

ON CERTAIN SUBMANIFOLDS OF CODIMENSION 2 OF AN ALMOST TACHIBANA MANIFOLD

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Dedicated to Professor Kentaro Yano on his sixtieth birthday

§0. Introduction.

Blair, Ludden and Yano [1] introduced a structure which is naturally induced on a submanifold of codimension 2 of an almost complex manifold. Yano and Okumura [6] introduced what they call an (f, g, u, v, λ) -structure and gave characterizations of even-dimensional sphere. In a previous paper [5], Yano and the present author proved that

THEOREM A. *Let M be a complete manifold with normal metric (f, g, u, v, λ) -structure satisfying*

$$(0.1) \quad (dv)_{ji} = 2cf_{ji},$$

or, equivalently

$$(0.2) \quad \mathcal{L}_u g_{ji} = -2c\lambda g_{ji},$$

where c is a non-zero constant on M . If $\lambda(1-\lambda^2)$ is an almost everywhere non-zero function and $\dim M > 2$, then M is isometric with an even-dimensional sphere.

In the present paper, using theorem A, we study submanifolds of codimension 2 of an almost Tachibana manifold \tilde{M} .

In §1, we recall the properties of (f, g, u, v, λ) -structure of a submanifold of codimension 2 in \tilde{M} and find differential equations which the induced (f, g, u, v, λ) -structure satisfies.

We study in §2 totally umbilical submanifolds of codimension 2 of \tilde{M} and in §3 submanifolds of codimension 2 of 6-dimensional sphere S^6 .

§1. Submanifolds of codimension 2 of an almost Tachibana manifold.

In this section, we recall some properties of submanifolds of codimension 2 in an almost Tachibana manifold as examples of the manifold with (f, g, u, v, λ) -structure (cf. [5], [6]). Let \tilde{M} be a $(2n+2)$ -dimensional almost Tachibana manifold covered by