17	1.6
44	1.78	1.41	3.19	1.6
45	1.79	1.41	3.20	1.6
46	1.80	1.41	3.21	1.6
47	1.79	1.42	3.21	1.6
48	1.78	1.42	3.20	1.6
49	1.76	1.42	3.19	1.6
50	1.74	1.42	3.17	1.6
51	1.72	1.42	3.14	1.6
52	1.69	1.42	3.11	1.6
53	1.67	1.41	3.07	1.5
54	1.63	1.39	3.03	1.5
55	1.60	1.38	2.98	1.5
56	1.56	1.36	2.92	1.5
57	1.52	1.34	2.86	1.4
58	1.48	1.31	2.79	1.4
59	1.44	1.28	2.72	1.4
60	1.39	1.25	2.64	1.3
61	1.34	1.22	2.55	1.3
62	1.29	1.18	2.47	1.2
63	1.24	1.14	2.38	1.2
64	1.19	1.10	2.28	1.1
65	1.13	1.06	2.19	1.1
66	1.08	1.01	2.09	1.0
67	1.02	0.96	1.98	1.0
68	0.96	0.91	1.88	0.9
69	0.91	0.86	1.77	0.9
70	0.85	0.81	1.66	0.8
71	0.79	0.76	1.55	0.8
72	0.73	0.71	1.44	0.7
73	0.68	0.66	1.34	0.7
74	0.62	0.61	1.23	0.6
75	0.57	0.56	1.12	0.6
76	0.51	0.51	1.02	0.5
77	0.46	0.46	0.92	0.5



Dist (Meters)	PD (H)	PD (V)	Total (uW/cm2)	Percent Max.
78	0.41	0.41	0.82	0.4
79	0.36	0.36	0.73	0.4
80	0.32	0.32	0.64	0.3
81	0.28	0.28	0.56	0.3
82	0.24	0.24	0.48	0.2
83	0.20	0.20	0.40	0.2
84	0.17	0.17	0.34	0.2
85	0.14	0.13	0.27	0.1
86	0.11	0.11	0.22	0.1
87	0.09	0.08	0.17	0.1
88	0.06	0.06	0.13	0.1
89	0.05	0.04	0.09	0.0
90	0.03	0.03	0.06	0.0
91	0.02	0.02	0.03	0.0
92	0.01	0.01	0.02	0.0
93	0.00	0.00	0.01	0.0
94	0.00	0.00	0.00	0.0
95	0.00	0.00	0.00	0.0
96	0.00	0.00	0.01	0.0
97	0.01	0.01	0.02	0.0
98	0.02	0.02	0.03	0.0
99	0.03	0.02	0.05	0.0
100	0.04	0.04	0.07	0.0