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5 May 1981

Dr. N.H.Baker,
Editor, The Astronomical Journal,
Columbia University,
Pupin Building,
New York, NY 10027.

Dear Dr. Baker,

I enclose two copies of the manuscript of the article HIGH RESOLUTION OBSERVATIONS OF THE X-RAY GALAXY NGC 3862 (3C 264) IN ABELL 1367, which has been revised after consideration of the referee's comments.

We have commented on the 20cm polarization of the extended structure, and have rationalised the units for electron densities and luminosities, as requested by the referee. We have also rephrased our comment about 3C 286 as a polarization calibrator so as not to give the erroneous impression that the degree of polarization of this source was assumed.

On the major point about follow-up observations, we regret that the 6cm data from the VLA will not be available in the near future. While the referee is correct in saying that 6cm VLA data would provide higher resolution, it is not quite true to say that only a few scans would resolve the issues about the central structure. The problem is one of dynamic range; the unresolved core will be proportionally more dominant in a high-resolution 6cm map and a fairly complete synthesis with the VLA at 6cm is required to obtain the dynamic range that is needed. We proposed such an experiment for the VLA in the appropriate configuration this year, but unfortunately in the extreme pressure for VLA time it was not scheduled. As the VLA cycle of configurations is approximately 12 months long, it will be another year before the proposal can be reconsidered.

Although the 20cm data by themselves cannot distinguish between the two models we have discussed, one of them is a new model (which the referee has found "interesting" - report, para.2). We believe that the unusual nature of the radio structure, and the possibility that it represents a rare class of diffusion-dominated morphology, will be of sufficient interest to radio astronomers to merit publication on their own. These VLA results will also complement the lower-resolution Westerbork data (reference to Gavazzi and Perola) which are about to be published, in defining the radio properties of a system now of considerable interest to X-ray astronomers (e.g. the reference to Elvis et al. 1981). We therefore feel that it would be inappropriate to delay dissemination of these VLA results until the follow-up work at the VLA again can compete for observing time a year from now.

While I share your concern for the fragmentation of the burgeoning literature on extragalactic radio sources, I am also concerned that this is a case where only the VLA can settle some issues that have been raised by new VLA observations. The 12-month cycle of VLA configurations can therefore, as in this case, introduce very significant delays between the raising of new questions and their settlement by further VLA observations. The VLA configurations with the appropriate resolution to follow up on this work will not become available again until the Spring of 1982. Even then it will be difficult to ensure that the follow-up can be scheduled as the dynamic range requirement does unfortunately mean that the referee is not quite correct in implying that only a small amount of VLA time would be needed. (This was in fact precisely the reason given by the VLA scheduling committee for deferring the proposal).

In these circumstances we feel that the data which have raised these questions about diffusion-dominated morphology should be publicly presented even though not all of the answers to them are clear. We hope that you will agree with us and that the revised manuscript will therefore be accepted for publication in the Astronomical Journal.

Yours sincerely,

AHBridle

Dr A. H. Bridle

THE ASTRONOMICAL JOURNAL | COLUMBIA UNIVERSITY
PUPIN BUILDING | NEW YORK 10027

28 April 1981

Dr. Alan H. Bridle
National Radio Astronomy Observatory
VLA Program
P.O. Box 0
Socorro, New Mexico 87801

Dear Dr. Bridle:

The paper, HIGH RESOLUTION RADIO OBSERVATIONS OF THE X-RAY GALAXY NGC3862 (3C264) IN ABELL 1367, was sent to a competent referee. I am returning your paper, together with his report, for your consideration.

The referee's suggestion that a small amount of additional data might have made the results more conclusive does concern me. If there is any chance that you will have these data available in the near future, I think that they should be combined with what's in this paper. I realize that there may be reasons you cannot follow the referee's suggestions, but I hope you'll seriously consider them. Anyone who has tried to review an observational field which is (or once was) very active knows the frustrations of dealing with a fragmented literature. Whenever possible I try to discourage such fragmentation, and I offer these suggestions in this light.

Yours sincerely,

Norman Baker

N.H. Baker
Editor

P.S. Please return two copies of your revision.

Referee's Comments on the paper "High-Resolution Radio Observations of the X-Ray Galaxy NGC 3862 (3C264) in Abell 1367" by A.H. Bridle and J.P. Vallée.

This paper contains some interesting, though inconclusive, discussion of the physical parameters of an extended cluster radio source. This referee questions whether such a lengthy discussion of the minutiae of the radio morphology is really of interest when, after all is said, the radio details do not support any one convincing physical model.

Only a very few VLA scans at λ6 cm would have provided 3x their best resolution to give possibly crucial information about the structure of the core radio component and its $\gtrsim$3" extension. Also, they omit any discussion of the polarization found in the plateau region although the reader infers from p.5 (middle) and p.8 (bottom) that linear polarization maps were produced. Even "first-order" results of the linear polarization of the plateau might have been useful in complementing their interesting discussion of the diffusion model (pp. 11-15), in that it says something further about n_e and $\vec{B}$, both of which they have estimated from other considerations (X-Ray, confinement and ram pressure), and assumptions (eg. equipartion, and equal proton and electron energies).

These foregoing remarks suggest that the paper was perhaps written prematurely, since a marginal addition of the right kind of radio data would have made their analysis much more interesting and definitive. I suggest that the authors consider:

Letter

1. abbreviating the discussion on pages 5-10 if in fact they intend to submit another paper containing the obvious missing crucial radio data (eg. $\lesssim$1" structure of the core, radio polarization at one or more λ's) since at that stage the discussion would be more conclusive and therefore of more interest, and 2. including some comment on the 20 cm. polarization of the extended structure, even if this only says that they don't have a result.

JPV?

Some more minor comments on the text:

p. 5 In principle, the percentage of linear polarization of 3C286 should be determinable from 9 near-transit observations. Only the position angle needs to be assumed.

✓

p. 5 Fourier "transformations" rather than "methods" is more explicit.

×

Table III. Electron densities and energies should be expressed in consistent units. Use either ergs and cm as in the text, or joules and meters throughout.

✓

Center for Astrophysics
60 Garden Street
Cambridge, Massachusetts 02138

Harvard College Observatory
Smithsonian Astrophysical Observatory

20 March 81

Dear Alan,

Thanks for your preprint on 3C264. I've just got two comments: Firstly, would you quote the x-ray position errors of ±10" (systematic, mainly) in table 2. done ✓ Secondly, it wasn't clear to me that the limit on diffuse x-ray emission which you quote from my paper was a limit on the excess over the diffuse cluster emission, which we also see. For this diffuse cluster emission at ~2 arcmin from 3C264 I find $\sim 1 \times 10^{-13}$ erg cm^{-2} s^{-1} $arcmin^{-2}$ from the HRI assuming a temperature of 3keV. This is a line of sight integration of course so I leave the assumptions to convert to a volume emissivity up to you.

I hope this is useful for you,

cheers,

Martin Elvis.

3C264 cluster emission

Whole cluster (J. et al) $L = 4.53 \times 10^{43}$ erg/s ($H_0 = 50$)
$= 1.13 \times 10^{43}$ ($H_0 = 100$)

Take $a = 15' \equiv 270$ kpc ($H_0 = 100$)
$T = 1.7 \times 10^7$
Standard bremss. form $\Rightarrow 10^{-3}\ cm^{-3}$ at center
$\Rightarrow 7 \times 10^{-4}\ cm^{-3}$ at 3C264

Elvis Letter $S = 10^{-13}$ erg/cm²/arcmin²
D at $H = 100 \Rightarrow 64.8$ Mpc
$L = 5 \times 10^{33}$ watts/arcmin²

L.O.S. $15' = 270\ kpc \times 2$
$1' = 18$ kpc

emissiv ~ $\frac{5 \times 10^{33}}{270 \times 18^2 \times 2} = 2.85 \times 10^{28}\ W/kpc^3$
$= 0.95 \times 10^{-30}\ W/m^3$

$\Rightarrow$ Ne ($T = 1.7 \times 10^7$) ~ $10^{-3}\ cm^{-3}$ at 3C264

Conclude $n \sim 8 \times 10^{-4}\ cm^{-3}$ at 3C264 due to ICM.

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a European Journal

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Journal des Observateurs
Zeitschrift für Astrophysik
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Telex: 96 753

Göttingen, January 5, 1981

Dr. J.P. Vallée
Herzberg Institute
100 Sussex Drive
Ottawa, Ont.
Canada KIA OR6

Ref.: Your letter of December 11, 1980

Dear Dr. Vallée,

We are giving you herewith the permission to reproduce the figures published in our journal, and we would appreciate it if you would acknowledge the source of the material:
WITH PERMISSION FROM ASTRONOMY & ASTROPHYSICS.....

Sincerely yours,

on behalf of H.H. Voigt
U. Butkereit

3C264

WSRT figure in HÖGBOM and CARLSSON

Sponsored by Belgium, Denmark, Finland, France, Germany, Greece, Italy, The Netherlands, Norway, Sweden and Switzerland
produced and distributed by Springer-Verlag for E. S. O.

3C264 calcⁿ: $H_0 = 100$, AHB King-sphere brems. formula

$$L_x = 4.92\times10^{-27}\, g T^{1/2}\left[\exp(-E_1/kT) - \exp(-E_2/kT)\right] a_c^3 N_0^2 \text{ erg.s}^{-1}$$

Take $T = 1.3\tau$ keV $= 1.51\tau\times10^7$ K

$[\quad] = 0.581$ for $E_1 = 0.5$ keV, $E_2 = 3.0$ keV, $T = 1.3$ keV

$$\Rightarrow L_x = 1.11\times10^{-23}\, g\, a_c^3 N_0^2 \tau^{1/2} \text{ erg.s}^{-1}$$

Taking $g = 1.2$ (Tucker, p.206), $a_c = 18a$ kpc $= 5.55a\times10^{22}$ cm

$L_x < 1.9\times10^{41}$ erg.s^{-1} (Elvis et al. 1981 preprint)

$$\Rightarrow N_0^2 < \frac{1.9\times10^{41}}{(1.11\times10^{-23})\times1.2\times(5.55\times10^{22})^3}\, a^{-3}\, \tau^{-1/2} \text{ cm}^{-6}$$

$$< 8.34\times10^{-5} \text{ cm}^{-6}$$

i.e. $N_0 < 0.0091$ cm^{-3} $[a^{-3/2}\tau^{-1/4}]$ Note: this is central electron density.

$$V_A = \frac{B}{\sqrt{4\pi\rho}} > \frac{1.1\times10^{-5}}{\sqrt{4\times\pi\times0.0091\times1.66\times10^{-24}}} > 2.52\times10^7 \text{ cm.s}^{-1}$$

$V_A > 252$ km.s^{-1} $[a^{3/4}\tau^{1/8}]$

$$\frac{nkT.8\pi}{B^2} < \frac{0.0091\times1.38\times10^{-16}\times1.51\times10^7\times8\pi}{(1.1\times10^{-5})^2} < 3.95 \quad [a^{-3/2}\tau^{3/4}]$$

PLATEAU

nT for Xray source around 3C264 must be $< 3.0\times10^{4}$ ~~dyne~~ $cm^{-3}K$.

If $T \sim 1.51\times10^{7}\,\tau$

n_e must be $< \dfrac{3.0\times10^{4}}{1.51\times10^{7}\tau}$ in order not to confine source

$$\Rightarrow \quad \underline{n_e < 0.002\ cm^{-3}}$$

This → tighter limits than n_e from L_x ($<0.009\ cm^{-3}$).

If put $p = nkT$, $\quad p_{min} = 1.38\times10^{-16} \times 3\times10^{4}$

$$= 4.1\times10^{-12}\ dyne.cm^{-2}$$

If want ρv^2 to confine/constrain

Need $v^2 > \dfrac{4.1\times10^{-12}}{.009\times1.66\times10^{-24}} > 2.7\times10^{14}$

$$v_g > 1.66\times10^{7}\ cm/s, \text{ i.e } v > \underline{\underline{166\ km.s^{-1}}}.$$

Consistent model

$n_e \sim 10^{-3}\ cm^{-3}$ $\qquad n_eT \sim 1.5\times10^{4}\ cm^{-3} \Rightarrow 2\times10^{-12}\ d/cm^2$

$T \sim 1.5\times10^{7}\ K$

$v_g \sim 300\ km.s^{-1}$ $\qquad \rho v^2 \sim 1.5\times10^{-12}$

$v_d \sim 630\ km.s^{-1}$

$B \sim 1.1\times10^{-5}$

$$\Rightarrow v_A \sim 760\ km.s^{-1}$$

1.) Taking Jacques' formula:-

$$L_X\ (2\text{-}10\,keV) \sim 6.2\times10^{41}\left(\frac{SIZE}{500pc}\right)^3 T_9^{1/2}\, n_{cm}^2 \quad erg/sec$$

Put SIZE = 50 kpc

$n = 10^{-3}\,cm^{-3}$

$T_9 = 0.01 \quad (10^7 K)$ (Mushotzky et al. 1978, ApJ, 225, 21 $\rightarrow$ 1.3 keV $\equiv 1.5\times10^7$ K

$$L_X = 6.2\times10^{40}\left(\frac{SIZE}{50kpc}\right)^3 T_7^{1/2}\, n_{-3}^2 \quad erg/sec$$

Hence, observing $(2.0\pm0.2)\times10^{42}$ erg/sec from NGC3862 vicinity implies:

$$\left(\frac{SIZE}{50kpc}\right)^3 T_7^{1/2}\, n_{-3}^2 = 32.3$$ [i.e. $n_{-3} = 5.7$ for $T=10^7$, SIZE = 50 kpc]

i.e. $$V_A = \frac{B}{\sqrt{4\pi n_{-3}\times1.66\times10^{-27}}}$$

$$= \frac{9\times10^{-6}}{\sqrt{2.08\times10^{-26}}\sqrt{n_{-3}}} = \frac{6.23\times10^7}{\sqrt{n_{-3}}} = \frac{6.23\times10^7\, T_7^{1/8}\,(SIZE)^{3/4}}{(32.3)^{1/4}\,(50kpc)^{3/4}}$$

$$V_A = 2.6\times10^7\, T_7^{1/8}\left(\frac{SIZE}{50kpc}\right)^{3/4} cm.s^{-1}$$

J.P.V. formula $\Longrightarrow$ $$\boxed{V_A = 260\, T_7^{1/8}\left(\frac{SIZE}{50kpc}\right)^{3/4} km/s}$$

$T \sim 10^8$

SIZE ~ 100kpc $\Rightarrow V_A \sim 583$ km/s

~~Kniss et al 1.16×10^-24~~ ⇗

2) Isothermal sphere at 7.0 keV [8.12×10^7 K] Henry et al. [Ap.J., 234, L15 (1979)]

$\rightarrow L_X[0.5, 4.5] = 5.37\times10^{-24}\, n_0^2 a^3 \; erg.s^{-1}$

n_0 = central density cm^{-3} [ions + e^-] = 2Ne

a = core radius in cm.

$n_0 \sim 10^{-3}\times5.7\times2^{3/2} = 1.6\times10^{-2}$

$a \sim 50kpc \sim 1.54\times10^{23}$ $\Rightarrow L_X = \underline{1.76\times10^{42}}$ erg/s ~ O.K. ✓

$T \sim 10^7$

2) Taking formula for L_x from Henry et al., Ap. J., 234, L15 (1979) and adapting to $T \sim 1.5$ keV

H=100 version in green

$$L_x(0.5, 3.0) = 5.5 \times 10^{40}\, n_0^2\, a_{kpc}^3\, T_7^{-1/2}\ \text{erg.s}^{-1}$$

For 3C264/NGC 3862, take $T = 1.3$ keV $= 1.5 \times 10^7$ K

$a = 50$ kpc — 18 kpc

$L_x = 2.0 \times 10^{42}$ — 1.9×10^{41}

$n_0 = 1.54 \times 10^{-2}$ (electrons + ions) / cm^3 — 2.2×10^{-2}

$$n(12) = n(0) \Big/ \left[1 + \left(\tfrac{12}{50}\right)^2\right]^{3/2} = 1.42 \times 10^{-2}$$

Hence $\langle n \rangle \sim 1.5 \times 10^{-2}\ cm^{-3}$ (electrons + ions)

$\langle n_e \rangle \sim 7.5 \times 10^{-3}\ cm^{-3}$ — 1.1×10^{-2}

$$V_A = \frac{B}{\sqrt{4\pi\rho}} \qquad \rho \sim 7.5 \times 10^{-3} \times 1.66 \times 10^{-24} = 1.25 \times 10^{-26}\ \text{gm.cm}^{-3}$$ — 1.84×10^{-26}

$$V_A = 228\ \text{km.s}^{-1} \Rightarrow \boxed{228\, T_{1.3}^{1/8}\, a_{50}^{3/4}}$$

$$\text{Holman's } \beta = \frac{nkT \cdot 8\pi}{B^2} \sim \frac{1.5 \times 10^{-2} \times 1.38 \times 10^{-16} \times 1.51 \times 10^7 \times 8 \times \pi}{(9 \times 10^{-6})^2}$$

$$= 9.7\, a_{50}^{-3/2}\, T_{1.3}^{3/4}$$

$$\text{Ion sound speed } v_I = \sqrt{\frac{kT}{m_H}} = 353\sqrt{T_{1.3}}\ \text{km.s}^{-1}$$

National Research Council Canada | Conseil national de recherches Canada

Herzberg Institute of Astrophysics | Institut Herzberg d'astrophysique

File Référence

OTTAWA, 12 DEC. 1980

DEAR ALAN,

THANK YOU FOR THE FINAL VERSION ON 3C264. PLEASE SEND IT TO ANY JOURNAL, AS I HAVE NO MORE COMMENTS TO MAKE!

SINCERELY,

Jacques Vallée

P.S. #1: NO ANSWER HAS BEEN RECEIVED FROM GAVAZZI, RE: 3C264.

2: I HAVE ALREADY WRITTEN TO ESO FOR PERMISSION ON FIGURE 1.

3: HÖGBOM + CARLSSON (FIG.1) HAD A HPBW = 23" X 68"

4: PLEASE ADD MY NEW ADDRESS ON THE TITLE PAGE (i.e. QUEEN'S + HIA).

5: I APPRECIATED VERY MUCH WORKING WITH THE GREAT ALAN H. BRIDLE!

originals!!!!

ENCL.: ORIGINAL FIGURES FOR 3C264.

" : LATEST ARTICLE ON H_0 ($\ll$ 64 KM/SEC/MPC). — crap

Ottawa, Canada
K1A 0R6
Telex 053-3715
Télex 053-3715

Interoffice

National Radio Astronomy Observatory

Very Large Array

6 Nov 80

To: Jacques

From: Alan

Subject: 3C264 redraft

Here is a redraft of the 3C264 paper, without revised Figure captions, or Figures, which will follow later.

I hope this is now getting near to the finish. I will alwait your further comments.

Once we get into December I will be very tied down with other commitments. I have two observing runs in December, plus a trip to Charlottesville in mid-December for an Advisory Committee Meeting. Then at the beginning of ~~xxxxx~~ January I will be involved with the AAS Meeting, and the Jet Workshop in Albuquerque, followed by the Kitt Peak Workshop on Active Galaxies. I have to prepare invited talks for the Albuquerque and Kitt Peak meetings. November is therefore the last chance to get revisions of papers done for a while. Be warned !

Alan

November 5, 1980

Dr. G. Gavazzi
Laboratorio di Fisica Cosmica
e Technologie Relative del C.N.R.
via Bassini 15
I-20133 Milano
ITALY

Dear Dr. Gavazzi:

Re: 3C264 = NGC3862

Hi! How are you? I have not heard from you since we met in December 1979 at the VLA site in New Mexico. At that time, Bridle and I were observing 3C264 for twelve hours at λ20 cm. We gave you copies of our VLA maps, and you gave us copies of your WSRT maps on 3C264.

Bridle and I are now writing the data paper on our VLA observations of 3C264, and we were wondering if we could reproduce one map (with due credits) from Westerbork. Specifically, we would like to add the total intensity (Stokes I) WSRT map at λ21 cm (showing the two trails), either from Gavazzi and Perola (in press) or from Högbom and Carlsson (1974).

Would it be possible to reproduce in our VLA paper such a WSRT map at λ21 cm (Stokes I), for comparison with our VLA maps at λ20 cm (Stokes I) using various tapers?

Please accept, dear Dr. Gavazzi, the expression of my best and sincere sentiments.

Cheers,

JPV/ih

Jacques P. Vallee

Interoffice

National Radio Astronomy Observatory

Very Large Array

To: Jacques

10 Sept 1980

From: Alan

Subject: 3C264

Here is my redraft of 3C264. I don't see how to obtain D & E in our energy range, and have significantly rewritten the diffusion discussion with that in mind. I also have different detailed numbers throughout. I hope we can negotiate a compromise version at the next iteration. I have deliberately downplayed the twin-trail interpretation as it is so complex and ad hoc.

Model viability - 3C264.

a) must not exceed L_x
b) must not overconfine source thermally
c) must not overconfine source by ram pressure
d) must permit $v_d \sim 630\ km.s^{-1}$.

(a) requires $N_0 < 0.0091\ a^{-3/2}\tau^{-1/4}$ i.e. $N_0 < 9.1\times10^{-3}\ a^{-3/2}\tau^{-1/4}\ cm^{-3}$

(b) requires $N_0\tau < 0.002$ $< 2.0\times10^{-3}\ \tau^{-1}\ cm^{-3}$

(c) requires $N_0 v_g^2 < 2.47\times10^{12}$ $< 2.7\times10^{-3}\ \mathcal{V}^{-2}\ cm^{-3}$

Put $v_g = 300\mathcal{V}\ km.s^{-1}$, $N_0\mathcal{V}^2 < 0.0027$

STOCKHOLMS UNIVERSITET

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6 aug 80

J P Vallée
Physics Dept Queens U.
Kingston Ont. Canada K7L 3N6

Dear Jacques,

Thanks for your letter about 3C 264 which I found on returning from my summer vacation. I'm sending an acceptable copy of our 1415 map. You may be interested in the enclosed 4995 MHz map of the same source. Ingemar C produced that from a series of measurements we made at 5 hour angles only per source - so don't believe every wriggle! I have no pretty version of this at present. it shows the usual Xerox blank where the contours get crowded.

GLOSSY, AS PUBLISHED

Best wishes + greetings also to Alan B

Jan Högbom

Jan Högbom

16 Sept. '80

Q.: HOW THE FLUX DENSITY $S_\nu(0)$
FOR "3C264 – PLATEAU"
WAS OBTAINED:

A.: Large Errors result in decontaminating trail from plateau at WSRT resolution

1) Spectral Index of: $S \sim \nu^{-0.8}$
→ taken from average of Gavazzi (at many points).

2) $\frac{(\text{VLA data}_{\lambda 21cm}) + (\text{WSRT data}_{\lambda 21cm} \text{ of Högbom+Carlsson})}{2} = 2.5\ \text{Jy}\Big|_{\lambda 21cm}$

→ component of HÖGBOM+Carlsson λ21 - has 3.0 Jy but contains POINT CORE and SMALL-JET } $S_{DISK} = 2.6$ Jy

→ N.B.: VLA map has a low level contour about equal to that near the beginning of the two TRAILS } remove it (1 Jy) to get DISK ONLY

ie: 3.4 Jy (DISK + low level contour)
1.0 Jy (low level contour)
2.4 Jy (DISK ONLY) } Large Errors!

FLUX in Extended DISK

λ49cm WSRT: Gavazzi has no scale for contours } but they give $\alpha^{610}_{1415} \simeq -0.7$

λ20cm WSRT: Gavazzi has no scale for contours

λ6cm WSRT: Gavazzi has no scale for contours!

DISK FLUX

→ WSRT Högbom + Carlsson '74 (1415 MHz): (3.04 ± 0.1) Jy = (PT-CORE + 3"-JET + 2'-DISK) → (2.6 Jy ± 0.2)

→ VB '81 (1465 MHz): (3.4 Jy ± 0.4) Jy = (DISK + overall base of 1.0 Jy) → 2.4 Jy ± 0.4 Jy

N '76 (2695 MHz): scale in (°K) X too dangerous —
[4 Jy ± 3 Jy (meaningless)
↳ ⟨T_B⟩ = rms noise ×1

N '76 (50 MHz): not enough levels —
↳ ⟨T_B⟩ = rms noise ×1

TOTAL FLUX

TRAIL FLUX (DIFF. OF TOTAL and SUMS)

WSRT HÖGBOM + CARLSSON '74 (1415 MHz): (5.50 ± 0.2) Jy →

3CR Cat.: (K, PT, W, '69) → S_{38MHz} = 96 Jy ± 10 (HPBW = 45') →

S_{178MHz} = 26 Jy ± 2 (HPBW = 23')

S_{750MHz} = 9.2 Jy ± 0.5 (HPBW 18')

$S_{1400MHz}$ = 5.8 Jy ± 0.6 (HPBW 10') — $5.8 - 2.5_{DISK} - 0.4_{NUC} = 2.9$

$S_{2695MHz}$ = 3.24 Jy ± 0.2 (HPBW 11')

$S_{5000MHz}$ = 2.00 Jy ± 0.1 (HPBW = 6')
↑ (?)

FLUXES

RADIO COMPONENTS OF 3C264

	α_{21cm}		LOCATION	S_{21cm} FLUX DENSITY,	ANG. SIZE MAJOR	ANG. SIZE MINOR
a)	0±0.2	POINT-CORE	GALAXY NUCLEUS	250 mJy ±50	< 0.1 arcsec	<0.1 arcsec
b)	0±0.2	3"-JET	GALAXY NUCLEUS	140 mJy ±50	PA=19°; [illegible] arcsec	< 1 arcsec
c)	-0.8±0.2	2-ARCMIN DISK	INTERSTELLAR MEDIUM	(2.5 Jy) ±0.5	2 arcmin	2 arcmin
d)	-1.1±0.4	12-ARCMIN TRAIL	BEHIND OPTICAL HALO	Jy ±0.5	PA=70°; 12 arcmin	2 arcmin

TOTAL: -0.8±0.1

2-b

5.5 Jy ±0.4

OPTICAL COMPONENTS OF NGC3862

ORIGIN	COLOUR	LIMITING MAGNITUDE	ANG. SIZE MAJOR	ANG. SIZE MINOR
BLUE PSS	BLUE	—	1,0 arcmin	1,0 arcmin
RED PSS	RED	—	1.3 ARCMIN	1.3 ARCMIN
SURFACE PHOTOMETRY	λ0.35μ	$28{,}7^m/''^2$	8,5 ARCMIN	7,5 ARCMIN
SURFACE PHOTOMETRY	λ0.63μ	$27{,}3^m/''^2$	9,5 ARCMIN	8,5 ARCMIN

X-RAY COMPONENT OF 3U1144+19

	WAVELENGTH	ANG. SIZE
NUCLEUS	10Å	<7 arcsec